WORK STRESS AND COPING STRATEGIES:

A study of perceived stress among production workers in an Algerian glass works.

By

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Men are disturbed not by things, but by the views they take of them.

Epictetus

Any solution offered (about stress) at the present time, however, must be premature and incomplete, and should be treated as of heuristic rather than definitive value, as a point for debate rather than as an article of faith.

T. Cox
The present research was designed to investigate the relationships among perceived work stressors, coping strategies and psychological strain. To further the analysis of the stressor-coping-strain relationships, the hypothesized main effects, mediating and moderating roles of personality dimensions (i.e. Type A behaviour pattern, locus of control and self-esteem), socio-demographic characteristics (i.e. age, marital status, education, tenure, and income), and contextual variables (i.e. participation, supportive relationships and family-work interface) were examined.

Literature review highlighted the paucity of researchers' concern with the production workers' stress and coping; the almost absence of stress and coping studies in the developing societies in general and Algeria in particular; and the lack of multivariate approach to the stressor-coping-strain relationships.

Following the performance of a pilot study on a sample of 40 workers, the main study was designed and carried out in a glass-works in Algeria. The sample interviewed (using structured interviews) consisted of 110 full-time male production workers.

Multivariate analysis of the data generally showed that:
- Experience of work stressors originating from role conflict, task, pay, communications, career, and role overload was related to increased anxiety, depression, dissatisfaction and psychosomatic complaints (strain indices).
- What makes most difference in the prediction of strain indices is not what people are (i.e. personality and socio-demographic characteristics), but rather, what they experience (i.e. perceived work stressors and contextual variables) and what they do (i.e. coping strategies).
- Coping strategies (particularly "Withdrawal" and "Evaluation"), contextual variables, and personality variables (particularly, Type A behaviour and self-esteem) exert a mediating effect upon the work stressor-strain relationships, so that the aversive effect of experienced work stressors on strain is attenuated (e.g., by self-esteem and supportive relationships) or exacerbated (e.g., by withdrawal, Type A behaviour, and lack of participation).
- The moderating role of coping strategies, contextual variables and personality was not supported. Socio-demographic variables were neither significant moderators nor mediators of the stressor-strain relationships.

Results were discussed and implications examined.
In the completion of this research, I was fortunate to receive the help of some individuals.

First and foremost, it is a pleasure to acknowledge the help, encouragement and guidance of my research supervisor Russell P. Wicks, throughout. His readiness to advise, discuss and constructively criticize was second to none. I would like to express my deep gratitude to him for his gifts of time, effort and knowledge.

My heartfelt thanks are also extended to Mr Sean Hamond for help with computing.

To single out for praise any single colleague is to risk offending him, I must however thank Mokdad Khalifa and Benchohra Kadda for helping in the translation of the questionnaire measures into the local language, and Bouhmama Djillali for the proofreading.

Of course, none of these individuals should be held accountable for the research shortcomings and deficiencies as full responsibility for the thesis rests solely with the researcher.

I would like to thank the personnel of the research setting (E.NA.VA Unité: Verre, ORAN), the workers who gladly accepted to be interviewed, and the Algerian Ministry of Higher Education for the scholarship.

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To

MY PARENTS

who inspired me
how to commence
in life...

To

MY WIFE

who inspired me
how to continue
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The chief objective of the present research is to examine the relationships of perceived work stressors to perceived strain, and the role of coping strategies in the stressor-strain relationship. To avoid a simplistic approach and to gain a more realistic and informative picture of the stressor-coping-strain relationship, the analysis will be furthered by addressing the role of some personality dimensions (i.e. Type A behaviour pattern, locus of control and self-esteem), socio-demographic characteristics (i.e. age, marital status, education; income, and tenure) and contextual variables (i.e. family-work interface, participation and supportive relationships).

Therefore, before presenting the research problem and hypotheses in Chapter V, a critical examination of the literature regarding the stress concept and models (Chapter I), perceived work stressors and strain (Chapter II) and coping strategies (Chapter III), is performed. Review of significant literature aims at: (1) Identifying those aspects of relationships insufficiently studied; (2) Confronting the findings of various empirical research concerning a particular relationship to find out where they converge and where they diverge; (3) Examining, as far as possible, strengths and weaknesses of the research methods in the literature; and (4) Identifying the type of occupational levels and the nature of the socio-cultural contexts that are seldom investigated.

On the basis of the critical examination of the literature (Chapters I through III), consideration of the macro-social, economic, and cultural characteristics of the Algerian society forming the context of research setting (Chapter IV), and the formulation of the research problem, objectives and hypotheses (Chapter V); a pilot study is carried out (Chapter VI). The raison d'être of the pilot study is to develop and refine the design, data collection techniques and interview procedures of the main study.
The remaining chapters of the thesis concern the main study. The method adopted is presented in Chapter VII, results in Chapter VIII, discussion in Chapter IX, and conclusions in Chapter X.

In the chapter of the main study method, a detailed account of the sample characteristics, interview schedule, translation procedure, questionnaire measures and data-analysis techniques will be provided.

In order to achieve a clear-cut presentation of the material, "results" and "discussion" are broken down into two chapters: The result chapter is devoted to the description of the findings and the consideration of the hypotheses in the light of the results. On the other hand, the discussion chapter has three objectives: First, Confrontation of the present study findings with the stress and coping evidence reported in the literature; Second: Interpretation of the findings; and third: Integration of the present research evidence.

Finally, the chapter of conclusions examines the practical implications of the findings for the research setting in particular, and the Algerian industrial organizations in general; and the conceptual and methodological limitations of the present research. It is worth mentioning that the implications involve suggestions and recommendations for the prevention and management of occupational stress by the organization.
CONCEPT AND MODELS OF WORK STRESS.

Our language, in fact, is only approximate and even in science it is so indefinite that if we lose sight of phenomena and cling to words, we are speedily outside of reality.

Claude Bernard
1.1 DEFINING "STRESS"

Defining a problematic concept such as "stress" creates some logical problems. It can be argued that designing a definition for "stress" contradicts its raison d'être, because it brings a premature closure to the ability of the concept to exhaust different perspectives of researchers from various conceptual orientations. It is a rule rather than an exception that concepts in social sciences acquire, over time and across models and theories, diverse connotations that cannot be sufficiently and accurately conveyed by means of definitions.

Shall one then seek a definition of "stress"? It is perhaps more worthwhile, instead of providing a definition, to seek how to pose the matter properly.

1.1.1 "STRESS" REFERENTS.

Before addressing a sample of stress definitions, it is worth examining, beforehand, some preliminary questions: what is the basic referent of the term "stress"? What kind of phenomena does the term refer to? Is it used to indicate situational demands, intervening processes, or reactions? In answering these questions, four tendencies can be identified:

(i) The first tendency employs the term "stress" to designate the situational demands that act upon an individual, and "strain" to indicate the state, reaction, or resulting conditions. Singleton (1973) adopts "the engineering convention of using stress in the sense of the stressor and strain for the reaction of the stressee". Similarly, Hall and Mansfield (1971) refer to stress as "an external force operating on a system, be it an organization or a person, strain is the change in the state of the internal system which results from his external stress". Therefore,
they conclude that "stress and strain are not synonymous". Eysenck (1983) argues that the "concept of stress cannot be understood without reference to strain; the former being the stimulus, objectively measurable and identical for all individuals, and the latter being the response of a given individual". Similar use of stress and strain can be found in the work of many other researchers (e.g., Caplan, 1971; French and Caplan, 1972; Indik et al., 1964; Kahn, 1970; Margolis and Kroes, 1974; Parrot, 1973).

(ii) The second tendency, on the contrary, uses the term "stress" to denote the resulting state or response and "strain" or "stressors" to express the perceived external demands or constraints. In this context, Pearlin and his co-workers (Pearlin and Radabough, 1976; Pearlin and Schooler, 1978; Pearlin et al., 1981) utilize "strain" to indicate perceived situational problems and "stress" to refer to the response of the organism to strain. Appley and Trumbell (1967) think that "stress is probably best conceived as a state of the total organism under extenuating circumstances rather than as an event in the environment". Selye (1956) describes factors conducive to stress as "stressors" and the internal state of the organism in response to evocative agents as "stress". Also, many other researchers have used the concept of stress in similar way (e.g., Frankenlhauer, 1971; Kagan, 1971; Mechanic, 1962; Sells, 1970; Wolff, 1953).

(iii) The third tendency adopts a critical attitude vis-à-vis the term "stress". Hinkle (1973) argues that "stress" is associated with a great deal of fuzzy thinking, and does not provide a meaningful scientific description of the organism-environment relationships which are better described by other concepts. Therefore, Hinkle's (1973) verdict is that the concept of stress "was heuristically valuable in the past, but it is no longer necessary, and it is in some ways hampering at the present". Murrell (1978) remarks that the use of stress could only be misleading.
since it might be interpreted in different ways by different people. So, he suggests the alternative term: "pressure" instead of "stress" to describe situational demands, and maintains the term "strain" to indicate psychological and physiological effects of pressure. Buck (1972) simply ignored the term "stress" and adopted instead the term "pressure" throughout his book. Indeed, "stress" does not appear in the index of this book.

(iv) Finally, the fourth position tends to settle the matter through seeking a compromise. This attitude, representing Lazarus' (1966) as well as McLean's (1974) standpoints, tends to use the word "stress" as a generic term which includes sources, effects and intervening processes of stress. According to Lazarus (1971), the term of "stress" encompasses "stimulus, causes, mechanisms, and response effects". Equally important is the proposition that each discipline ought to develop its own terms to refer to the specific concepts of its own analysis, Lazarus (1971) writes: "more specific terms being required to differentiate each variable and process, at each level of analysis". Similar view is held by McLean (1974) who recommends adopting the term "stress" as a collective label encompassing research into stimulus, response and intervening variables.

1.1.2 DISCUSSION.

Three reasons may explain the source of these semantic problems. Examination of which may further our understanding of some difficulties involved in the forthcoming sample of stress definitions.

First: In everyday life, language seems to have a considerable communicatory clarity. Terms such as stress, fatigue, vigilance and culture, to cite but a few, are used in the everyday language as if they possess inherent semantic clarity. But, when they are used in the social sciences, they lose their original feature, and acquire complex characteristics. The term must accommodate diverse situations or ideas to which it is applied.
Often, researchers bring their own perspectives to the concept. This is the case with the concept of "stress" which has been used in various conceptual models based upon various theoretical orientations.

**Second:** The multiplicity of uses of the concept 'stress' may also be due to the substitution of the concept 'stress' for other affective or emotional constructs that had prevailed before the concept of stress came into vogue (Appley, 1961; Levitt, 1968). In this vein, Cofer and Appley (1968) explain that "stress" has been used as a synonym for anxiety, conflict, ego-involvement, frustration, threat, and emotionality, generally, depending on a given writer's particular predilections" (p. 449).

**Third:** Part of the difficulties that surround the social and psychological concepts in general, and the concept of "stress" in particular, is due to the theorists' and researchers' attitudes. Most workers tend to adhere to their own conceptions of stress and strive with little or no concession or dialogue to affirm the superiority of their own conceptions.

Communications and dialogue between researchers are dominated by mutual criticism and rarely by mutual support; and a great deal of criticism is polarized by semantics. Kaplan (1964) raises the point but with an exaggerated tone when he said: "researchers seem to be often in that state of mind in which they want to disagree with something, even if they do not know what" (p. 72). This is not to imply our pessimism or irritation, nor to convey that any discussion or debate is deemed sterile, but to emphasize the fact that differences and criticism should serve to bridge the hiatus in communication between writers, not to deepen it.

1.1.3 **A SAMPLE OF DEFINITIONS.**

The referents of the term 'stress' that have been reviewed, analysed and discussed, provide the frame for the examination of some definitions. It is perhaps more convenient to consider a sample of definition in terms
of their locus of emphasis, although this is not always an easy and clear-cut task. Therefore, three types of definitions can be identified:

(i) Stimulus-based definitions, (ii) Response-based definitions, and (iii) Interaction-based definitions.

(i) With reference to the stimulus-based definitions, ergonomists tend to espouse the engineering analogy of stress. Parrot (1973), addressing the issue of stress and strain definition, prefers to describe the conditions that reflect stress because of their relationships to strain. So, "a stimulus constitutes a stress for a particular system if a strain ensues within that system. In other words, under some threshold, a given factor may be a stress only for those individuals in whom it results in strain". In analysing human performance, Fitts and Posner (1973) define stress "not as a condition that feels stressful to the individual, but by a specification of the demands that the environment places on the individual". Further elaboration can be found in Welford's (1973) definition, that stress arises whenever there is a departure from optimum conditions of demands which the individual is unable or not easy to correct.

(ii) Response-based definitions seem to be adopted mainly by physiologists. Wolff (1953) conceives of stress as a state of the human organism that arises in response to a demand for adaptation. Stress as a state within the organism can be found too in Selye's definition, but with more elaboration. As recent as 1983, Selye maintained that "stress is a nonspecific response of the body to any demand". Any demand or stressor that acts upon the organism is unique: heat as a stressor produces sweating, cold causes shivering. But, all stressors that impinge upon the organism have one thing in common: they stimulate the demand for readjustment to reestablish the equilibrium of the body. The rise of adaptive functions, irrespective of the nature of demands, constitutes the non-specific response.

Stress can be defined by means of the mechanisms that mediate the stimulus
and disease relationship. In Kagan's (1971) view, stress is the mechanisms whereby stimuli (stressors), be it pleasant or unpleasant, cause disease. Departure from the normal level of activity of the organism forms the core of Lader's (1971) definition. Lader proposes that "stress occurs when stimulation raises the activity of an organism more rapidly than adaptation can lower it".

(iii) Interaction-based definition is mostly adopted by psychologists. Drawing upon Appley and Trumbell's (1967) definition, that stress is a state of the total organism, Sells (1970) suggests that this state of stress takes place when an individual, facing a demand, fails to respond effectively, and that the consequences of such failure in coping are significant to him. Thus, the absence of an adequate response as well as the assessment of its consequences for the well-being of the individual constitute the essence of Sells' definition.

Lazarus and Launier (1978) view stress as "an event in which environmental or internal demands (or both) tax or exceed the adaptive resources of an individual, social system, or tissue system." The term "tax" means to impose a charge or entail cost or tribute to the psychological system. The idea of interaction is reflected here in the transaction between demands external or internal (goals, values, plans, etc..) and adaptive resources.

Also the interactional approach is emphasized in Cox's definition of stress. Cox (1978) argues that stress "can only be sensibly defined as a perceptual phenomenon arising from a comparison between the demand on the person and his ability to cope. An imbalance in this mechanism, when coping is important, gives rise to the experience of stress and to stress response" (p. 25).

It emerges from the interactional definitions that, additionally to
situational demands and individual resources, the interface too determines the phenomenon of stress.

1.1.4 DISCUSSION.

Having reviewed a sample of definitions, an important question warrants consideration: What are the contributions of the foregoing sets of definitions to the clarification of the stress concept? To examine the matter, it is worth addressing the question from two perspectives, that is, from "what these definitions are?" and "what they are not?"

The first set of definitions is significant to the extent that situational variables are important and should be considered. However, this major emphasis upon situational factors has been established at the expense of individual differences (e.g., cognitive processes, personality characteristics, needs and values). Besides, some definitions seem to imply that a level of stressfulness is inherent in some stimuli. Furthermore, this approach ignores the dimension of time in stress. Stressors or situational demands do not depend only upon the nature or the intensity of the stimulus, nor solely upon individual psychological resources, but also on time. The same stimulus with relation to an individual may change over time.

While the first set of definitions has underscored situational demands, the second set places major emphasis upon the response of the organism or the individual. Response does present an important component of stress process but does not cover other important facets of stress concept. In this connection, some definitions concentrate upon physiological responses and ignore totally psychological processes (e.g., Wolff, 1953; Selye, 1956). Other definitions, however, in order to define stress, equally adopt ambiguous and complex terms (e.g., the term mechanism in Kagan's definition) that need, in turn, to be defined. Furthermore, these definitions are relevant only to conditions involving acute, severe, or traumatic stimuli, and
consequently, irrelevant to mild stressors that constitute major life situations of the individual.

The third set of definitions is more successful in defining the phenomenon of stress in psychological and social realm. They agree in that neither stimulus alone, nor reaction alone, represents stress but their interface; that cognitive processes play crucial role in assessing the seriousness of a stimulus or a set of stimuli in relation to coping resources or capabilities; and that cognitive appraisal is not limited to the interpretation of situational demands and assessment of coping repertoire, but extends also to the anticipation of coping outcomes or consequences.

Having summarized the contributions of the interactional definitions of stress, one important dimension, namely uncertainty, has been ignored. Perception of threat, appraisal of coping resources, and expectancy of potential response outcomes, are not sufficient parameters of stress; because they imply that the individual can readily appraise (with much more certainty than uncertainty) the effects of stressors, the potential outcomes of coping responses, and the importance of these outcomes to his goals and needs. In reality, the level of uncertainty that surrounds the perception of the effects a stimulus would produce; and the level of uncertainty that emanates from the predictability of a coping outcomes determine, to a considerable extent, the experience of stress.

1.1.5 CONCLUSIONS.

It is suggested that the following aspects should be emphasized in the definition of stress:

(1) - Cognitive processes are the crucial identifier of stressors, since a stimulus cannot acquire the status of a stressor unless it is perceived to be of certain relationship to a person's needs, goals and well-being.

(2) - The dimension of uncertainty in cognitive appraisal should also be emphasized.
(3) - The stressee is not a static organism that endures stress and automatically reacts to stressors; but an active and dynamic person because he analyses the situation, deals selectively with alternatives and initiates coping responses.

(4) - It is also important to mention, in addition to the micro-immediate situational stimuli, the macro-social and cultural reality that provides the frame for such situational demands and act as buffers or exacerbators of stress.

(5) - Individual differences are important components of stress in that a person's socio-demographic characteristics, personality dimensions and coping resources, influence the experience of stress.

1.2 DEFINING "WORK STRESS".

As our concern is centred upon work stress, it is necessary to pose the question of stress definition in relation to the domain of work. The previous section has addressed the concept of stress in general, irrespective of the sphere of concern. It is recalled that interactional definitions suggest that stress is best described in terms of interface or interaction, rather than in terms of either stimulus or response, or their mere juxtaposition. Additionally, it has been emphasized that cognitive processes are crucial parameters of stress. The reasons are twofold: First - stress arises when demand and individual resources are perceived or assessed as incompatible. Second - the consequences of failure or the outcomes of success should be perceived as significant to the person.

These contributions have been made by psychologists from different areas of concern and it is legitimate to ask how occupational psychologists define work stress.

1.2.1 DEFINITIONS.

Departure from normal functioning - a feature underlying most previous
definitions - occupies an outstanding place in Beehr and Newman's (1978) definition. Following a systematic review of job stress research, they have suggested that "job stress" would be better defined as "a condition wherein job related factors interact with the worker to change (i.e., disrupt or enhance) his/her psychological and/or physiological condition such that the person (i.e., mind-body) is forced to deviate from normal functioning". It appears that the significance of this definition is threefold: First: stress indicates a condition of the psychological and physiological system that differs from the usual one; Second: that the relation of the individual to his work environment is interactional; and third: the pattern of demands acting upon a worker would have positive as well as negative impacts.

Another perspective based principally upon the individual-situation interaction, which has gained ample acceptance, was developed by a research team from the Institute for Social Research (I.S.R) at the University of Michigan. Stress, according to the I.S.R team (e.g. Caplan et al., 1975; French, Rodgers, and Cobb, 1974; Harrison, 1976a,b; Pinneau, 1976), stems from the misfit between the person and his environment. French (1976) explains that "stress" represents "any characteristics of the job environment which poses a threat to the individual - either excessive demands or insufficient supplies to meet his needs". Person-Environment misfit/fit, according to this perspective, possesses two forms: one form is the extent to which a person's skills and abilities match the demands and requirements of job. Another form is the extent to which an individual's needs are provided for by the work environment. It is also important to mention that "strain" denotes "any deviation from normal responses in a person" (French, 1976). Manifestations of which are psychological (e.g. anxiety, depression, and dissatisfaction), physiological (e.g. elevated heart rate and high blood pressure), and behavioural (e.g. excessive smoking, and dispensary visits).
The concept of "homeostasis", although originally biological, seems to have an irresistible appeal to Margolis and Kroes (1974). But they add a psychological dimension to its physiological tone. So, they propose that stress is "the condition in which some factors, or combination of factors, at work, interacts with the worker to disrupt his psychological or physiological homeostasis".

Gross (1970) offers a compact definition based primarily on coping failure or success in dealing with stressors. Thus, stress is represented by the "failure of routine methods for managing threats". In this definition, the key term "routine" refers to usual coping responses to remove threats. It should be noted that the term "threat" is used here in Lazarus' (1966) way to denote imagined possible future deprivation of something one values.

Other work stress researchers tend to approach the definition of stress in terms of conditions and situational sources of stress. It is worth mentioning that the indication of stress conditions is implied in most previous definitions. In this context, McGrath (1976), after having pointed out that stress is a condition of interaction between the individual and his work environment, proposes a set of conditions associated with stress. Stress arises when "...something happens 'out there' which presents a person with demand, or a constraint, or an opportunity for behaviour".

Similar sets of conditions form the core of Schuler's (1980) definition. He suggests that stress is a dynamic situation in which a person is confronted with an opportunity, a constraint or a demand in relation to what he desires to be, to have or to do. These situations are associated with uncertainty, but resolution of which is perceived to have significant outcomes to the individual. The major components of Schuler's definition of stress are: opportunity, constraint, demand, desire and uncertainty. Opportunity, constraint and demand refer respectively to potential situation of gain, status quo, and
loss. Desires involves needs and values.

It is worth noting that, although Schuler replicates some parameters of stress that have been supplied by other definitions such as opportunities, constraints, demands and needs, his contribution resides in emphasizing the role of uncertainty in stress.

1.2.2 DISCUSSION.

The sample of definitions reviewed, provides significant contributions to the clarification of the concept of "work stress" and also involves a number of conceptual difficulties.

The definition proposed by Beehr and Newman (1978) suffers from an important omission. They mention situational demands perceived as exerting threat or challenge, but ignore coping responses or efforts attached to stress resolution. However, it can be argued that coping behaviour together with other cognitive activities such as identification of demands, anticipation of coping consequences, and recognition of the outcomes or consequences of handling stressors, are implied in the person being "forced to deviate from normal functioning"; but this part of Beehr and Newman's definition, although crucial, is all encompassing a statement.

Is not a state of arousal induced, for example, by a demanding inspection task, a departure from normal functioning, since it overstimulates psychological and physiological processes in the individual? Is arousal therefore, stress? The level of arousal, according to some research findings, is not necessarily identical to stress, in that high arousal may be associated with high or low level of stress (King et al. 1983; Mackay et al., 1978). This discussion attests to the imprecision and ambiguity of an important part of Beehr and Newman's definition.

With regard to the Person-Environment fit approach, it is instructive to mention two remarks made by Schuler (1980). He argues that the Person-Environment fit definition of stress is tautological: a person is
under stress when he is in misfit situations, and being in a misfit situation is stressful. It is worthwhile, however, to judge a definition in terms of its informative ability. In this respect, the Person-Environment conception of stress conveys adequately the idea of incongruity between a person's needs or capabilities, and his environment demands or supplies, which gives rise to the phenomenon of stress.

However, a more pertinent remark made by Schuler (1980) was that, since the misfit between a person and his environment gives rise to stress, it follows that a state of fit means absence of stress. An implication that divorces with Selye's (1975) contention that, in reality, a certain state of stress is vital, and therefore a certain level of misfit is necessary.

A pivotal concept in Margolis and Kroes' (1974) definition of stress is "homeostasis". Cannon (1939) coined the term of homeostasis to refer to what the physiologist Bernard (1945) has described as the fixity of the internal environment (milieu interieur), that is, the coordinated physiological processes that maintain most of the steady states or "state of fixity" in the organism. The adoption of the term to define stress in the socio-psychological context is questionable. It entails the risk of envisaging certain analogy between the functioning of psychological system and the mechanisms of physiological system. It suggests also that disruption of psychological functioning returns to its original state or initial equilibrium when the source of stress is removed or coped with. On the contrary, coping with a difficult situation, for instance, may raise an individual's aspiration and motivation, modify his perception or appraisal of his abilities, etc. It can be argued, that a new organization or structure of psychological processes takes place rather than a mere return to the former state of equilibrium.

Gross (1970), in defining stress as "failure of routine methods for managing threats", points out an important distinguishing feature of stress, that is, the existence of new demands in the work situation to which usual
repertoires of coping strategies are irrelevant or inadequate. In addition, Gross gives preponderance to coping behaviour over other components of stress. However, Gross' definition implies that threat due to the change in the work environment represents stress. Therefore, the absence of change means the absence of stress. It can be argued that the absence of change such as lack of promotion, routine work, absence of salary increase etc., may be perceived by certain individuals as posing threat and, therefore, stressful because little can be done about them.

Also, it appears that Gross' statement is too compact to form a comprehensive definition that emphasizes other conditions which are not perceived as a threat but create stress (e.g. excessive load and underload), and that, prior to the initiation of coping action to manage threat, stress may take place because the individual is uncertain about the outcomes of coping.

McGrath's (1976) definition underscores the interactional nature of stress; but tends to emphasize situational factors more than cognitive processes and coping responses. Any situation perceived as a demand, a constraint, or an opportunity, is considered stressful. However, it can be argued that such conditions, if not associated with uncertainty, the absence of adequate coping repertoire, and the significance of coping outcome to the person, cannot necessarily constitute a source of stress.

Schuler (1980) joins McGrath in distinguishing and identifying conditions perceived as stressors; but he adds other important dimensions, namely uncertainty, needs, values and perceived importance of coping outcomes. However, it can be argued that the way the concept of stress in Schuler's definition is worded or formulated poses a major difficulty. Schuler said that "stress is a dynamic condition in which an individual is: a) confronted with an opportunity ... b) confronted with a constraint... c) confronted with a demand on being/having/doing what (S) he desires...". If we examine the statement "confronted with"
carefully, we understand that events in the work situation labelled as opportunities, constraints or demands, confront an individual, that is (according to the definition) confront his perception, needs and values. Hence, there are two discrete entities: Opportunities, constraints and demands which exist external to the individual, on one hand; and the individual, on the other hand. The two entities are linked by the statement "confronted with". But, opportunities, constraints and demands do not exist as such in the work situation, but are perceptual categorization or patterning of situational stimuli. The formulation of stress definition would be precise and clear if it reads: "Stress is a dynamic condition wherein situational factors are perceived (or appraised) as opportunities, constraints or and demands, on being/having/doing what an individual desires."

1:2.3 CONCLUSIONS.

In order not to suggest the idea of seeking only negative aspects of the foregoing definitions, it is worthwhile to conclude with a synthesis based upon the contributions of these definitions.

So, stress arises when situations, events and stimuli in the work environment are perceived as demands, constraints and/or opportunities, which are expected to induce harm, threat or gain, depending upon personality characteristics, needs, coping resources, and social support. Perception of threats or gain arouses short term affective and physiological changes and generates coping responses whose anticipated outcomes are more or less uncertain, but of importance to the individual.

This synthesis or integration of significant influx from the reviewed sample of definitions, does not mean provision of a new definition, but it does reflect Montaigne's statement:

"One might therefore say of me that in this book I have only made up a bunch of other people's flowers, and that of my own I have only provided the string that ties them together" (Cited in Selye, 1975).
A consideration of the conceptual models of work stress, necessitates a classificatory scheme based upon the underlying rationale or philosophy. From the examination of a sample of conceptual models of work stress, three broad approaches can be detected.

(1) Deterministic approach (or mechanistic approach)

(2) Interactional approach.

(3) Transactional approach.

Additionally, it should be noted, at the outset, that the prime concern of the author is with the conceptual models (derived from either theorization or empirical research) proposed in relation to the occupational domain. Selye's paradigm, although primarily endocrinologic in nature, will be examined, owing to its considerable influence upon occupational stress literature (Beehr and Schuler, 1981; Jick and Payn, 1980; Schuler, 1982).

1.3.1 DETERMINISTIC APPROACH:

This approach is based on the mechanical conceptualization of stimulus-response links in that stressors directly determine strain, irrespective of societal, organizational and personal modifiers of that relationship. The models of occupational stress that fall within this approach are of two types according to their locus of emphasis: (i) Response-focused models represented here by Selye's model, and (ii) stimulus-focused models represented by a sample of empirical endeavours.

(i) Response-focused models: Selye's Model.

Selye's (1956) definition of stress, as the non-specific response of the body to any demand made upon it, offers the notion of "non-specificity" of physiological response of the organism, a crucial importance. In some respects, situational factors provoke specific responses, that is, cold produces shivering; and heat induces sweating. But, all these agents have
a common denominator: they generate adaptive functions through secretion of various hormones to reestablish normality. The nonspecific adaptive response of the body to any external agent remains the same whether the stress-producing factor (stressor) is pleasant or unpleasant.

The nonspecific adaptive response, termed the General Adaptation Syndrome (G.A.S.), involves three identifiable stages:

First: Alarm Reaction Stage. Facing various noxious stimuli, the organism reacts in two ways: (a) undergoing various signs of injury such as decreased blood pressure, elevated temperature, etc. (shock sub-phase). And (b) the general mobilization of defensive resources to face noxious stimuli, through sympathetic-adreno-medullary responses (counter shock sub-phase).

If a stressor remains highly severe, resistance collapses and death ensues. If, however, the duration of that stressor, during this phase, is tolerable the second stage follows.

Second: Stage of Resistance. It is characterized by the organism's full adaptation to a stressor, and consequently the improvement or disappearance of symptoms induced during the Alarm Reaction Stage. However, this adaptational effort may be impaired following more exposure to noxious agents.

Third: Stage of Exhaustion. If the stressor is sufficiently severe and prolonged, resistance or adaptation is exhausted. Consequently, the symptoms of the first stage reappear.

Two other aspects of Selye's model deserve a brief description. One is the concept of homeostasis central to Selye's work. It refers to a state of fixity that the organism has to maintain because deviation from the original state causes sickness or death. Another steady state of the organism is called 'heterostasis'. The main difference between homeostasis and heterostasis is that "the former maintains a normal steady state by physiological means, whereas the latter 'resets the thermostat' of resistance to a heightened defensive capacity by artificial intervention from the outside" (Selye, 1980).
Another important aspect is the interpretation of the relationship between stress and illness. Selye suggests that homeostasis can be disrupted in two ways: either stressor characteristics exceed one's capacity of adaptability, or causing disease because of a particular vulnerability in the organism structure. "In the human body there is always one organ or system which, owing to heredity or external influences, is the weakest and most likely to break down under general biological stress" (Selye, 1983). It follows that the same stressor may elicit different types of illnesses in different persons.

(ii) Stimulus-focused models.

Research seeking a direct cause-effect link between work stressors and strain is frequent in ergonomics and occupational psychology. Some illustrative examples will suffice: noise increases accidents (Kerr, 1950; Cohen, 1974) causes health symptoms such as heart rate irregularity (Jansen, 1961) and Hypertension (Jonsson and Hansson, 1977). Long-lasting bad posture at work relates to symptoms of musculo-skeletal damage (van Wely, 1970).

(iii) DISCUSSION.

The research support for Selye's model is concisely described by Mason (1975a): "There are still some workers who accept Selye's view of stress, some who use modifications of them, some who regard them yet as unproven working hypotheses, and some who simply reject or ignore them."

The validity of the General Adaptation Symptoms based upon the non-specificity of the organism's reaction to external stressors has been challenged by recent experimental evidence. Mason (1971, 1974) found that some stressors, such as heat, fasting, and moderate exercise, although noxious and demanding, generate specific reactions of the pituitary-adrenal-cortical system. That is, the organism responds in a rather specific or selective way depending upon the particular stimulus under study.

Mason (1975b,c) also argues that conventional laboratory studies (e.g. Selye's experiments), based upon the view that psychological processes
are negligible experimental factors compared with such substantial physiological stressors as heat, cold, exercise, trauma and so on, fails to realize the importance of psychological variables (e.g. emotional disturbance, discomfort, and pain) in contaminating the effect of physical stressors.

Thus, another weakness, in Selye's model, resides in ignoring psychological processes that intervene in the stimulus-reaction relationship. Recent work by Kagan and Levi (1984), adopting Selye's framework, has placed emphasis upon the mediating role of psychosocial variables in the presumed relationship between stressors and disease. Also, Jenkins (1979) expanded Selye's model to include psychosocial modifiers of the organism response to stress.

Turning to stimulus-based models, it can be argued that any stressor, singled out to predict strain, is unable to account sufficiently for the prediction of strain, unless other contextual and personal intervening variables are taken into account.

To conclude, the discussion has emphasized the need for considering psychological and social variables that may specify or modify (i.e. attenuate or exacerbate) the stressor-strain relationships.

1.3.2 INTERACTIONAL APPROACH.

In examining interactional models of stress, one should be careful about the adoption of the term interaction owing to the various connotations found in the social-psychology literature. Pervin and Lowis (1978) provide a typology of interaction which includes, among others, "interdependent interaction" and "reciprocal action-transaction". The latter will be dealt with in the forthcoming section; the former, namely "interdependent interaction" refers to two or more variables that can be independently measured but whose effects can only be understood in relation to one another" (Pervin and Lowis, 1978).

(i) PERSON-ENVIRONMENT FIT MODEL. (P-E FIT)

The Person-Environment fit model was developed by the Institute For
Social Research (ISR) team at the University of Michigan, to investigate the relationship between job stress and health. Inspired by Lewin's (1951) field theory and Murray's (1959) motivational processes theory, French, Rodgers and Cobb (1974) proposed a model based upon the goodness of fit between the person and the environment, and called it "Person-Environment fit," abbreviated henceforth as P-E fit model. The approach differentiates between 'objective environment' that exists independently of the person's perception of it, and 'subjective environment' representing the person's perception of his objective environment. Also, the approach makes a parallel distinction between the objective person as he actually is, and subjective person as he perceives himself (self-conception).

The model posits that deficiency in the fit between the characteristics of the person and the properties of his work environment causes psychological strain (e.g. irritability, anxiety, and depression), physiological strain (e.g. high blood pressure and elevated cholesterol level) and behavioural symptoms (e.g. increased smoking, drug-consumption and withdrawal from work). Strain would result from discrepancy between either job demands and an individual's abilities to meet them, or between one's needs and environmental supplies to satisfy those needs (Caplan, 1976; French and Caplan, 1973; Harrison, 1976b, 1978; Kulka, 1975). Prolonged exposure to job stressors, and experience of strain culminate in various disorders including mental health (e.g. chronic depression) and physical health (e.g. Coronary heart diseases and peptic ulcers) (Caplan, 1971; Caplan et al.,1975; French and Caplan, 1970; French et al., 1983; Harrison 1976a).

The trend of the relationships, linking the extent to which a person's needs or motives are supplied by the work environment to strain, was hypothesized to manifest one of the three curvilinear shapes as illustrated in Figure (1.1) (Caplan, 1983). The X-axis presents a scale of the P-E fit: the negative numbers indicate a deficiency, that is, the person needs more of the characteristics than the environment supplies; zero represents a perfect fit;
FIGURE 1.1 Three hypothetical shapes of the relationships between Person-Environment (P-E) fit on the ability-demand dimension, and strain.
and the positive numbers indicate an excess, that is, the environment provides more than the quantity needed by the person. The Y-axis, however, represents strain.

The solid line in Figure (1.1) exhibits the monotonic decrease in strain associated with increase in environmental supplies to the point of meeting the needs levels. But, when the region of supply excess is reached, the relationship between the P-E fit and strain becomes complicated. Therefore, the curve possesses three possible shapes:

a)- In a U-shaped relationship (Curve A), excesses in the environment (e.g. too much work load), and deficit in environment supply (e.g. too little work load) lead to higher levels of strain than the case of perfect fit or the desired level.

b)- The asymptotic relationship (curve B) arises when supplies for one motive or need are not exchangeable for supplies for other motives or needs (House, 1972).

c)- The linear relationship represented by the curve (C) occurs when excess supplies for one motive or need can be used as supplies for other motives (Harrison, 1978).

DISCUSSION.

Having provided a concise account of the P-E fit model, it appears that the elegance of the constructs used and the sophistication of the approach have generated considerable interest. A question, however, arises: to what extent do empirical studies lend support to the relationships integrated into the model?

The predictive potentials of the model, although encouraging, were not found to be satisfactory, considering the results of a number of empirical studies (Harrison 1976a, French et al. 1983; Kahana et al. 1980; Kulka, Klingel and Mann, 1980; Kulka, Mann and Klingel, 1980). Some frustration was expressed by Caplan (one of the principal promoters of the P-E fit
approach), in a recent article. Caplan (1983) concluded that the "percentage of variance that P-E fit theory can explain in strain must be increased if the theory is to deserve further attention in stress research." He ascribed some causes of the model's modest predictive and explanatory ability, to the shortcomings involved in the specification and measurement of the model parameters; and to the overwhelming focus on the present time frame which excludes past and future P-E fit as a source of stress. The elaborated P-E fit model proposed by Caplan (1983) includes the person's perception of the past, present, and future in relation to the objective past, present, and future.

The model posits that strain reaches its lowest level when the person and the environment are a perfect fit. The evidence provided lends only moderate support to this conception. Small discrepancies on some dimensions may be experienced as being pleasant or more comfortable than the level of comfort associated with perfect fit (Feather, 1975; Kulka, 1975). The experience of successful coping with discrepancies between one's needs or capabilities, and the environment demands or supplies, can be associated with a larger reduction in strain than can the point of perfect fit account for. Thus, past experiences of a person may enhance his tolerance to more drastic discrepancies. "The theory of P-E fit must be developed to specify the various conditions under which either perfect fit or small discrepancy will best represent the point of lowest stress" (Caplan, 1978).

Finally, the measurement of the model parameters presents some methodological difficulties. To assess the degree of fit between the respondents' perception of certain aspects of their environment and of themselves, two commensurate question formats were commonly used. For instance, with reference to work load dimension, the question "How much load do you have" is assumed to measure subjective load; and the corresponding question "How much workload would you like to have" is assumed to measure subjective ability or capability (a desired level). The former question
scores are subtracted from the latter question scores to derive an index of the P-E fit on that dimension. But, the problem with these measures is that, a person with high abilities to deal with work demands will desire higher work load and, consequently, is more likely to tolerate more work load. Although work load is actually high, he tends to report low level of work load. On the other hand, the same overall amount of work load may be perceived by another person as quite high, since his desired level is moderate owing to self-evaluation of his capabilities. Therefore, the measures of the person and the environment are contaminated by each other.

Caplan et al. (1975) noticed, not without surprise, that the person and the environment measure correlations range from 0.13 to .68 in their study of 23 different occupations.

Conceptual and methodological difficulties notwithstanding, the P-E fit approach is perhaps the most sophisticated and influential paradigm in occupational stress.

(ii) CONDITIONAL MODELS;

The term "Conditional" is used to group some work stress models that involve, besides stressors and strain indicators, potential conditioning (moderating) or mediating variables. Three examples of the conditional paradigm will be briefly reviewed.

House (1974) proposed a model that integrates five classes of variables, namely objective social conditions, perceived stress, response to stress, outcomes and conditioning or moderating variables whether individual or situational. As portrayed in Figure 1.2, enduring health outcomes (Box 4) for instance, are produced only if objective social conditions (Box 1) are perceived as stressful (Box 2), and responded to (Box 3) in a way that exacerbates stress. Responses of the individual may modify the objective situation (called here coping), or alter one's perceptions (defence).

(→→): Denotes presumed causal relationships among variables.

(--->): Indicates conditioning (moderating) effect.
Finally, potential moderator variables condition all the relationships described; that is, perceived stress, response to stress, and outcomes, depend upon the nature of the situation, and the characteristics of the individual.

Addressing the relationships of work stressors to psychosomatic complaints, performance and absenteeism, Dolan and Arsenault (Arsenault and Dolan, 1983a; and b; Dolan and Arsenault, 1979, 1980; Dolan et al., 1981) proposed a model that encompasses work stressors, moderators and stress outcomes. They grouped work stressors into two classes: Job context (e.g. pay inequity, role ambiguity; role conflict, etc.) and job content (e.g. participation, responsibility, quantitative workload, etc.). The model indicates that the relationships of both sets of work stressors to strain outcomes (performance impairment, absenteeism, and psychosomatic ailments) are moderated by the occupation, organization and personality. In other terms, the effects of work stressors upon physiological, psychological and behavioural strain outcomes are contingent upon personality characteristics, level of occupation and type of organization.

Cooper and his collaborators (Cooper and Davidson, 1982; Cooper and Marshall, 1976, 1978; Marshall and Cooper, 1979) proposed a model of occupational stress incorporating sources of stress, individual characteristics, symptoms of occupational ill-health and diseases. Sources of stress within and outside the organization cause psycho-physical strains (e.g. depressed mood, job dissatisfaction and blood pressure) through the mediation of the individual characteristics (e.g. level of anxiety and type A behaviour). Recurrence of stress symptoms causes diseases (e.g. ulcers and cardiovascular diseases), poor mental health (e.g. lowered self-esteem and job satisfaction), and organizational symptoms (e.g. low productivity and absenteeism).

Recently, Cooper (Davidson and Cooper, 1981) has more clearly formulated the interactional relationships of the person and the environment,
although the original components of the model remain basically unchanged. Essentially, Cooper and Davidson, by offering a revised model of occupational stress, want to convey the idea that the three inter-related areas of work stressors (work, home, and social settings) affect and interact with the individual characteristics and resources, to produce strain.

**DISCUSSION.**

The foregoing examples of models share the concern of viewing the causal relationships among stressors, strain and outcomes as conditioned or mediated by situational and individual variables. However, some remarks merit mention.

First: It can be noticed that these models differ in their ability to differentiate between components of stressors and strains. With respect to stressors, each model involves a specific or idiosyncratic way of grouping situational factors. On the one hand, while House's (1974) model differentiated between strain: short term reactions to perceived stressors, and outcomes due to enduring exposure to stress, Cooper and Marshall (1979) made no such a distinction. To illustrate, Cooper and Marshall utilized the label "manifestations of stress" to include such specific short term reactions as job related tensions, elevated pulse rate; and such ultimate consequences of prolonged exposure to stress, as ulcers and cardiovascular diseases. Paradoxically, the same label included such multifaceted and complex organizational outcomes as low productivity and absenteeism.

Second: Another problem that arises from the reviewed models relates to the role of the intervening variables (personality, situation, organization, etc..) in the stressor-strain relationships. Indeed, the merit of these models resides in the integration of the intervening variables, but this advantage is undermined by the confusion that surrounds the status of the intervening variables. Does personality, for example, mediate the stressor-strain relationship (stressor→personality→strain) and,
therefore, stressors are expected to affect strain indirectly through the transmission of some influence from stressors to strain by the mediator variable: personality? Or, does personality moderate (or condition) the stressor-strain relationship so that the relationships of stressors to strain vary depending on the level of a particular characteristic of the personality?

Third: The major weakness of these models, excepting House's (1974) model, lies in the assumption that the individual endures passively the vicissitudes of the environment and reacts accordingly through manifestation of affective, physiological, psychosomatic, and behavioural changes. This paradigm of man, underlying many models, is refuted on the ground that the individual perceives selectively situational demands and constructs, in most cases, a strategy or strategies to cope with this demands.

To sum up, the merit of the conditional models lies in integrating potential moderator or mediator variables into the stressor-strain relationship network. However, coping behaviour is an integral part of the stress process, omission of which renders the model less informative and predictive.

(iii) FACET-ANALYSIS MODELS.

A facet is a conceptual dimension underlying a set of variables (Foa, 1968). Facet analysis, a term originally coined by Guttman (1954) was used primarily as a system for classification of social and psychological constructs. McGrath (1967) cites many case studies that employed facet analysis for classificatory purposes. White and Mitchell (1976) also adopted the approach as a classificatory device in the context of organizational development.

On the other hand, facet analysis is used to generate hypotheses and to construct conceptual models. The works of Elizur and Guttman (1976), Payn et al. (1976), Shapira and Zevulum (1979), and Shye (1979), to cite but a
few, reflect this orientation of the facet analysis approach to organizational behaviour.

With reference to occupational stress, two models based on facet analysis will be briefly considered.

Beehr and Newman (1978) developed a model based upon seven facets, namely personal facet, environmental facet, process facet, human consequence facet, organizational consequence facet, adaptive response facet and time facet. These facets were integrated into a network of relationships. The elements of the personal and environmental facets of stress sources lead to human and organizational consequences (strains) through the mediation of the process facet (i.e. perceptions, evaluation and physiological processes). The consequences of stress, whether individual or organizational, generate adaptive responses which over time feedback into, or affect personal and environmental sources of stress.

In conceptualizing organizational stress, Shirom (1982) proposed seven facets and constructed a mapping sentence that describes verbally the relationship sequencies among the seven facets. Thus, the experience of stress takes place only if a worker perceives an ongoing or episodic condition (duration of demand facet) of ambiguous, conflicting, varied, complex, or quantitatively overloading demand (Type of demand facet) which originates from the role played by the worker or significant others, or originates from procedures (source of demand facet), in reference to individual, work process or output; group, work process or output (interaction context facet) is perceived as quantitatively or qualitatively (aspect of resource facet) taxing individual or organizational resources (type of resource facet) to a very little or large extent (range facet).

DISCUSSION.

Having presented two examples of occupational stress models based
upon the facet analysis approach, some shortcomings deserve mention:

First: Shirom justified his concern with demand excess, to the exclusion of demand deficiency as a source of stress, on the ground that the latter is not a potent feature of the demand stressors. Actually, strain can also be induced by perceived deficient supply rather than excess demand. Instances of which, are inadequate pay and lack of promotion that may be perceived by workers as associated with worries, tension and dissatisfaction. These examples of the inadequacy of work to satisfy one's needs and motives are, contrary to Shirom's contention, a frequent source of stress.

Second: There remains another noteworthy hiatus in Shirom's (1982) model. The researcher excluded coping responses from his model, advancing the argument that stress is "theoretically distinct from the stress management or coping process, and from the individual's responses to stress whether behavioural, affective or physiological". This justification seems unconvincing because it does not explain how coping is theoretically distinct from the stress process. Furthermore, addressing the definition of interaction, Shirom (1982) wrote: "following Lazarus (1980), we define the term employee-environment interaction to refer to a reciprocal action, implying multidirectional causation, which takes place between the employee and his work situation" (underlines added). It is really hard to imagine how "reciprocal action" or "multidirectional causation" could be possible in a model where responses of the individual to situational stressors were excluded.

Third: The adaptive response facet according to Beehr and Newman (1978) consists of "attempts to alleviate the undesirable effects of stress in a manner that results in long-term health for the individual and the organization". So, the idea underlying Beehr and Newman's (1978) model is that any response or action by the coper, which changes the person or the environment is of adaptive value; but it can be argued that some
forms of avoidance, passive attitudes and denial, may have positive outcomes to a particular individual although they entail no change in either the situation or in the enduring characteristics of the person. Furthermore, the adaptive response facet in their work represents only positive outcomes. Yet, responses or coping behaviour can have either positive or negative outcomes depending upon the criteria used or the standpoint adopted.

The contributions of the facet approach to the conceptualization of occupational stress resides in providing more systematic categorization of stress components, and in emphasizing the dynamic relationships between different facets of stress, by integrating the time facet or temporal dimension into the stress model.

1.3.3 TRANSACTIONAL APPROACH

Before examining transactional models, a question warrants clarification: Why 'transaction' is used instead of 'interaction'? Or more precisely: What are the distinguishing features, if any, of the transactional approach from the interactional approach?

In the previous section, the issue of the varied connotations conveyed by the term 'interaction' were addressed. It is recalled that Pervin and Lewis (1978) provided a typology of interaction involving descriptive interaction, statistical interaction, additive interaction, interdependent interaction, and reciprocal action-transaction. The interdependent interaction was adopted in the foregoing section to refer to two or more variables that can be independently measured but whose effects can only be understood in relation to one another. Reciprocal action-transaction, a term relevant to the present section, means that "the variables of interest are constantly influencing one another, the action of one affecting another variable that in turn affects the nature of the first variable" (Pervin and Lewis, 1978). Actually, the idea of reciprocal influence or feedback forms
also the core of the term 'interaction' but with less emphasis upon the time dimension that constitutes an essential feature of 'transaction'.

Perhaps the essential distinguishing feature of 'transaction' is the contention that there is neither an autonomous organism nor an independent environment but an organism-environment relationship. This aspect was emphasized by Lazarus and Folkman (1984) when they wrote "...another distinguishing feature of transactional thought, the one that gives the term transaction a quality missing in the concept of interaction, is that transaction implies a newly created level of abstraction in which the separate person and environment elements are joined together to form a new relational meaning" (p. 294)

These distinctions seem necessary in order to introduce transaction-based models. Two transactional paradigms of occupational stress will be examined: Mackay and Cox's (1976), and Schuler's (1982) conceptual models. It should be noted, beforehand, that Lazarus' work can be included here; but owing to his prime concern with coping processes, it would be more relevant to deal with his model in a forthcoming chapter on coping behaviour.

(i) **COX AND MACKAY'S MODEL.**

Cox and Mackay (Cox, 1978; Mackay, 1981; Mackay and Cox, 1976) suggested a model based upon the balance/imbalance between perceived demand and perceived capability. Stress arises when demands are perceived to exceed one's abilities or capabilities. Critical imbalance or misfit between the person and his work environment induces an unpleasant emotional experience (psychological strain) associated with psychophysiological changes; that is, besides physiological changes, cognitive and behavioural responses to reduce stressful demands take place. However, psychophysiological responses are not the end-point of the stress process, but they bring about consequences that may change the actual demands and the process of cognitive appraisal of one's capability in relation to perceived demands.
(ii) SCHULER'S MODEL.

Schuler (Beehr and Schuler, 1981; Schuler, 1982) proposed a model reproduced in Figure(1.3). The model indicates that perception of environmental stressors as inducing stress (i.e. strain) is influenced or conditioned by individual characteristics. In other terms, personality variables interact with work stressors to determine stress (i.e. strain). Occurrence of stress is associated with short term reactions: physiological reactions that take place irrespective of the type of perceived stressors; and psychological reactions which depend on the perception of stressors. Also, stress perception leads to intermediate individual responses: physiologically, the body seeks to resist the initial physiological response of the foregoing alarm reaction stage; psychologically, the individual decides what to do, although, the effects resulting from the short term response stage still disrupt the initiation of coping.

Finally, perception of stress is also conducive to long-term individual responses: at this stage, physiological reactions occur irrespective of the type of stress. However, psychological and behavioural (e.g. absenteeism and turnover) consequences are dependent on the type of perceived stressors and coping behaviour initiated in the foregoing stage.

With reference to individual characteristics, the model posits that these variables affect the perception of objective environmental stressors, and moderate the impact of perceived stressors on short-term individual responses as well as intermediate individual responses.

(iii) DISCUSSION.

An elegant example of matching a physiological schema of stress with a socio-psychological schema of stress is represented by Schuler's (1982) paradigm. The necessity to cut across a number of disciplines urged him to develop a model that integrates psychological, physiological, behavioural, organizational and temporal components in a unitary framework. However,
FIGURE 1.3 Conceptualization of stress in organizations. (Beehr and Schuler, 1982)
while the purpose is certainly of substantial significance, some arbitrariness involved in the procedure undermines the importance of the enterprise.

Upon the examination of the model, one has the feeling that Schuler forced social and psychological responses to accommodate the three stages of Selye's General Adaptation Syndrome (GAS), namely alarm reaction, resistance and exhaustion. This parallelism between physiological and psychosocial processes creates some conceptual difficulties:

(a) - The stage of exhaustion that corresponds to long-term responses arises "following long-continued exposure to the same stressor to which the body had become adjusted; eventually, adaptation energy is exhausted, the sign of the alarm reactions reappears, but now they are irreversible, and the individual dies" (Selye, 1975; p. 39). If this is the case with physiological long-term responses, is it logical to match the stage of exhaustion, just described, with high performance, satisfaction and self-esteem (in case of perceived opportunity stress); and with anxiety, tension, dissatisfaction, absenteeism, and turnover (when environment stressors are perceived as demands and constraints)?

(b) - The three stages of Selye's General Adaptation Syndrome (alarm reaction, resistance and exhaustion) develop from exposure to extremely severe stressors, whereas psychological and behavioural symptoms often stem from mild and recurrent organizational stressors. So, the General Adaptation Syndrome phases and sociopsychological symptoms originate from quite distinct patterns of circumstances.

Turning to Cox and Mackay's model, it is hard to discern where its originality or conceptual contribution resides. To illustrate, the key term: imbalance, is synonymous with the conception of fit/misfit adopted by the Person-Environment fit approach examined earlier in this chapter. Also, subsequent stages of the model are penetrated with Lazarus' (1966) cognitive and coping concepts, such as primary appraisal, secondary appraisal, direct action, and defensive reappraisals. So, the second large part of
Cox and Mackay's model is heavily structured around responses or coping using Lazarus' (1966) typology, although termed differently. For example, imbalance, stress response and emotional experience correspond to the primary appraisal of harm or loss leading to unpleasant feelings, and to initial coping attempts. On the other hand, psychological responses developed following the first attempts are the product of the secondary appraisal. Finally, cognitive defence and behavioural response are similar to Lazarus' (1966) types of coping responses, namely defensive reappraisals and direct action, respectively.

However, this comparison does not imply that Cox and Mackay's model duplicate both P-E fit approach and Lazarus' cognitive approach. Perhaps, part of the merit of Cox and Mackay's paradigm resides in integrating elements from both approaches in one conceptual framework. Furthermore, the emphasis on the cognition or anticipation of positive or negative outcomes of coping and their significance to the person, although suggested by other writers (e.g. McGrath, 1970; Sells, 1970), remains important features of the model.

To conclude this section, the contributions of transactional models lie in their emphasis upon coping responses and on time dimension of the stress process, which have been touched upon by the previous interactional models.

1.3.4 CONCEPTUAL AND METHODOLOGICAL IMPLICATIONS.

Some aspects of potential conceptual and methodological significance for the objectives of the present study are:

First: The discussion (especially with reference to Schuler's, 1982, transactional model) emphasized the need for distinguishing between two classes of work stressors: (a) Acute but short-lasting or ephemeral stressors; and (b) chronic but relatively mild stressors. Since work stressors
are frequently of the second type, the present study will concentrate upon this class of work stressors.

**Second**: The integration of intervening variables in the interactional and transactional models is an important conceptual effort, because it injects into these models greater ability and power of prediction and explanation. However, the relationships of potential intervening variables to perceived stressors, strains and coping, need further conceptualization and empirical validation; Does a potential intervening variable have only interactive effect on the dependent variable? Does it exert significant and direct, but negligible, interactive effects? Does it generate substantial direct as well as interactive effects on the dependent variables (e.g. strain)? Such important aspects of the intervening variable relationship will be examined in the present endeavour.

**Third**: The discussion regarding interactional models revealed the confusion surrounding the use of mediator and moderator class of variables. "Mediation" and "moderation" are distinct conceptually and technically. In brief, mediation is based on causal relationships while moderated relationships are not necessarily causal (James and Brett, 1984); additionally, both call for different analytical techniques (Alwin and Hauser, 1975; Heise 1975; Kenny, 1979).

**Fourth**: Coping behaviour—an important component of the stress process—was in the majority of cases ignored. However, those few models that integrate coping responses tend to confound them with strain symptoms, manifestations or consequences (e.g. Schuler 1982, Cox and Mackay, 1978). Thus, a distinction should be made among strain indicators, coping behaviour, and coping outcomes.

**Fifth**: Only few models have integrated extra-organizational sources of stress. Yet, in models where non-work variables are considered, still further conceptual efforts are needed to show:
a) Whether non-work variables, such as family life and social life events, act as additional sources of stress. That is, whether they have a direct or independent effect on strain.

b) Whether these non-work variables, condition the relationships between work stressors and strains. In other words, whether the effects of work stressors on strain depend on some non-work variables.

c) If the moderating role of some non-work variables are conceived of as possible, it is worth specifying the directionality of the moderating effect, that is, whether non-work variables buffer or attenuate work stressor-strain relationship; or exacerbate and amplify the impact of stressor on strain.

Sixth: The models reviewed seem to be tailored to occupational stress in industrialized societies. Therefore, these conceptual frameworks do not reflect some substantial elements of stress specific to developing societies. To illustrate, strong family ties, family size, rural background, potence of customs, way of life, deeply penetrated by religious values, housing crisis, and inadequacy and irregularity of means of transportation, are examples of sources of stress and of support. Therefore, a conceptual framework that takes into consideration these aspects relevant to most developing countries, is warranted.

These implications serve two objectives vis-à-vis the present research: firstly, they have demonstrated the need for other conceptual frameworks. Secondly, they have identified some conceptual and methodological issues of potential significance for the present endeavour.
WORK STRESSORS AND STRAIN.

It is not the large things that send a man to the madhouse.... No, it's the continuing series of small tragedies that send a man to the madhouse. Not the death of his love but a shoelace that snaps with no time left.

Charles Bukowski
The nature of perceived work stressors, in addition to coping strategies, constitute the major concern of the present research. Therefore, the examination of empirical studies relative to perceived sources of stress in the work environment is necessary.

The chapter looks at the following classes of variables:

(1) Perceived stressors: an examination of the relationships of some perceived work stressors to strain.

(2) Contextual variables: a consideration of the relationships of participation and social support to stress.

(3) Individual differences: an examination of the relationships of certain socio-demographic variables (e.g. gender, age, education, income, tenure) and personality characteristics (i.e. locus of control, Type A behaviour pattern and self-esteem) to stress.


In view of the space constraint, a thorough coverage of work stressors addressed by empirical research cannot be achieved. Therefore, only those occupational perceived stressors, of potential significance to the present study, are considered. This selective approach is also adopted with respect to contextual variables, individual differences and extra-organizational factors.

It should be noted that the term "stressor" is used to convey "perceived stressor", unless otherwise specified.

Finally, the chapter ends with a section containing the implications of the studies reviewed for the present research.
Addressing role stress poses inevitably the issue of role conception which deserves some attention. Perhaps, the person-environment dilemma has prompted a search for a conceptual point of articulation for the social environment and individual. Role concept, according to Katz and Kahn (1978), supplies the means for linking the individual level, social level and organizational level of research and theory.

"Role" is generally conceived of as a pattern of behaviour that is prescribed or expected in a given social circumstance (Argyle, 1952; Borgatta, 1960; Cattel, 1963; Gouldner, 1957; Gross et al., 1957; Jacobson et al., 1951; Merton, 1957; Sarbin and Allen, 1968; Scheiner and Carver, 1979; Turner, 1962; Vallacher, 1979).

The conception of role that serves substantially subsequent sections in this study, can be outlined as follows:

First: Roles are not isolated and achieved entities, rather, it is due to the existence of other roles that a particular role acquires its significance. For this reason, role theorists developed a system of role terminology. Of importance, is "Role set" used in stress research (e.g. Kahn et al. 1964) which indicates the various relationships that link a particular role (or a focal person) to other roles (or role senders) in complementary positions.

Second: The expression "Pattern of expected behaviour or responses" should not convey the idea of invariant, rigid and passive execution of role expectancies, but, in reality, role expectancies allow for a range of alternative behaviours to meet a given situation.

Third: Related to the foregoing point is the fact that the linking of role demands or expectations to role behaviour is not a direct cause-effect form of relationship; but, according to Allen and Vliert (1984), is conditioned by communication, personal capacities, motivation and environmental resources.
Fourth: Finally, "role" should not be regarded as consisting of defined expectations to a high degree of explicitness, clarity, consistency and harmony; but, rather, as a dynamic situation, liable to variability, uncertainty and conflict.

This outline of role conception explains why researchers tend to approach role processes in terms of uncertainty, conflict and load. Although the demarcation among role stressors is not as clear as it should be, role-based stressors have been suggested and investigated. The most frequently cited of which are role conflict, role ambiguity, role overload and role responsibility. In the following sections, some role stressors at work will be addressed.

2.2.1 ROLE AMBIGUITY

"Role ambiguity" refers to the lack of clarity or predictability concerning a role-related expectations, performance and outcomes.

(i) Role Ambiguity and Strain.

There are some studies which adopt only one indicator of strain and others which use multiple indicators of strain in relationship to role ambiguity. To start with the latter, i.e., multiple indices of strain, research revealed that role conflict was associated with high work tensions and sense of futility, lower job satisfaction and self-confidence.

French and Caplan (1973), examining a sample of engineers, scientists and administrators, found that role ambiguity was related to greater dissatisfaction, job-related threat, anxiety and somatic symptoms of depression. French and Caplan distinguished between two forms of role ambiguity: present ambiguity and future uncertainty.
Future ambiguity was found to account for major variation between the overall ambiguity index and some strain indicators, such as job-dissatisfaction, job-related tensions and affective depression. Yet, the significance and implication of this differentiation in role ambiguity are suggestive but not substantiated.

In a study of high level managers taking part in an executive development program, Hamner and Tosi (1974) reported that the higher the role ambiguity, the greater the job threat, anxiety and dissatisfaction.

Role ambiguity is generally related to strain indicators in Miles' (1976) study. The results reported indicated that role ambiguity was highly associated with job-related tension and anxiety, job dissatisfaction and attitudes towards role senders. The relationships observed between role ambiguity and strain outcomes were generally stronger than those for role conflict and strain.

In the context of examining the psychometric properties of three different measures of role ambiguity (namely, the scales of Beehr, 1976; Lyons, 1971; and Rizzo et al. 1970) Breaugh (1980) applied them to a cross section of workers in an organization without specifying the characteristics of the sample. He came to the conclusion that, although the three measures were mostly related to job-induced tension, work dissatisfaction, supervisory dissatisfaction, and absenteeism, the correlations remained modest in size.

If the above-mentioned findings tend to corroborate the hypothesis that role ambiguity impinges upon the affective processes and behavior of the individual, some other findings in the literature render that relationship problematic. To illustrate, Rizzo et al. (1970) found that role ambiguity bore weak relationships to anxiety and propensity to leave the organization; Parker and DeCotis (1983) reported no relationship of role ambiguity to anxiety and time strain; Brief and Aldag (1976) found that role ambiguity was unrelated to work satisfaction and supervisory satisfaction,
but was associated with anxiety, tension, turnover and propensity to leave; finally, in Tosi's (1971) study, role ambiguity was related to neither job threat and anxiety, nor to job satisfaction.

Unlike the afore-mentioned studies, the following are investigations which, using only one indicator of psychological strain, especially work satisfaction, tend to highlight its multidimensional nature, and consequently, its differential links to role ambiguity.

In this vein, Abdel-Halim (1980) reported negative relationships between role ambiguity and three dimensions of satisfactions, namely work satisfaction, intrinsic satisfaction and job involvement. Similarly, Brief et al. (1979) found negative associations of role ambiguity with satisfaction with the work itself, and with overall job satisfaction. Keller (1975), however, went further by adopting five dimensions of job satisfaction. His findings suggest a differential link of job satisfaction dimensions to role ambiguity. Role ambiguity exhibits a substantial relationship to satisfaction with work, but shows negligible relationships to the remaining four dimensions of job satisfaction, namely co-workers, supervision, pay and promotion satisfaction.

While the forgoing studies have dealt with psychological indices of strain, the following endeavours have also examined psychosomatic and physiological indicators of strain.

In this context, House (1972) examined the link between physiological and psychological strain, and role ambiguity. He found that general fatigue and propensity to leave were related to role ambiguity; but no relationship was found between role ambiguity, and somatic symptoms.

House's research findings are somewhat consistent with the findings of Rizzo and collaborators' (1970) research, in that role ambiguity exhibits significant relationships to the general fatigue and discomfort, a moderate association with job-induced anxiety, but no relationship to somatic symptoms. Similarly, the study conducted by Gavin and Axelrod (1977)
indicates that role ambiguity relates to anxiety - irritation - depression, and to job dissatisfaction, but its relationships to psychosomatic symptoms is negligible.

Also, a weak relationship between role ambiguity and physical health has been reported by Margolis, et al. (1974), following a study based on a large community sample of employees. It was found that role conflict was associated positively with depressed mood and intention to leave a job; but negatively with self-esteem, job satisfaction, life satisfaction, and motivation to work. However, overall physical health, escapist drinking and absenteeism showed no relationships to role ambiguity.

A larger spectrum of physiological and health indices have been employed in another study. Orpen (1982), investigating a sample of middle-managers, reported that role ambiguity was positively related to physical strain, namely, headaches, dizziness, shortage of breath, nausea and fatigue; and to psychological strain such as anxiety, resentment and depression. However, role ambiguity was unrelated to heart rate, blood pressure and respiration rate.

Investigating a sample of three occupational groups, namely, engineering, salesmen, first line supervisors, and operating employees performing relatively routine production tasks, Ivancevich and Donnelly (1974) found that role ambiguity was related to physical strain in the group of supervisors and operating employees, but was unrelated to salesmen group. Job tensions, however, were associated with role ambiguity in all occupational groups.

It is apparent that the studies which have examined physiological indices of strain, provide only moderate evidence concerning role ambiguity and somatic-strain relationships.

(ii) DISCUSSION

The studies reviewed, addressing the relationships of role ambiguity
to psychological and physiological strain, present some conceptual and methodological problems:

**FIRST Methodologically, some shortcomings can be summarized as follows:**

a) Failure to report socio-demographic parameters of the sample used (e.g. Breaugh, 1980; Hamner and Tosi, 1974).

b) Failure to report or to compute the essential psychometrics of the scales used. To illustrate, Tosi (1971), Hamner and Tosi (1974), Brief et al. (1979), have reported no reliability coefficients for the measures adopted, relative to the samples used.

c) When mailed or self-administered questionnaires are used, low rates of responses have been reported by some studies, leaving undisclosed the characteristics of the substantial rate of people who did not return the questionnaires. One can find, for example, as low as 58% of questionnaires returned from a small sample of 88 subjects, in Keller's (1975) study. Also, out of 238 questionnaires sent to a sample of semi-skilled employees, only 53% of these questionnaires were returned in Ivancevich and Donnelly's (1974) study. Furthermore, Parker and DeCotús (1983), Hamner and Tosi (1974) reported no response rate of mailed questionnaires.

d) The analytic techniques used are mainly simple correlation coefficients (e.g. Breaugh, 1980; Brief et al, 1979; Gavin and Axelrod, 1977; Hamner and Tosi, 1974; Ivancevich and Donnelly; 1974; Keller, 1975; Orpen, 1982; Tosi, 1971). Simple correlation coefficients should constitute a preliminary stage for further statistical analysis, because they are prone to spurious effects of other related variables not examined. Thus, it is risky to interpret simple correlation coefficients as such, since the association between role ambiguity and a strain indicator is likely to be an artifact of other undisclosed genuine variables. Additionally, when the relationships between the set of independent variables such as role conflict and role
ambiguity, and the set of dependent variables such as anxiety, depression, dissatisfaction and somatic symptoms, are examined, the dominant analytic procedure consists of the performance of multiple univariate tests, that is, testing the correlation of each work stressor with each strain indicator. In this vein, it is instructive to cite the stands of two methodologists regarding the use of simple correlation coefficients for all possible pairing of variables as described above. Pedhazur (1982) warns that "studying each dependent variable separately, or calculating zero-order correlations only, ignores the very essence and richness of the multifaceted phenomenon being studied. Much of the social world is multivariate in nature, and studying it piecemeal does not hold promise of understanding it" (p. 686).

Similarly, Harris (1975) forcibly expresses the matter: "If researchers were sufficiently narrowminded or theories and measurement techniques so well developed or nature so simple to dictate a single independent variable and a single outcome measure as appropriate in each study, there would be no need for multivariate statistical techniques" (p. 5).

Second An examination of the strength or size of the relationships of role ambiguity to strain indices, lead to the conclusion that most coefficients of correlation, although statistically significant, are of moderate magnitude. For example in the study of Margolis et al. (1974), the significant correlation coefficients range from (r = 0.07) indicating the association of intention to leave job, with role ambiguity; to (r = -0.16) for the correlation of self-esteem with role ambiguity. It follows that the amount of explained variance by each coefficient of correlation does not exceed one percent (r² = 0.005) in the former, and three percent (r² = 0.026) in the latter.

Third With reference to strain indices as related to role ambiguity, the evidence provided is to a great extent equivocal. These inconsistencies in the relationships across studies have been highlighted during the review
of research in this section. However, a plausible explanation of such inconsistent pattern of findings would be that most researchers seek a direct link between role ambiguity and strain, without examining potential intervening or conditioning variables such as organizational structure (e.g. work level, and communication), extra-organizational variables (e.g. social life events; family, relatives and friend support), socio-demographics (e.g. age, education, income and tenure) and personality variables (e.g. locus of control, Type A behaviour pattern, and self-esteem). Indeed, a number of moderator variables have been addressed. Examples of which are: occupational grouping and organizational levels (Miles, 1976; Morris et al., 1979; Schuler, 1977), Communication (Haas, 1964; Kahn et al. 1964), participation (Schuler, 1977), Work characteristics, (Abdel-Halim, 1980), tenure (Brief et al. 1979; Gavin and Axelrod, 1977), Age (Gavin and Axelrod, 1977; Johnson and Stinson, 1975), Type A behaviour pattern (Keenan and McBain, 1979; Orpen, 1982), Locus of control (Abdel-Halim, 1980; Keenan and McBain, 1979; Organ and Green, 1974; Szilagyi et al., 1976), need for clarity (Ivancevich and Donnelly, 1974; Keenan and McBain, 1979; Lyons, 1971; Miles and Pitty 1975; Stead and Scamell, 1980), higher order needs (Beehr, et al.; 1976; Brief and Aldag, 1976), and need for achievement (Abdel-Halim, 1980; Johnson and Stinson, 1975).

Fourth: Yet, the findings regarding the relationships of moderator variables to role ambiguity-strain link is not unequivocal. The citation of some illustrative examples is worthwhile. While Szilagyi, et al., (1976) found that organizational level moderates the relationship of role ambiguity to job satisfaction, Miles (1976) found no indication that organizational level acts as moderator. Beehr (1976) reported that the relationship of role ambiguity to tension and fatigue depends on the level of higher need strength whereas Brief and Aldag (1976) failed to provide such evidence.
While Lyons' (1971) study indicates that the need for clarity moderates the relationship of role ambiguity to satisfaction, but does not significantly moderate the link of role ambiguity to tension; Miles and Petty's (1975) study shows the reverse, that is, the need for clarity moderates the relationship between role ambiguity and tension but does not affect the link of role ambiguity to satisfaction.

To conclude more attention should be paid to the following aspects of relationships:

a) Examination of the effect of role ambiguity upon psychological and physiological strain, after controlling for the effects of other potential stressors.

b) Consideration of the variables that interact with role ambiguity to enhance the prediction of strain.

c) Addressing variables that are likely to mediate the effect of role ambiguity upon strain in order to understand better the network of the relationships that link perceived work stressors to strain.

2.2.2 ROLE CONFLICT

role conflict refers to the occurrence of incompatible expectations, demands, or pressures that a role occupant experiences. In their extreme form, expectations or demands are mutually exclusive, so that compliance with some expectations renders extremely difficult the satisfaction of other demands. However, a continuum of different levels of conflicting expectations can be conceived of since stress studies have addressed varied degrees of role demand incompatibility.

There exist many forms of role conflict. Drawing upon a typology proposed by Kahn, et al., (1964), four types of role conflict are identifiable:

1) Inter-role conflict: The requirements of the occupation of a particular role, conflict with those associated with another or other roles.
2)- Person-role conflict: The incompatibility between a particular role requirements and the role-occupant's cognitions, values and needs.

3)- Intra-Sender conflict: The communication of conflicting expectations from a single role sender.

4)- Inter-Sender conflict: The expectations communicated by one role sender, conflict with those made by another, to a focal person (or person concerned).

(i) Role Conflict and Strain

Various studies have addressed role conflict in relationship to strain in the occupational environment. A sample of which will be reviewed and discussed in this section.

Kahn, et al. (1964), performing an intensive study and a wider national survey reported that role conflict had the following effects upon the affective experience of the focal person: intensified internal conflict, increased tension, reduced satisfaction and decreased confidence in supervisors and in the organization. Strain experienced in conflict situations was associated with reduction in relation to role senders, less trust and attraction.

Tosi (1971), following a study of a sample of managers, reported that role conflict was negatively associated with job satisfaction, and positively correlated with job threat and anxiety. An earlier study conducted by Tosi and Tosi (1970) on teachers indicates that perceived role conflict negatively relates to job satisfaction, but bears no association with job-related threat and anxiety.

In a more recent study, Hamner and Tosi (1974), investigating a sample of managers, concluded that a positive relationship exists between perceived role conflict and job threat, and anxiety. However, no relationship was found between role conflict and either job satisfaction, or the propensity to leave the organization.

Using Rizzo, et al.'s (1970) measures of role conflict and job-related tension, and anxiety to study a sample of executives, Miles (1970) reported
that perceived role conflict was positively related to job-related tension and anxiety, and negatively associated with job satisfaction and positive attitudes towards role senders.

Viewing job satisfaction as a strain indicator, Keller (1975) used the Job Description Index (Smith et al., 1969) to measure five dimensions of job satisfaction among a small sample of professional employees. It was found that perceived role conflict was negatively correlated with three satisfaction dimensions: opportunities for promotion, pay and supervision, but unrelated to satisfaction with the work itself and with co-worker satisfaction.

In a study of professional and technical employees, House and Rizzo (1972) reported that perceived role conflict was negatively associated with satisfaction with job security, recognition, social environment, and adequacy of authority, but not related to satisfaction with advancement, autonomy, pay, and with intrinsic job satisfaction.

Managers also constitute the sample of Parker and DeCotús (1983) study. Work strain was factor-analysed, yielding two strain dimensions: feeling of being under substantial time pressure, and anxiety. The multiple regression analysis indicated that perceived role conflict significantly predicted anxiety. However, perceived role conflict showed no relationship to time pressure strains.

Departure from the previous trend of considering solely psychological strains characterizes the following studies which have examined the linkage between role conflict and physiological strain indicators.

At this juncture, the inter-correlation matrix, as well as the partial regression coefficients provided by Cooke and Rousseau (1984), following a study of teachers, indicate that inter-role conflict (assessed by two items only) positively correlated with somatic complaints and job dissatisfaction, but was unrelated to life dissatisfaction. Similar pattern
of results were found when the confounding effects of other work stressors were controlled for through multiple regression.

Orpen (1982) performed a research into role stressors and physical as well as psychological strain, for a group of middle managers. Data analysis revealed that perceived role conflict was positively related to psychological strains (anxiety, resentment, and depression), and to physical strains including headaches, dizziness, shortage of breath, nausea, and fatigue. Orpen's study, however, indicated that perceived role conflict was unrelated to heart rate, blood pressure and respiration rate.

One of the rare studies concerned with occupational stress of "blue collar workers" was carried out by House, et al. (1979). The findings indicate that perceived role conflict as well as job-non job conflict are significantly related to neurosis, itch and rash, cough and phlegm, ulcers, and to medical evidence of hypertension.

(ii) DISCUSSION:

The findings suggest that role conflict entails some psychological and physiological cost. There are, however, some shortcomings that merit mention:

First: In the main, the significant relationships reported between role conflict and strain indices are not of sufficient magnitude to rely upon. To illustrate, significant coefficients of correlation of role conflict with physical or psychological strain, as low as r = .17 exist in Cooke and Rousseau's(1984) study.

Second: Despite the tendency of researchers to publish positive rather than negative results (Fletcher and Payne, 1980), a great deal of equivocal findings characterize the literature relative to role conflict and strain relationships. While role conflict is related to tension, threat or anxiety,
in some studies (e.g. Miles, 1976; Orpen, 1982; Tosi, 1971), it is unrelated to anxiety, threat and time pressure strains, in other investigations (e.g. Parker and Decotüs, 1983; Rizzo, et al., 1970; Tosi and Tosi, 1970). Additionally, some studies report significant relationships of role conflict to dissatisfaction (Kahn, et al., 1964; Miles, 1976), some other studies indicate that role conflict relates to some dimensions of work dissatisfaction but not with others (Cooke and Rousseau, 1984; House and Rizzo, 1972; Keller, 1975); and finally there are other investigations which have failed to find a significant relationship between role conflict and dissatisfaction. (Hamner and Tosi, 1974; Rizzo et al., 1970).

Furthermore, totally opposite results have been reported by Tosi and co-workers regarding role conflict and strain (dissatisfaction, threat and anxiety). In one study, Tosi and Tosi (1970) found that role conflict was significantly related to job dissatisfaction, but unrelated to perceived threat and anxiety. In another study, on the contrary, Hamner and Tosi (1974) found that role conflict was significantly related to perceived threat and anxiety, but unrelated to job dissatisfaction.

Third There are instances where items used in the measurement of general affective strain such as anxiety, fit better the items that gauge stressors, leading to substantial increase in correlation between the stressors and strains' items. For example, Parker and DeCotüs (1983) adopted, among other questions, the following two items to measure strain: "I have too much work and too little time to do it in" and "working here makes it hard to spend enough time with my family". It can be argued that these items do not reflect psychological strain (emotional reactions) but assess perceived stressors, namely workload (i.e. perceived incompatibility between the work quantity and time length), and inter-work and family role conflict, respectively.

Fourth: Some important psychometric parameters are not sufficiently reported in some published research into role conflict and strain. A telling
example is provided by Tosi's (1974) research in which a number of scales were used (i.e. scales for assessing job satisfaction, threat and anxiety, role ambiguity, and participation-) and for which the reliability coefficients were not computed by the researcher.

To conclude, the majority of the relationships reported between role conflict and strain are equivocal and of moderate magnitude. More clarification of these relationships can be gained by further research which takes into consideration variables that mediate or condition the role conflict-strain linkage.

2.2.3 ROLE OVERLOAD.

Overload refers to excessive demands of a role, which a person has to meet. French and Caplan (1973) distinguish between quantitative and qualitative load. Quantitative load is conceived of as a continuum ranging from too little work, to too much work. Qualitative load continuum, however, ranges from a very low to a very high level of difficulty or complexity of work.

(i) Role Overload and Strain.

Does work overload relate to the psychological and physiological indices of strain?

Margolis et al. (1974), investigating a large sample of employees, found that perceived overload was related to decreased motivation to work, lower self-esteem, frequent absenteeism and escapist drinking. However, perceived overload was not related to depressed mood, life dissatisfaction, job satisfaction and intention to leave job.

The simple correlation coefficients between role stressors and the managers' affective responses, as supplied by Abdel-Halim (1978) following
a study of an industrial organization, indicated that the higher the role overload, the greater the job anxiety; but, no significant relationship were found between role overload, and either work satisfaction and job involvement. On the other hand, when role conflict and role ambiguity were controlled for, role overload showed no associations with job anxiety, job involvement and work satisfaction.

The matrix of the inter-correlations among role stressors and work-related strain, provided by Keenan and McBain (1979), following a study of a sample of middle-managers, indicates that perceived role overload is positively associated with work tensions but not with job satisfaction. However, Keenan and McBain (1979) did not control for possible confounding effects of other role stressors (role ambiguity and role conflict) as Abdel-Halim (1978) did.

Using three indices of role overload, namely, quantitative work load (amount of work), job pressure (time constraint of work) and variation in work load, Gavin and Axelrod (1977) found that neither quantitative workload nor job pressure, were related to anxiety-depression-irritation, and work satisfaction. The only exception was the variable "variation in work load" which was positively related to anxiety-depression-irritation strain.

The study of Caplan and Jones (1975) indicated that changes in subjective quantitative workload were positively correlated with changes in anxiety-tension, but were unrelated to depression and resentment.

So far only affective correlates of role overload have been considered. It is hard to infer a consistent pattern of role overload-emotional strain link, as this relationship varies across studies.

The evidence provided by research into the relationship between role overload and somatic strains is equivocal too. One of the rare examples of research, based primarily upon "blue collar workers" ranging from skilled
craftsmen and technicians to relatively unskilled workers, was carried out
by House, et al. (1979). After controlling for a number of confounding variables
such as age, education, and exposure to noxious physical-chemical agents,
they found that perceived workload predicted self-reported neurosis, itch
and rash, cough and phlegm, but was unrelated to reported angina; ulcers
and medical evidence of high coronary heart risk, respiratory and
dermatological symptoms.

Orpen (1982), in an inquiry based upon a sample of managers, reported that
perceived role overload was related to psychological strain (anxiety,
resentment and depression), and physical strain such as headaches, dizziness,
shortage of breath, nausea and fatigue, but showed no relationship to medical
evidence of increased heart rate, diastolic blood pressure and respiration rate.

Caplan (1971), recording heart rate and determining cholesterol levels
of a small sample of employees, reported that perceived overload was related
to heart rate and cholesterol level. On the other hand, objective workload
(as measured by the number of phone calls and office visits per hour) was
related to cholesterol level but failed to relate to heart rate.

It is apparent from this sample of studies that only modest evidence
exists concerning the relationships of role overload to physiological changes
and health outcomes.

The inconsistencies in the findings regarding role overload and strain
indices whether psychological or physiological have prompted a number of
studies of variables that could explain the variation of findings across
studies. These are termed moderator (conditioning or interactive)
variables because a given relationship may vary depending on the level of
the moderator variable.

A hypothesized moderator variable frequently examined is Type A
behaviour pattern. The study of Brief, et al. (1983) indicated that Type A
behaviour pattern moderates the relationship between perceived overload and work satisfaction. Caplan and Jones (1975) found that Type A moderates the linkage of perceived role overload to anxiety. Orpen (1982) reported that the relationship of perceived overload to psychological and somatic strain was significantly higher in the Type A group. However, the link of perceived overload to the medical evidence of physiological strain such as heart rate, blood pressure and respiration rate remained the same in both Type A and B personality groups.

Yet, there are instances where Type A behaviour pattern was not found to act as a moderator of role overload and strain relationship. Gavin and Axelrod (1977) reported that Type A behaviour pattern did not moderate the associations of perceived overload with anxiety-irritation-depression, psychosomatic symptoms and job dissatisfaction. Similarly, Keenan and McBain (1979) found that perceived role overload relationships to either job satisfaction or tension, were not significantly different across Type A and B behaviour pattern groups.

With reference to other types of moderator variables, Axelrod and Gavin (1980) examined the moderating effect of "blue collar" (supervisors of production workers) and "white collar" employees (managers and engineers) on the relationship of work overload to strain. The results indicated that "white collar" employees perceiving heavier workloads reported lower level of anxiety-depression-irritation than the blue collar workers.

The study of Abdel-Halim (1978) suggests that job enrichment (an index involving task identity, significance, variety, autonomy and feedback) buffers the effect of role overload on job anxiety and dissatisfaction.

House and Wells (1977), using four sources of support (supervisors, wives, coworkers, and friends and relatives) as moderators, found that the impact of overload on ulcers, cough and phlegm, and neurosis, was significantly
reduced by support from co-workers, friends and relatives, supervisors, and wives. However, support from the four mentioned sources did not buffer the effect of overload upon angina pectoris, and itching and rash.

Intolerance of ambiguity and locus of control as conditioning variables have been investigated by Keenan and McBain (1979). Their findings indicate that the association of role overload with work tension and job satisfaction are similar in both internal and external locus of control groups, as well as in both intolerant and tolerant of ambiguity groups.

Gavin and Axelrod (1977), using various potential moderators, concluded that none of the moderator variables, namely flexibility, need for personal approval, social support (from boss, co-workers, and family and friends), age, tenure, education, family size and managerial level, condition the relationship of work overload to anxiety-depression-irritation, work satisfaction, and psychosomatic symptoms.

It can be inferred that the studies which have addressed moderator variables to better predict and understand the relationships of role overload to psychological and physiological indices of strain, are partly successful in bringing about consistent evidence.

(ii) DISCUSSION

The studies reviewed have addressed the relationship between role overload and strain. Examination of the methods used and the evidence provided leads to some remarks.

First: It is recalled, that the study of French and Caplan (1973) used objective measures of work overload. The issue of objective and subjective measures of work overload raises an important question: are objective measures of work overload related to subjective ones? Only very moderate evidence of their relationship exists in the literature. To illustrate, Kahn et al. (1964), using objective role conflict (which includes also role overload) as
reported by role senders and perceived role conflict (including items of role overload), found that objective role conflict and subjective role conflict were weakly related. French and Caplan (1970), following a series of studies in which objective as well as subjective indices of work overload were extensively used, reported that, in one study objective overload (phone calls, office visits per hour...) and perceived overload were substantially related. But, in another study, both measures of work overload: objective and subjective, were unrelated. Coburn (1975) found a weak relationship between the two forms of overload measures. Thus, the relationship of objective overload to perceived overload is not sufficiently supported. Since objective attributes of the external demands cannot necessarily induce stress unless they are perceived as stressful (posing threat or constraint), Therefore, subjective measures of workload in particular and work stressors in general are relevant indicators of stress sources.

Second: It is really difficult to draw a consistent pattern of relationship between work overload and strain from the literature. For example, while some research reports a significant relationship between work overload and anxiety (Caplan and Jones, 1975; Keenan and McBain, 1979; Orpen, 1982) other studies fail to provide such evidence (Abdel-Halim, 1978; Gavin and Axelrod, 1977; Margolis et al. 1974).

Third: There are also no consistent results regarding the relationships of role overload to physiological symptoms, whether objectively or subjectively measured. For instance, reported psychosomatic symptoms show significant relationships to role overload, in some studies (e.g. House et al., 1982; Orpen, 1982), but show no relationships, in others (e.g. Gavin and Axelrod, 1977; Margolis et al., 1974).

Fourth: Research addressing situational and personality moderator variables constitutes an important approach to the work overload-strain link. However, the findings reported are not unequivocal. Some studies, for example, support the moderating effect of type A behaviour pattern on role overload-strain relationships (e.g. Brief et al., 1983; Caplan and Jones, 1975;
Orpen, 1982), whereas other studies lend no support to the moderating role of type A behaviour pattern (e.g. Gavin and Axelrod, 1977; Keenan and McBain, 1979).

To conclude, the lack of a consistent pattern of relationships between role overload and strain indices, whether psychological or physiological, expresses the need for more studies, which deal not only with managerial, supervisory and technical functions, but also with shopfloor workers. Also, the rigour in the data analysis is needed, since without some sophistication in the analysis of work overload relationships, or in the absence of statistical control for the confounding effects of some variables, an adequate disclosure of potential relationships is unlikely.

2.2.4 TASK CHARACTERISTICS.

Task characteristics have been approached from various standpoints: repetitiveness, pacing, load, physical working conditions, feedback etc. As the range of task characteristics are too broad to be adequately considered, only some aspects are examined in relationship to strain.

(i) TASK CHARACTERISTICS AND STRAIN

Repetitive work has been the focus of a number of studies. With regard to psychological strain, early work on repetitive work correlates indicated that boredom was widely reported in connection with task constraint (imposed pacing) as distinct from repetitiveness (repeated operations within a unit of time). Interviewing a sample of employees performing paced work, Walker and Guest (1952) found that constraint of the task rather than its repetition was related to boredom and hostility. They also noticed that dissatisfaction arose from pacing and not from repetitiveness.

Kornhauser (1965), investigated the relationship of repetitiveness and machine-pacing of work to a mental health index involving measures of
anxiety and emotional tension, self-esteem, hostility, sociability, life satisfaction and personal morale. The researcher found that repetitive work was related to poor mental health, less job satisfaction, and lack of interest in work.

However, Turner and Miclette (1962), in a study carried out in an electronic factory, were surprised to find that about half of the female workers interviewed on the assembly line, reported interest and satisfaction with the repetitive tasks. Only few operatives found the task boring. Additionally, an important finding is that the interruption in the pace of work, following the machine breakdowns, or defective items, rather than the task regular pace, constitutes a major source of frustration.

Cox and Mackay (1979a) administered a short job-description checklist to a sample of male and female workers engaging in various types of repetitive work. The data were factor-analysed, and four factors were identified, namely, pleasantness involving perception of work as exciting, satisfying, enjoyable and fun; tedium (work perceived as pointless, dull, boring); pressure (i.e. tiring, demanding, fast); and difficulty (i.e. complicated, worrying, difficult). The interesting point, considering these four factors, is that workers described their job as tedious, pressured and difficult, but pleasant too. Another point is that job satisfaction was not identified as a factor of repetitive task perception. Thus, it may indicate that job satisfaction is not a salient feature in the workers' perception of repetitive work.

If the above studies have concentrated on such feelings as frustration, boredom, hostility, anxiety, dissatisfaction as a result of repetitive and/or paced tasks, other studies have addressed the relationships of affective and physiological changes to repetitive tasks. In this vein, a study of psychological and physiological stress reactions to highly mechanized work
in the Swedish sawmill industry was carried out by Johanson et al. (1976). It was found that sawmill workers, performing operations with very short cycle time, reported more irritation, depression, boredom, isolation, disturbed sleep, and gastro-intestinal complaints; excreted more catecholamines especially urinary adrenaline, than the group engaging in maintenance involving larger cycle time of operations.

Cox and Mackay and collaborators (Cox 1980; Mackay, et al. 1979) performed an experimental study, using simulated paced-repetitive task, on a small sample of twelve women. The results indicated that reported strain was much higher in the two paced-repetitive tasks used, and lower in the unpaced repetitive task. However, the time of exposure showed only a moderate effect on strain. Additionally, repetitiveness, exposure time, and pacing, were associated with elevated heart rate, heart rate variability (mean inter-beat intervals), urinary nonadrenaline and salivary potassium concentration.

While the afore-mentioned studies have considered the physical aspects of repetitive work (i.e. work cycle duration, repetitiveness, pacing, exposure time, etc..), other studies have examined the socio-psychological content of the tasks performed.

In this context, a survey conducted by Margolis and Kroes (1974) on a large sample, indicated that the under-utilization of skills was associated with increased perceived somatic symptoms, depressed mood, life and job dissatisfaction, escapist drinking, intention to leave, and absenteeism; and was related to lower self-esteem and lack of motivation to work.

Gavin and Axelrod (1977), surveying a sample of supervisors and engineers in a mining organization, found that lower level of utilization of skill was associated with high anxiety-depression-irritation, work dissatisfaction and psychosomatic symptoms.
Using Hackman and Lawler's (1971) Job Diagnostic Survey, involving such characteristics as skill variety, task identity, task significance, autonomy and feedback, Brief and Aldag (1976) provided an inter-correlation matrix between the above mentioned task perceptions, and strain. Three task characteristics (i.e. skill variety, task significance, and autonomy) were correlated with work satisfaction. However, the majority of strain indicators, including, anxiety and tension, failed to relate to the five task characteristics.

Parker and DeCotiis (1983) used a set of task aspects in a study of a restaurant chain managers. They found that time strain, i.e., the feelings of being under great time pressure, was related to autonomy, stability, and hours worked per week; but was unrelated to task variety, emphasis on achievement, and base salary. Anxiety (a second factor derived from the strain data) was related to low stability and hours worked per week. However, anxiety showed no relationship to low autonomy, task variety, base salary, and emphasis on achievement.

Abdel-Halim (1978) studied the moderating effects of task characteristics using Hackman and Oldham's (1975) revised Job Diagnostic Survey. The five task characteristics, namely, skill variety, task identity, task significance, autonomy, and feedback, were integrated in an index termed 'Motivating Potential Score' previously used by Hackman and Oldham (1975), Oldham et al. (1976), and Umstot et al. (1976). It was found that the task characteristics or the Motivating Potential Score moderated the relationship of role ambiguity and overload to anxiety, involvement and satisfaction.

House et al. (1978), investigating a large sample of blue collar workers, found that extrinsic rewards (e.g. physical working conditions, pay, etc.) predicted perceived neurosis, itch and rash, cough and phlegm; and medical evidence of hypertension, high coronary heart disease risk and dermatitis.

(ii) DISCUSSION.

Considering the reviewed studies, the following observations merit mention:
First: It is naive to interpret a significant relationship between paced or repetitive work and a given index of strain, as indicating a true relationship without controlling statistically, at least, for the confounding variables that are likely to condition, mediate, or modify the relationship. For example, while paced and repetitive work relate to the feelings of boredom and dissatistaction (Walker and Guest 1952), it is associated with interest and satisfaction in Turner and Miclette’s (1962) study. However, the matter can be more adequately clarified if some relevant task, person, and organization-based variables are taken into consideration. For instance, Kornhauser (1965) reported that mechanically-paced work was related to poor mental health. But, when age variable was introduced in the analysis, the researcher found that machine pacing was related to poor mental health in the middle-aged group, but not in the young group of employees. This relationship would have been further specified and clarified, if other relevant variables are considered.

Second: Research using broader range of task characteristics raises the question of whether the task characteristics are sources of stress or moderators. Brief and Aldag (1976), and House et al. (1978) used some perceived characteristics of the task as stressors, whereas, Abdel-Halim (1978) considered them as moderator variables that interact with some role stressors to enhance the prediction of strain. This question is still at issue, and needs further exploration.

To conclude, more understanding may be gained if the direct link of perceived task characteristics to strain is enriched through the introduction of other demographic, personality, situational and organizational variables which may render the relationship more accurate and more informative.
2.3 ORGANIZATIONAL VARIABLES AND STRESS

Organizational variables encompass static or structural, as well as dynamic or functional properties of an organization. It should be noted that the demarcation between individual roles or tasks, and organizational processes is conceptually arbitrary, but, practically convenient for the categorization of variables.

Although stress research has dealt with various organizational variables, only those aspects of direct relevance to the present endeavour will be examined. Therefore, the following sections approach the relationships of participation and social support to role stressors, and to the manifestation of strain, reporting selectively a sample of important empirical studies.

2.3.1 PARTICIPATION

Owing to the complexity of the term "participation", it is more relevant to describe it in terms of features or properties and disregard the ideological and value systems that underly it. Drawing upon a typology proposed by Dachler and Wilpert (1978), some dimensions along which participatory systems may vary consist of: (a) formal or informal participation introduced on a legal basis (charter, constitution; regional laws, etc.), contractual bases (mainly by means of collective bargaining agreements), and on the basis of unilateral management policies or regulations. (b) Direct-indirect participation, that is, immediate involvement of the organization members in decision-making or through some forms of representation. (c) Access to participation in decisions: participation can be conceived of as a continuum involving varying amount of influence on decisions that range from mild participatory form (e.g. sharing information), through consultation, to the high form of influence (decision-making invested in the bodies representing workers). Participation as a continuum has been adopted by many researchers (Belasco and Alutto, 1969; Tannenbaum and Schmidt, 1958).
Vroom and Yetton, 1973). Among other forms of participation that exist in the literature (Dachler and Wilpert, 1978; Walker 1974) only these dimensions have been mentioned because of their relevance to the research to be reviewed.

Researchers, addressing the relationship of work stressors to strain, view the participation variable as an independent, dependent and intervening variable.1

(i) PARTICIPATION AS AN INDEPENDENT VARIABLE (A PREDICTOR)

Mainly, the lack of participation has been viewed as a source of psychological strain. In this context, French and Caplan (1973), summarizing the findings of their studies, conclude that higher participation relates to low psychological strain (high job satisfaction, low job-related threat, high self-esteem and low alienation); good working relation with immediate superior, colleagues, and subordinates; high level of productivity, performance improvement, low absenteeism, and low turnover.

The impressive list of the participation payoffs as reported by French and Caplan (1973) conversely matches the consequences of low level of participation as reported by Margolis, et al. (1974). Based on a large community sample of employees, Margolis, et al.'s (1974) study indicates that 'lack of participation' is associated with depressed mood, job dissatisfaction, life dissatisfaction, low self-esteem, low motivation to work, overall poor physical health, escapist drinking, high propensity to leave the job, and absenteeism. They concluded that 'lack of participation', compared with other work stressors, is the most important stressor that affects workers' physical and mental health.

Applying Vroom's (1963) measure of influence-power-sharing to a sample of managers, Tosi (1971) reported that participation was negatively associated with job threat and anxiety; and positively correlated with job satisfaction.

Gavin and Axelrod (1977), using a sample of mining management employees,
reported that the higher the participation, the lower the anxiety-irritation-depression, the greater job satisfaction. However, participation showed no relationship to psychosomatic symptoms.

Investigating production workers, nurses and teachers, Alutto and co-workers (Alutto and Acito, 1974; Alutto and Belaxo, 1972; Alutto and Vredenburgh, 1977) have adopted their own typology of participation in decision-making consisting of decisional deprivation (i.e., participation in fewer decision than desired), decisional equilibrium (i.e., participation in the number of decisions that fits the amount desired), and decisional saturation (participation in more decisions than desired). It was found that decision-making deprivation was related to job dissatisfaction and high level of job tension.

Adopting the same typology of participation in an investigation of a sample of highly skilled project engineers, Ivancevich (1979) found that decision-deprived participants reported higher job-related tensions and psychosomatic strain, negative attitudes toward the company, lower work and supervision satisfaction, than did their decision equilibrium counterparts.

A field experiment study, in which participation was manipulated by asking some supervisors in an outpatient hospital to conduct frequent meetings with employees, was performed by Jackson (1983). The measurement of participation was based on the subjects' report of the amount of say about a number of topics during a given period. Also, a measure of perceived influence was used based upon Vroom (1959), Newman (1977), and Moos and Insel's (1974) scales. Path analysis indicated that participation affected emotional strain, overall job satisfaction, and turnover intention; through the mediation of role conflict, role ambiguity, and perceived influence; that is, greater participation in decision-making leads to greater perception of influence which transfers and enhances the effect of participation on
overall job satisfaction. Also higher level of participation reduces role
conflict and ambiguity; reduction in the two role stressors lowers emotional
strain, increases overall job satisfaction, and diminishes absence frequency
and turnover.

(ii) PARTICIPATION AS AN INTERVENING VARIABLE (MEDIATOR OR MODERATOR)

Participation was regarded in the previous studies as an independent
variable or a predictor. Other studies, however, view participation as a
moderator variable that modifies the relationship between stressors and strains.

Using Siegel and Ruh (1973) measure of participation (an adapted version
of Vroom's (1959) Scale of influence), Schuler (1977) found that higher
role ambiguity and role conflict were related to higher job satisfaction
under the condition of high participation. But, low role ambiguity and role
conflict were associated with low level of satisfaction under the condition
of low participation. Unfortunately, other indices of affective strain were
not included in the study.

(iii) PARTICIPATION AS A DEPENDENT VARIABLE (CRITERION)

Perceived influence as dependent upon the person-environment characteristics
(The interaction of some personality characteristics with participation
opportunities) constitutes the focus of James, et al.'s (1979) study.
Adopting Vroom's (1963) measure of perceived influence, and the supervisors'
report of their subordinates' opportunities for participation, they found
that subordinates' perception of influence was higher in work environments
characterized by less stability (more complexity, uncertainty and changes),
less structured (less specialization), and in less routine tasks. These
were also the type of situations under which supervisors were more likely
to provide for participation opportunities to their subordinates.

(iv) DISCUSSION AND CONCLUSIONS.

An examination of the studies reviewed leads to some methodological
and conceptual remarks:
First: the types of participation underlying most stress studies have the following features:

(a)- Major concern was oriented toward direct participation, and rarely toward indirect participation through some form of workers' representation.

(b)- Participation adopted in stress research is limited to matters relating to the tasks, and rarely to higher levels of participation in decision-making regarding programmes, plans and policies.

(c)- The degree of participation addressed by most studies consists of: the sharing of information and the communication of opinions. This can be inferred from the measures of participation used. The most popular scale of participation is Vroom's (1959) scale of perceived influence or psychological participation. The scale concentrates on the employees' expression of opinion about matters related directly to their tasks, and on the extent to which such opinions are welcomed by supervisors. However, other degrees of legal power to influence decision-making, whether unilaterally by workers' bodies or through joint decision-making with management, have rarely been addressed.

(d)- Generally, the basis of the introduction of participation consists of the unilateral initiative of the management, or the informal initiative of some members of the organization such as the supervisors. Rarely, does the introduction of a participatory scheme involve a systematic legitimization of a given participatory system through explicit legislation and statutes.

(e)- The range of employees covered by the participatory scheme is mainly limited to a department, a service or a small group, and it rarely concerns the whole members of the organization.

As most studies have been conducted in the United States, where participation is usually initiated by management in response to behavioural problems such as absenteeism, turnover, and dissatisfaction; and to increase
the effectiveness of the organization. And, where the existing participatory schemes limit the access of participants to the decision-making, restrict the range and importance of decisions to be included, tend to be direct and informal, and usually involve a limited range of employees (Dachler and Wilpert, 1978). It is understandable why researchers have adopted a fragmentary treatment of participation. There exist, however, some studies conducted in connection with some participatory systems, such as Yugoslav self-management, but their focus lies in the relationship between perceived participation, control, attitudes, and effectiveness. (e.g. Kavčić et al. 1971; Obradovic, 1970; Obradovic and Dunn, 1978; Seibel and Damachi, 1982). What is needed is the relationship of participation to psychological and physiological strain in the context of institutionalized systems of participation.

Second: It appears that in most studies, participation has been regarded as an independent variable or a predictor of the level of strain, on the ground that involvement in participation reduces strain, and lack of participation increases it. But, whether participation serves to buffer or modify the relationship between stressors and strain is an important hypothesis which is not sufficiently examined by researchers.

Third: Lack of participation in most research has been examined in relation to psychological strain (dissatisfaction, tension, anxiety, and depression) or behavioural outcomes (lateness, grievance, absenteeism, decreased performance). However, the relationship of participation to psychosomatic symptoms is not sufficiently investigated. It is important to mention that the general pattern of results seems to suggest the existence of a relationship between perceived lack of participation and psychological strain. On the other hand, psychosomatic strain shows no consistent pattern of relationship to participation. While the study of Margolis, et al., (1974) indicates a
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significant relationship between lack of participation and psychosomatic strain; the study of Gavin and Axelrod (1977) fails to find such relationship.

In conclusion, some aspects of participation in relation to strain need further examination: Whether perceived participation has a direct bearing on strain, or acts as a moderator variable of the stressor-strain relationships. Additionally, the examination of psychosomatic and physiological indices of strain as related to participation is needed. Finally, the examination of other forms of participation such as legislated, indirect (through workers' representative bodies in the organization) type of participation in decision-making, covering wider range of issues and concerning all members of the organization, is warranted in stress research.

2.3.2 SOCIAL SUPPORT

Social support is the extent to which an individual's needs are met by significant others (Kaplan, et al., 1977) through:

(a) emotional concern (affectation, sympathy, esteem from significant others, etc.)

(b) Instrumental aid (provision of material help or services)

(c) Information aid (advice, information about the environment, etc.)


Social support is a multidimensional concept involving such dimensions as the amount of support, type of support (whether instrumental, emotional or informational) and sources of support from coworkers, supervision, spouse and friends (Dean and Lin, 1977; Hamner, 1981; Thoits, 1982).

(i) SOCIAL SUPPORT AS AN INDEPENDENT VARIABLE (PREDICTOR).

Social support is viewed as an antecedent condition among other
situational conditions or stressors that relate to or predict psychological or physiological strains.

The study of Caplan et al. (1975) based on data gathered from 23 occupations, indicates that poor social support from supervisors and others at work is associated with dissatisfaction, boredom and depression; but shows no consistent relationship to physiological strain, namely, heart rate, cholesterol, and uric acid. The results also indicate that support at work has a stronger relationship to strain than the home support.

Reanalysing the data reported in Caplan et al. (1975), Pinneau (1976) found that depression, anxiety, and irritation, were associated with poor social support at home and at work. These relationships remained significant across 16 occupational groups, even when the confounding effects of some work stressors were controlled for.

Billings and Moos (1982), investigating work stress among a community sample, reported that employees who experienced more stressors, and received less social support (from supervisor and co-workers), tended to experience higher level of depression, anxiety, and psychosomatic symptoms; and lower level of self-confidence.

Seers et al. (1983) measured four sources of stress, and some satisfaction facets from a sample of employees. A weak relationship of social support to overall and facet satisfaction was found. That is, among 20 correlations, only five were significant.

Parker and DeCotüs (1983) factor-analysed strain data into two strain factors: time strain, and anxiety. The data analysis showed that supervisor support, and cohesiveness, were associated with time strain. However, none of these sources of support was related to anxiety.

(ii) THE BUFFERING HYPOTHESIS OF SOCIAL SUPPORT

Perhaps most work on social support and stress has been concerned with
the examination of the moderating or conditionning role of social support in the relationship of stressors to strain. Social support is considered as a buffer when work stressors relate to low strain under the condition of high social support, and relate to high strain under the condition of low social support.

Pinneau (1976) examined the data supplied by the I.S.R (Institute for Social Research at the University of Michigan) research team on work stress and health. He found that the interaction between social support and stressors in predicting psychological and physiological strains was not significant.

The outcome of a study carried out by Gavin and Axelrod (1977) supports the findings reported by Pinneau. Investigating a sample of mining management employees, the researchers found that none of the measures of social support used moderated the stressor-strain relationship.

A study conducted by LaRocco and Jones (1978), brought no convincing evidence for the refutation of the absence of the buffering effect of social support. Examining leader facilitation and work group cooperation as potential buffer variables of the relationship between a composite measure of stressors and dissatisfaction. The results showed no indication of the moderating effect of social support upon the stressor-strain relationship.

Owing to these frustrating findings, Blau (1981) remarked that neither Pinneau (1976) nor LaRocco and Jones (1978) have controlled for some potentially confounding variables such as length of service. Following an investigation of a sample of bus operators, Blau (1981) related three stressors to dissatisfaction, then many factors of social support were introduced in the analysis. The results indicated that various social support sources had a direct effect upon job dissatisfaction. Yet, among nine interactions of social support with stressors, only one interaction was related to dissatisfaction.
after adjusting for the length of service. Thus, Blau's (1981) study, too, fails to support the buffering hypothesis of social support.

The pessimistic picture that has emerged from the foregoing attempts, has been reduced by some promising findings reported by House (1980). The large scale study of "blue collar" workers in a large chemical and rubber setting, reported by House (1980), indicates that social support moderates the relationship of perceived stressors to life satisfaction and neurotic symptoms. In another account of the same study, House and Wells (1978) report that, of 28 computed conditioning effect of one or more types of support, 13 interactions of social support with strain to predict health outcomes (angina pectoris, ulcers, itching and rash, and cough and phlegm) were significant.

The conflicting evidence has stimulated other attempts. In order to evidence the issue, LaRocco et al. (1980) re-examined the data collected by the I.S.R research team (Caplan et al., 1975) which were also analysed by Pinneau (1976). The results indicated that social support did not mitigate the impact of job stressors on job strain such as dissatisfaction, boredom, and work load dissatisfaction: among the total of 45 interactions, only 7 were significant. However, the moderating effect of social support upon the relationship of job stressors to depression, irritation, anxiety and psychosomatic complaints, were fairly better. Overall, of 60 possible interactions, 21 interactions were significant. Anxiety was the least affected by the interaction of social support with job stressors. Thus, the potential role of social support as an alleviating agent of the effects of stressors on psychological strain is moderately supported.

Billings and Moos' (1982) study of a community sample of employees provides some evidence of the buffering hypothesis of social support. The analysis showed that work support attenuated the effect of work stressors
upon anxiety, while family resources mitigated the impact of work stressors on depression and psychosomatic symptoms. It should be noted, however, that the main effects (independent effects) of social support from home and work upon strain were viewed by these researchers as reflecting the moderating or buffering influence of social support.

(iii) THE COPING HYPOTHESIS OF SOCIAL SUPPORT

Most researchers addressing the hypothesis of the buffering role of social support, analysed the change of the relationship of stressors to strain, under different levels of social support. However, it is conceptually possible to study the relationship of strain to social support under different levels of stressors.

Jenkins (1979) has theorized that the use of social support constitutes an adaptive defensive reaction by individuals perceiving situational stressors and enduring strain.

Seers, et al. (1983), following some leads from Lin, et al. (1979), and Unger and Powell's (1980) research, differentiated between two hypotheses of social support effects: the buffering hypothesis represented by the positive relationship of stressors to strain under low social support, and the absence of that relationship under high social support. On the other hand, the coping hypothesis consists of a negative relationship of social support to strain under high stressor conditions, and the absence of that relationship under low stressor conditions. It was found that the nature of the interaction between each stressor (role ambiguity and role conflict) and strain (overall and facet satisfaction) substantiated the coping hypothesis and demonstrated the inadequacy of the buffer hypothesis (of social support). The researchers concluded that supportive relationships provide a strategy for dealing with job stressors.

(IV) DISCUSSION AND CONCLUSIONS

Correlational studies tend to suggest that poor social support is associated
with increased strain such as anxiety, irritation, depression, dissatisfaction, etc. However, rare are studies that examine social support in relationship to psychosomatic symptoms and physiological changes. The attractive hypothesis of social support acting as a buffer of the stressors-strain relationship, forms the ground for research finding controversies.

Besides the difficulty of inferring a pattern of the relationship of social support to the stressor-strain link, other observations are worth mentioning.

First: Most researchers tend to use insufficient number of work stressors (mainly one or two types of stressors). The lack of coverage of work stressors renders undisclosed the role of social support in the relationship of some work stressors to strain.

Second: Strain indices have inadequately been examined. Some studies use only one indicator of psychological strain. Blau (1981), for example, employs dissatisfaction only, as an indicator of strain in the absence of other affective strains such as anxiety, irritation, depression etc.

Similarly, LaRocco and Jones (1976), and Seers et al. (1983), adopt overall and facet satisfaction as an index of psychological strain, ignoring other aspects of strain whether affective, psychosomatic or physiological.

Third: The relationship of social support to stress has been examined without controlling (statistically at least) for the confounding effects of some variables such as sex, age, education, income, tenure, etc. This shortcoming is highlighted by a pertinent criticism of Blau (1981) in that neither Pinneau (1976), nor LaRocco and Jones (1978), have adjusted for the potentially confounding effect of length of service.

Fourth: Most studies, examining the buffering or moderating effect of social support, have used moderated multiple regression, hierarchical multiple regression, with the multiplicative terms, indicating interaction.
However, Billings and Moos (1982) used multiple regression without such a multiplicative term and considered the regression coefficients of work stressors, work resources and family resources (i.e., social support from work and family) as indices of the moderating effects of these resources of support on the work stressor-strain relationship. It can be argued that the regression coefficients of work and family resources represent their contribution to the prediction of strain when the contribution of work stressors to strain is controlled for. In other terms, these regression coefficients (Partial or part coefficients of regression) represent the main effects of work resources and family resources. The interactive effect of these resources with work stressors is usually indicated by the multiplicative terms. (Abdel-Halim, 1981; Allison, 1977; Bederian, et al. 1983; Hulin and Smith 1964; Hunt, et al., 1975)

To conclude, the impact of social support upon strain needs further consideration. Additionally, it is of importance to address whether social support acts as a moderator, a mediator or a coping strategy (as suggested by Seers et al., 1983), in the stressor-strain relationships using various perceived work stressors and multiple indicators of strain.

2.4 INDIVIDUAL DIFFERENCES AND STRESS

Various individual differences have been investigated in relation to stress. Individual differences consist of personal socio-demographic characteristics, such as gender, age, marital status, education, occupation, and income; and personality characteristics, such as extroversion-introversion, flexibility-rigidity, achievement orientation, trait anxiety, general beliefs about personal control, self-esteem, and type A behaviour pattern.

Owing to their adoption in the present research, only a few socio-demographics, and three personality characteristics, namely, type A behaviour pattern, locus of control, and self-esteem, will be examined in relation to stress.
2.4.1 TYPE A BEHAVIOUR PATTERN

Early observations of Coronary Heart Disease (CHD) led some researchers to identify some associated behavioural characteristics such as hard-driving behaviour (Osler, 1892), aggressivity (Menninger and Menninger, 1936) and goal-directed behaviour (Dunbar, 1943). But the merit of the systematic examination of the behavioural patterns resulting from the interaction of a person's predisposition with eliciting situational demands, is attributed to the cardiologists: Friedman and Rosenman (Friedman and Rosenman, 1959, 1974; Rosenman and Friedman, 1961). The two researchers identified a set of psychological characteristics of behaviour which prevailed in most CHD cases examined. The pattern of overt behaviour (termed type A behaviour pattern) consists of: (a) such behavioural dispositions as ambitiousness, aggressiveness, competitiveness, and impatience. (b) Specific behaviours such as alertness, muscle tenseness, rapid and emphatic speech stylistics; (c) emotional reactions such as enhanced irritation and expressed signs of anger. (Rosenman and Chesney, 1982). The relative absence of these behavioural characteristics forms type B behaviour pattern.

(i) TYPE A BEHAVIOUR PATTERN AND CORONARY HEART DISEASES (CHD)

Before examining the relationship of type A behaviour pattern to stress, it is necessary, beforehand, to ascertain whether the evidence relating type A behaviour to CHD is sufficient enough to warrant the adoption of type A behaviour pattern as prone to CHD incidences. Since the body of research into this matter is impressive, only a brief account of significant evidence is made.

The early studies carried out by Friedman and Rosenman (Friedman and Rosenman, 1959; Rosenman and Friedman, 1961) yield a significant relationship between type A behaviour pattern and CHD, in both sexes, net of the effects of diet and other risk factors.
A systematic examination of this relationship was carried out by Rosenman and Friedman, and their associates (Rosenman et al., 1964a, 1966, 1970, 1975, 1976) in a large scale study known as the Western Collaborative Group Study (WCGS). In this research, a community sample of 3154 employed males has been followed up over a period of 8.5 years. The findings confirmed the association of type A behaviour pattern with CHD, in that the person's with type A behaviour pattern, at the onset of the study, had more than twice the rate of new CHD, were five times more likely to develop a second myocardial infarction, and had twice the rate of fatal heart attack, than the CHD prevalence and incidence rate in the Type B behaviour pattern group. Yet, this relationship of type A behaviour to CHD was found to be independent of the effects of other risk factors such as age, blood pressure, serum lipids, cigarettes smoking and parental history of heart disease. Thus, the findings indicate that type A behaviour is an independent precursor of CHD. (Brand et al., 1976)

Generally, these findings have been supported by another large scale study known as the Framingham Study. Haynes and collaborators (Haynes, Feinleib et al., 1978; Haynes, Levine, et al. 1978) investigated 1822 subjects and found that type A behaviour pattern correlated with the prevalence of CHD in both sexes, even when controlling for other risk factors. In a prospective follow up examination of 1674 male subjects free of CHD, over 8 years, Haynes and co-workers (1980) reported that the subjects with type A behaviour pattern, were more than twice as likely to develop angina and myocardial infarction than type B behaviour persons. Similarly, the incidence of angina and infarction was more than two times higher in type A females than in type B group.

In addition to the evidence provided by these large scale studies, two important reviews of most existing research into type A behaviour pattern
and CHD, warrant consideration. Feinleib et al. (1978), and Rosenman and Chesney (1980), following comprehensive reviews of CHD and type A behaviour, concluded that the available evidence indicates that type A behaviour has a causal relationship to the prevalence and incidence of CHD in both sexes, and predictive power equivalent to the standard risk factors for CHD.

Of important is the report issued by a recent conference grouping many scientists from different behavioural and biomedical specialities, convened by the national Heart, Lung and Blood Institute (1978). The panel, after an examination of published studies, agreed that the available scientific evidence supports the relationship of type A behaviour to CHD incidence net of the effects of CHD risk factors such as age, systolic blood pressure, serum cholesterol and smoking; the type A relationship to CHD risks is equivalent in magnitude to the risks generated by standard risk factors.

(ii) TYPE A BEHAVIOUR PATTERN AS A MODERATOR VARIABLE

The hypothesis that some stressors relate differently to some strains depending on the type of behaviour pattern whether type A or B, has been addressed by some researchers. Adopting a scale proposed by Vickers (1973), and Keenan and McBain (1979), to assess type A behaviour among a sample of middle managers, Orpen (1982) found that managers with type A behaviour, reported more psychological strain (anxiety, resentment, and depression) and psychosomatic strain (headaches, dizziness, shortage of breath, nausea, and fatigue) from role conflict and role overload than type A counterparts. However, the association of affective and psychosomatic strain with role ambiguity was not differently affected by type A and B behaviour patterns. With regard to physiological indicators of strain, Orpen's study indicated that the correlations of role stressors with heart rate, blood pressure and respiration rate, were not significantly different in the type A and type B groups.
Brief, et al., (1983) examined the effect of type A upon the association of perceived workload with workload dissatisfaction and depression. They found that type A behaviour moderated the relationship between subjective workload and workload dissatisfaction. However, no differential association of workload dissatisfaction with depression was found in type A and type B behaviour pattern groups.

Keenan and McBain (1979), in a study based upon middle managers sample, found that managers having type A pattern of behaviour reacted with more dissatisfaction to role ambiguity than did type B counterparts. However, the difference in the level of tension as a result of role ambiguity was not significant between type A and type B behaviour groups. Also, contrary to their prediction, the association of role overload and role conflict with work tension and job satisfaction was not different under type A and type B behaviour pattern conditions. Gavin and Axelrod (1977) examined the role of type A behaviour in the stressor-strain relationship, applying Vicker's (1973) measure of type A behaviour to a sample of management personnel. The results indicated that the association of work stressors with anxiety-depression-irritation strain, work satisfaction and psychosomatic symptoms, were similar in both type A and B behaviour pattern groups.

(iii) TYPE A BEHAVIOUR PATTERN AS A DEPENDENT VARIABLE.

A number of studies have addressed the correlates of type A behaviour pattern. In this context, the research of Howard, et al. (1976; 1977), based upon the investigation of a sample of managers interviewed by means of Rosenman, et al.'s (1964ab) Structured Interview (SI) measure of type A behaviour pattern, revealed that type A behaviour was associated with heavy workload supervisory responsibility for people, conflicting demands and competition, but showed no relationship to job dissatisfaction. Type A managers manifested higher restlessness, agitation, fatigue, depression, lack of concentration; blood pressure, serum cholesterol and smoking rate.
Unlike most studies, female managers and administrators constitute the sample of Davidson, et al.'s (1980) study. Using Bortner and Roserman's (1967) rating scale as the measure of type A behaviour, they found that the best predictors of type A behaviour pattern were frustration, irritation and anxiety.

Keenan and McBain (1979), following a study of middle managers, reported that type A behaviour was positively related to heavy role overload, but unrelated to role conflict, ambiguity and psychological strain indices such as work tension and job satisfaction.

Investigating a sample of senior administrators using an elaborated version of sales' type A measure (Caplan, 1971), Burke and Weir (1980a) found that type A behaviour was associated with heavier responsibility for things, greater quantitative and qualitative overload, more inadequate communications and pay inequity. However, Type A behaviour showed no relationship to such stressors as role ambiguity, job complexity, role conflict, and responsibility for people; and to some strain indices such as work dissatisfaction, anxiety-tension, and psychosomatic symptoms.

(iv) TYPE A BEHAVIOUR PATTERN AS AN INDEPENDENT VARIABLE

An example of conceptualization of type A behaviour pattern as an antecedent condition that influences stressor and strain, has been provided by the study of Brief, et al. (1983). They hypothesized that type A behaviour affects depression indirectly through workload dissatisfaction, and subjective quantitative workload dissatisfaction. Using path analysis to test the model, the causal chain: Type A behaviour $\rightarrow$ subjective workload dissatisfaction $\rightarrow$ depression, was substantiated.

(v) DISCUSSION AND CONCLUSIONS

The prime concern of this section is not the examination of type A behaviour and CHD link, but the relationship of type A behaviour to work stressors, on one hand; and psychological and physiological strain, on the
other. To this concern the discussion is directed.

First: How does type A behaviour relate to work stressors and strain? Referring to a recent review by Chesney and Rosenman (1980), type A individuals tend to describe their job as having more responsibility, longer hours, and heavier workload than do type B persons. "Despite these job pressures, type A's in general do not report more job dissatisfaction, anxiety or depression than do type A's." Therefore, type A workers are predisposed to experience more work stress but, emotionally, are less responsive to these perceived stressors than type B counterparts.

Considering the research reviewed, it can be argued that conflicting evidence has mostly been reported concerning the association of type A behaviour with strain. To illustrate, while some studies report significant relationships of type A behaviour pattern to psychological strain, such as: frustration, irritation (Davidson and Cooper, 1980; Waldron et al., 1976), anxiety (Davidson and Cooper, 1980), depression (Burke and Weir, 1980; Howard et al., 1976), restlessness, feeling of fatigue, and lack of concentration (Howard et al., 1976); other studies report no association of type A behaviour with strain, such as: anxiety (Cooper et al., 1978), work tension, job satisfaction (Burke and Weir, 1980a; Keenan and McBain, 1979) and psychosomatic complaints (Burke and Weir, 1980a).

Second: In some studies, type A behaviour was conceived of as a moderator variable, that is, work stressors relate to strain differently, depending on the type of the behaviour pattern. However, the foregoing review indicates that the conditioning (moderating) effect of type A behaviour on the stressor-strain relationship is inconsistent. For example, the findings of Orpen's (1982) research support the moderating effect of type A behaviour; but Gavin and Axelrod's (1977) and Keenan and McBain's (1979) studies lend little support to the moderating role of type A behaviour in the stressor-strain link.
Third: Unlike the majority of type A correlate studies, Brief, et al. (1983) proposed an interesting causal model that treats type A behaviour as an antecedent variable. Path analysis supports the causal chain: Type A behaviour → workload → load satisfaction → depression. It is unfortunate, given the importance of this approach, that the reverse of this causal chain, although conceptually plausible, was not examined.

Fourth: A number of studies of occupational stress have used Vickers' (1973) or Sales' (Caplan, et al. 1975) measure of type A behaviour. However, Chesney and Rosenman (1982) pointed out that a significant relationship of these scales to Structured Interview (whose validity, i.e. its relationship to CHD risk or incidence, has often been established) has not been demonstrated, "nor have they been studied in relationship to CHD risk or incidence in either prospective or retrospective studies."

To conclude, the evidence provided by research into the relationship of type A behaviour to stressors and strains is not unequivocal. Therefore, research into: (a) - the relationship of type A behaviour to perceived work stressors; (b) - the relationship between type A behaviour and different strain indices whether psychological or physiological; (c) - the moderating and/or the mediating role of type A behaviour in the stressor-strain relationships; warrants further examination.

2.4.2 LOCUS OF CONTROL

Locus of control refers to the extent to which an individual perceives events in the environment within his influence, or result from his action. Internal persons tend to perceive events as being controllable by their own actions, while external persons perceive such events as being influenced by external agents such as fate, luck or powerful others. Rotter (1966) developed the Internal-External scale to assess these perceptions. Subsequent research utilizing Rotter's scale found that locus of control is a

(i) LOCUS OF CONTROL AND STRESS (STRESSORS AND STRAIN).

Research addressing the relationship of locus of control to stressors and strain says little regarding the role of locus of control as a dependent variable.

Szilagyi et al. (1976) investigated role conflict and role ambiguity as stressors, and five dimensions of work satisfaction among a sample of managerial engineering and supervisory personnel in a medical centre and a production enterprise. The analysis showed that external persons perceived more role conflict and role ambiguity than internals. Additionally, externals reported higher dissatisfaction with work, pay, supervision, promotion, and co-workers than did internals. However, controlling for the effect of role conflict and role ambiguity, externals still reported higher dissatisfaction. The researchers concluded that employees, internal in control perception, were not more satisfied than externals, and that role conflict and role ambiguity predicted better work satisfaction than locus of control construct.

Addressing similar issues, namely, the relationships of locus of control to role stressors and satisfaction in a study involving scientists at a research and development setting, Organ and Green (1974) found that external employees reported more role ambiguity and higher level of job dissatisfaction than externals. Role ambiguity as a stressor was less potent than the locus of control variable in predicting work satisfaction.

Kyriacou and Sutcliffe (1979), examining teacher stress and locus of control, reported that strain positively correlated with belief in external control. Yet, regarding work stressors, only two among sixteen perceived sources of stress were related to external locus of control.
The inter-correlations among role stressors, strains and locus of control, provided by Keenan and McBain (1979), following a study of a middle manager sample, indicated that neither role stressors (role ambiguity, role conflict and role overload) nor psychological strains, namely, tension at work (e.g., anxiety; worries..) and job dissatisfaction, were significantly associated with locus of control.

To summarize, work stress research somewhat indicates that locus of control relates to some situational stressors and to psychological strain especially dissatisfaction. Such a pattern of findings is also supported by non-occupational research (Cooley and Keesey, 1981; Ganellen and Blaney, 1984; Manuck et al., 1975; McFarlane et al. 1983)

(ii) LOCUS OF CONTROL AS A MODERATOR VARIABLE

Is locus of control a moderating variable of the relationship between stressors and strains? In other words, is the effect of work stressors on strains enhanced by the introduction of the locus of control variable? Are the effects of stressors on strain reduced or increased when the individual is internal? To this set of questions, research concerned with the role of locus of control in stress is addressed.

Abdel-Halim (1980) tested the moderating effect of locus of control on managers' affective response to role ambiguity. Using moderated multiple regression as described by Saunders (1976) and Zedeck (1971), the researcher found that higher role ambiguity was related to greater satisfaction for internals. Externals, however, were less satisfied under role ambiguity condition.

The merit of Dolon and Arsenault's (1984) study of perceived work stressors and psychosomatic strain resides in utilizing larger number of stressors, clustered in two composite indices of stress sources: extrinsic and intrinsic stressors. The measure of locus of control was combined with a dimension
of type A termed: Striver-achiever. The results showed that persons with high belief in external control combined with either type A or B behaviour pattern, were more reactive to work stressors through psychosomatic complaints than internals with either type A or B behaviour pattern.

While the above studies of occupational stress report evidence in support of the conditioning role of locus of control, other investigations failed to substantiate such pattern of findings. In this context, Keenan and McBain (1979), studying role stressors and strain among a sample of middle managers, found that the association of role stressors: (role ambiguity, role conflict and role overload) with job tension and dissatisfaction remained unchanged in both groups of internal and external managers.

Conflicting evidence has also been reported by non-occupational studies based on community or student samples. While some studies showed that belief in internal control reduces the adverse impact of life events on psychological and physiological strain (Husaini and Neff, 1980; Lefcourt et al., 1981; McFarlane et al., 1980; Miller and Cooley, 1981), other studies failed to obtain such evidence (Dohrenwend, 1980; Fontana et al., 1976; Sandler and Lakey, 1982).

(iii) DISCUSSION AND CONCLUSIONS

The studies reviewed involve the following limitations:

First: The majority of studies examining locus of control, have used few work stressors consisting mainly of conflict and role ambiguity. Notable exceptions are the study of Kyriacou and Sutcliffe (1979) involving 16 sources of stress, and Dolan and Arsenault's (1984) study covering a number of stressors grouped into two composite indices.

Second: The range of strain manifestations considered by most research is too narrow to constitute a reasonable indicator of affective, psychosomatic, and physiological strain. Some studies have used only one subjective reaction
to stressors, namely dissatisfaction (Organ and Green, 1974; Szilagyi et al. 1976), or a gross measure of strain. Kyriacou and Sutcliffe (1979), for example, asked a sample of teachers to rate their response to work stressors using only one question: in general how stressful do you find being a teacher? The term "stressful" is supposed to reflect teachers' affective reactions (strain) to work stressors in schools. Apart from the ambiguity that the term may create, this question offers a vague and gross description of experienced strains. Thus, multiple indicators of psychological and physiological strain are necessary, to gain a more realistic idea about the relationship of locus of control to strain.

Third: studies should also extend their concern to shopfloor workers. This level of the organization members is the least studied compared with managers, supervisors, foremen, engineers, scientists and administrators.

To conclude, studies employing wider range of perceived work stressors and strain indices, among shopfloor workers, are needed. Consideration of this remark coupled with the employment of multivariate analysis of variables, may better elucidate the role of locus of control variable in: (a) the perception of stressors at work, (b) strain whether psychological or physiological, (c) the stressor-strain link.

2.4.3 SELF-ESTEEM

An informative and plausible definition of self-esteem is suggested by Coopersmith (1967). "Self-esteem" refers to: "the evaluation which the individual makes and customarily maintains with regard to himself: it expresses an attitude of approval or disapproval, and indicates the extent to which the individual believes himself to be capable, significant, successful and worthy" (pp. 4-5). The evaluative attitude towards the self, differentiates self-esteem from self-concept. The latter indicates the conscious perception of the self rather than the evaluation of such perceptions (Tharenou, 1979).
Although the foregoing description of self-esteem concerns global enduring estimates of the self, Korman (1970); and Simpson and Boyle (1975) differentiate between overall relatively stable self-esteem, and specific self-esteem likely to interact differently with social roles, work situations, life events, etc.

Some conceptual models proposed in connection with occupational stress represent self-esteem as an indicator of psychological strain (French and Caplan, 1973), or as a moderator of the stressor-strain relationship (Matteson and Ivancevich, 1979). Empirical studies, however, tend to view self-esteem as a predictor (a personality characteristic antecedent to strain), as a dependent variable (a strain indicator), or as an intervening variable (a mediator or moderator).

(i) SELF-ESTEEM AS A DEPENDENT VARIABLE (a Strain Indicator)

The Institute for Social Research team at the University of Michigan, regards self-esteem variable as a component of psychological strain. In this connection, House (1980), investigating a large sample of employees in a plastic rubber and chemical plant, found that perceived work stressors including work reward, interpersonal responsibility pressure, quantitative workload pressure, and job-nonjob conflict, were negatively related to self-esteem. Despite these significant relationships, the magnitude of prediction, that is, the percentage of variance in self-esteem explained by each job stressor, was weak. Compared with another psychological strain, the impact of work stressors on self-esteem was generally weaker than their effects on satisfaction.

Investigating a large sample of employees to test the relationship of job stressors to health outcomes, Margolis, et al. (1974) adopted self-esteem variable as a strain indicator. Their results showed that self-esteem was negatively correlated with role ambiguity, feeling of underutilization of
skills, resource inadequacy, insecurity, and lack of participation. Surprisingly, unlike other job stressors, overload was positively related to self-esteem, that is, the higher the overload the greater the self-esteem.

While both studies tend to support the relationship of self-esteem to various work stressors, the study conducted by Billings and Moos (1982) revealed that the responsiveness of self-esteem to work stressors is selective. The intercorrelations between self-confidence (a dimension of self-esteem used as a strain indicator), and a number of work stressors, indicated that, among male employees, low self-esteem was associated with some work stressors, namely lack of autonomy, ambiguity and a composite index; but was weakly related to some other stressors, namely, work pressure, and tight control through management rules and pressures. However, among female employees, no individual work stressors were related to self-esteem.

(ii) SELF-ESTEEM AS AN INDEPENDENT VARIABLE

House et al (1979) reported a study conducted at a large rubber and chemical setting, involving relatively low levels of workers' categories. It was found that self-esteem was related to self-reported illnesses such as ulcers, itch and rash, and to medical evidence of hypertension. However, some health outcomes such as angina, and cough and phlegm, showed no relationship to occupational self-esteem.

Investigating a large sample of navy recruits, LaRocco and Jones (1978) reported that self-esteem was related to job satisfaction. But, self-esteem failed to relate to the rate of illness.

Werbel (1983) argued that the problem with job stress research is that the change in the work setting has seldom been viewed as a job stressor. He reanalysed the data pertaining to Brett and Werbel's (1978) study of job relocations. A sample of relocated employees was drawn from the main
large scale study. Werbel reported that self-esteem was negatively associated with negative emotional arousal such as feeling tired, depressed, pressured, lonely, restless, nervous, upset, afraid, and having indigestion, insomnia and headaches.

(iii) SELF-ESTEEM AS A MEDIATOR OR A MODERATOR VARIABLE

The paucity of research addressing the moderating or the mediating role of self-esteem in the stressor-strain relationships, confines the review to only two examples of studies. Pearlin, et al. (1981) tested a model relating disruptive job events to depression. The researchers posited that job stressors influence directly depression, and indirectly through some mediator variables (e.g. self-esteem). Persistent disruptive work events entail a loss in self-esteem; lowered self-esteem leads to depression. The data analysis supports the mediating role of self-esteem, in that work events (stressors) diminish self-esteem, which in turn, causes depression to increase.

Kasl and Cobb (1970) examined a group of "blue-collar" workers, who had lost their jobs at the same time. The analysis revealed that, unemployed workers, low in self-esteem, reported greater affective strains and suffered from higher blood pressure, than unemployed workers, high in self-esteem; although all the sample examined manifested physiological symptoms of strain.

(iv) DISCUSSION AND CONCLUSIONS

Examination of the research reviewed leads to some remarks:

First: The concern of studies with the three potential roles of self-esteem as an independent variable, a dependent variable, and a moderator or mediator, is not balanced. Perhaps, the conception of self-esteem as an indicator of strain or an outcome of stressors gains greater currency in research than the hypothesis of self-esteem as a moderator or mediator.

Second: The pattern of self-esteem relationships to work stressors and strain indices, tends to indicate that work stressors affect self-esteem,
and that self-esteem relates negatively to some affective strains such as anxiety, depression, dissatisfaction. However, there exist some notable exceptions. It is recalled that Margolis, et al. (1974) found, to their surprise, that role overload was related positively rather than negatively to self-esteem. This possibility merits further investigation using appropriate multivariate analysis, since the simple correlation technique, as used by Margolis, et al. (1974), is liable to spurious effect of other variables ignored.

Third: Various relationships of self-esteem to stress (i.e., stressors and strain) have been reported significant, but are of weak magnitude. For example, owing to a large sample used in Margolis, et al.'s (1974) study, a coefficient of correlation as low as \( r = .10 \) between self-esteem and overload, was significant (\( P < .05 \)). This coefficient of correlation accounts for only one percent \( (r^2 = .01) \) variance in self-esteem, by work overload.

To conclude, it is apparent that two main aspects of self-esteem in relationship to stress should be investigated further:

a) The relationship of self-esteem to work stressors and strain.

b) The potential mediating or moderating role of self-esteem in the stressor-strain relationship. The moderating role consists of the interaction of self-esteem with work stressors to enhance the prediction of strain; the mediating role resides in linking work stressors to strain by exacerbating or attenuating the effect of the former upon the latter.

2.4.4 SOCIO-DEMOGRAPHIC CHARACTERISTICS

The present section addresses the relationship of socio-demographic characteristics such as sex, age, income, education, marital status and tenure, to stressor and strain. Socio-demographic variables have been viewed as predictors of strain and moderators of the stressor-strain relationships.
Are socio-demographics associated with psychological and physiological strain? To what extent do socio-demographic variables contribute to the prediction of strain?

Addressing similar issues, House (1980) tested the impact of age and education upon some strain and health outcomes. Multiple regression analysis revealed that self-esteem and job satisfaction (considered as strain indicators) rose with age. Some health outcomes such as neurotic symptoms, angina pectoris, peptic ulcer, and itch and rash, showed no relationship to age. On the other hand, self-esteem, job satisfaction, neurotic symptoms, angina pectoris, peptic ulcers, and itch and rash, decline with higher level of education.

Cooke and Rousseau (1983) examined the effect of some socio-demographics on strain. The correlation coefficients provided, revealed that education and salary were negatively associated with an index of strain involving nervousness, depression, headaches, high blood pressure, coronary heart disease, overweight and ulcers. Age and organizational level were unrelated to the strain index. These findings were confirmed by multiple regression analysis. Salary and education significantly predicted the decrease in the strain symptoms reported; but age and organizational level had only a negligible effect on strain.

In an effort to study personality and job pressure effect on physiological strain among a sample of dentists, Cooper (1980) examined also the effect of age. Stepwise multiple regression indicated that age predicted raised diastolic blood pressure, systolic blood pressure, abnormal strain electrocardiogram (ECG) reading, but was not related to elevated heart rate. In another study relative to a sample of senior managers from a large company, Marshall and Cooper (1981) reported that age was a significant predictor of anxiety among research and engineering staff, and also a predictor of
Parker and DeCotis (1983) tested a model linking a number of stressors to strain indices, using a sample of managers of a restaurant chain. They examined the relationship to two derived factors of strain: anxiety and time pressure, to some socio-demographic characteristics. The analysis revealed that the higher the level of education, the greater the time pressure strain; also, the higher the age, the lower the time pressure strain. Other socio-demographic variables such as sex, job tenure, and salary were unrelated to time strain. On the other hand, anxiety was positively related to the years of education. No other variables, namely age, sex, number of dependents, tenure, and salary, were related to anxiety.

This sample of studies attests to the finding inconsistencies that emerge in connection with personal characteristics and strain whether psychological or physiological.

(ii) SOCIO-DEMOGRAPHICS AS MODERATOR VARIABLES

Do stressors together with some socio-demographic variables have an interactive effect upon strain indicators? In other terms, do socio-demographic variables have a conditioning (moderating) effect on the relationship of work stressors to strain, so that such a relationship varies at different levels of each socio-demographic variable considered? To gain some insight into this issue, an examination of a sample of studies is necessary.

Billings and Moos (1982) examined the relationship between work stressors, and a set of strain indicators. The findings showed that, for male employees' group, out of 16 computed correlations regarding four work stressors (low autonomy, work pressure, low clarity, and management control) with four strain indices (depression, anxiety, self-confidence and psychosomatic symptoms), eleven coefficients of correlation were significant. Only six correlations were significant for the female group. On the other hand,
considering an overall index of work stressors, the results indicated that
this index was positively related to depression, anxiety and psychosomatic
symptoms; and negatively related to self-confidence, for male employees.
Concerning female employees, however, the work stressor index was positively
associated with depression, and negatively correlated with self-confidence,
but was unrelated to anxiety and psychosomatic symptoms. These findings
indicate that gender somewhat acts as a conditioning or moderating variable
of the work stressor-strain link.

Gavin and Greenhaus (1976) addressed the relationship of tenure to
affective strain, among management personnel. It was found that employees
having short length of service, compared with high tenure employees, responded
to job stressors with greater job satisfaction and higher level of strain.

Yet, other endeavours attempting to discern the conditioning effects
of socio-demographic variables upon the work stressor-strain relationships,
have reported no indication of the moderating role of socio-demographic
variables.

House's (1980) study, it is recalled, has indicated that age and education
have significant effect on self-esteem (viewed as a strain indicator),
job satisfaction, neurotic symptoms and health symptoms. However, House
further tested the conditioning effect of age and education, and found no
substantial indication that age and education, considered individually,
interact with work stressors to enhance the prediction of psychological
and physiological strain.

Similarly, Gavin and Axelrod (1977) examined the role of some socio-
demographic variables in the stressor-strain link, using the data based on
a sample of management personnel in a mining organization. The analysis
showed that the relationships of eight stressors to strain indicators, such
as anxiety-depression-irritation, psychosomatic symptoms, and work
satisfaction, were not moderated by age, tenure, managerial level, number
of dependents and education. However, the merit of this study resides in considering larger sets of stressors, strain indicators, and potential moderator variables.

One then is left with the impression that the moderating hypothesis of socio-demographic characteristics is surrounded by conflicting evidence from empirical studies in the occupational realm.

(iii) DISCUSSION AND CONCLUSIONS

Two points concerning the studies reviewed merit mention:

First: Socio-demographics, such as age, education, tenure, income, etc. are inter-related. In other words, each variable shares some relationship with the others. They are variables which possess, not only physical or tangible existence, but also complex social and cultural ramifications. Age, for example, is not a simple physical and psychological development, nor is it a sum of years lived; but more importantly, it has complex social and cultural connotations in terms of education, income, social support, work experience, etc. Unfortunately, there are instances of research in which only few socio-demographic variables are considered. To illustrate, House (1980) limits his concern to age and education in relation to strain. Indeed, the age variable carries also the effect of other variables ignored (e.g. tenure). It is likely that the more aged a worker, the longer the period of service spent in the enterprise. Therefore, it is more safe to include a wider range of personal characteristics to study their effects or to control for their potential confounding impact on stress.

Second: Besides the inconsistencies of the evidence reported by research concerning the relationships of socio-demographic variables to psychological and physiological strain, the majority of significant relationships reported were either weak or moderate in magnitude. In Cooke and Rousseau's (1983) study, although the correlation coefficients of education and salary with strain symptoms were significant at ($P<.001$), because of the large sample; Their strength was very modest ($r = -.14$ and $r = -.11$, respectively).
To conclude, the equivocal findings emerging from research into the relationship of socio-demographic variables to stress, attest to the need for:

(a)- Further investigations addressing the link of socio-demographic variables to perceived work stressors and strain. It is recommended that multivariate analysis be used to discern the contribution of socio-demographic variables to stress.

(b)- More studies examining the potential moderating effect of the socio-demographic variables on the relationship of work stressors to strain.

(c)- The use of a range of socio-demographic variables may serve two objectives: the examination of their role vis-à-vis work stressors and strain indices; and the control for their potential confounding effects on the stressor-strain relationship.

2.5 EXTRA- ORGANIZATIONAL FACTORS AND WORK STRESS

Work stressors examined in the previous sections stem from organizational work environment. The present section tends to partly bridge the gap of omitting off-work sources of stress. Family, as a potential source of stress and support, constitutes an example of these extra-organizational factors.

2.5.1 WORK FAMILY INTERFACE

Family life is approached from three standpoints: (i) as an independent variable or a predictor; (ii) as a dependent variable; and (iii) as a moderator or a mediator variable.

(i) THE IMPACT OF FAMILY LIFE ON WORK ( FAMILY AS AN INDEPENDENT VARIABLE )

Does family life generate stressors that exacerbate an employee's work strain? Some evidence relating to this question will be reviewed.

Cooke and Rousseau (1983) studied the link of family life events to
strain indices in a community sample of managers and employees in private and public organizations. Controlling for the effect of socio-demographic variables, the impact of family life events on the increase in strain symptoms, such as nervousness, depression, headaches, high blood pressure, coronary heart disease and ulcers, was highly significant.

House (1980) investigated a sample of factory workers to examine the relationship of work-family conflict to a number of psychological and physiological indicators. It was found that work-family conflict reduced job satisfaction, self-esteem and life satisfaction; and increased psychosomatic symptoms, peptic ulcer, and itch and rash.

Testing the best predictor of strain among a set of work stressors, Coburn (1978) performed a study based on a community sample of professionals, administrators, skilled and unskilled employees, in Canada. The data analysis revealed that work-family overlap predicted work tension, but was unrelated to satisfaction and feeling of alienation.

(ii) THE IMPACT OF WORK UPON FAMILY (FAMILY AS A DEPENDENT VARIABLE)

As family can be conceived of as a source affecting employees at work, it is also possible that work stressors impinge upon workers' life with their families. The potential effect of work on home life has been addressed by some studies.

In this context, Burke et al. (1980) investigated a sample of senior administrators in a correctional institution, and their wives in a Canadian province. The researchers concluded that greater stressors experienced by the husband at work were related to the wives decreased marital and life satisfaction, less social participation, increased psychosomatic symptoms and negative feelings (i.e. affective strains).

Yet, the conclusions of Burke et al. (1980) concerning their research findings, should be regarded with reservation. The tables containing the correlations between the husband's perceived stressors and the wives' strains,
reported in their paper, indicate that out of 108 correlations between 18 husbands' stressors and 6 wives' strains, only 31 were significant. Turning to other wives' strains, among the correlations of 16 husband stressors with each strain indicator such as psychosomatic symptoms, global life satisfaction and life satisfaction, only five, none, and one, respective correlations were significant. Therefore, the results, unlike the researchers' conclusions, showed only a modest, if not a weak relationship between the husband's experience of work stressors and the wives' report of strain symptoms.

Jackson and Maslash (1982) examined the relationship of work stress to the quality of family life, among police officers and their wives. The researchers used the term "burnout" to describe police feeling of emotional exhaustion, depersonalization (lack of concern for superiors) and incompetence at work. Reports of wives that husband come home upset, physically exhausted, tense or anxious, having difficulty of sleeping and complaining about work problems, were positively associated with the frequency and intensity of the job-related emotional exhaustion of husbands. Additionally, emotional exhaustion of police officers at work negatively affected their wives' perception of the quality of family life.

(iii) FAMILY AS A MODERATOR OR A MEDIATOR VARIABLE

Having examined the impact of work on family life, and the influence of family on work, it remains to consider the hypothesis that family may either buffer or accentuate the effect of work stressors on employees' strain. Research addressing the buffering effect of family conceives it as a system or a source for social support provided by wives, children and family member cohesion.

In this context, the study of House and Wells (1978) demonstrates that wife support mitigates the impact of work stressors including role conflict, quality concern, responsibility and work load; and alleviates the
impact of job tensions (e.g. dissatisfaction, and low self-esteem) upon psychosomatic symptoms and reported diseases, such as angina pectoris, and itching and rash.

Billings and Moos (1982) tested the potential attenuating effect of family resources on the work stressor-strain link. The family resources scale comprises measurement of family member inter-relationships, such as cohesion, expression of feelings and conflict. It was found that among employed males, family resources significantly attenuated depression and psychosomatic symptoms caused by work stressors, and enhanced self-esteem. On the other hand, with regard to employed female, family resources did not reduce depression, anxiety and psychosomatic symptoms induced by work stressors.

Another study which went further by proposing a causal model, was carried out by Cooke and Rousseau (1984) on a random sample of teachers. The researchers set out to examine the effects of family roles and work role expectations on teachers' strain. The hypothesized model looks simple: family roles exert a direct effect on teachers' strain (job dissatisfaction, life dissatisfaction, and psychosomatic symptoms), and an indirect effect, mediated by role conflict and work overload, on the same strain indices. The analysis showed that teachers' parents (having children) tended to experience psychosomatic symptoms of strain less frequently than non parents. Married teachers reported strain symptoms less frequently than single teachers.

However, while the foregoing studies support, to a certain extent, the moderating or mediating role of family, whether as a source of support (buffering effect) or a source of stress, the findings emanating from some studies lend no support for the moderating effect of family.

Considering the issue of family as a source of social support, Pinneau (1976), following the analysis of the data gathered by the Institute for Social Research team at the University of Michigan (Caplan et al. 1975),
found no indication that support from family mitigates the effect of job stressors on psychological and physiological strain.

Gavin and Axelrod (1977) examined the possible conditioning impact of family size and social support from family and friends on work stressor-strain link, their findings indicated that the impacts of work stressors on psychological strain such as anxiety-irritation depression, psychosomatic symptoms and job dissatisfaction; were not affected by family size and family support.

(iv) DISCUSSION AND CONCLUSIONS

Consideration of the method adopted and the findings reported leads to the following remarks:

First: With reference to the findings, it is difficult to reach a conclusion concerning the relationship of family life to work stress. The role of family as a source of stress or social support, as well as the impact of work on the family life, need further examination. Research needed should assess not only one aspect of the family life (e.g. family size) but multiple indicators of the work-family interface.

Second: With reference to the methods adopted and the analysis performed, there are cases of research which have adopted ambiguous analytic procedures. Cooke and Rousseau (1984), in their study reported earlier, adopted a list of 13 psychosomatic symptoms, previously used by Quinn et al. (Quinn and Shepard, 1974; Quinn and Staines, 1979) in their national survey of the quality of employment. After submitting the psychosomatic symptom items to factor analysis, they ended up with three factors. Surprisingly, they select the first factor and ignored the two others, providing no justification for such procedure. However, another drawback is that, unlike other measures of stressors and strain for which reliabilities were computed, the factor selected, among other factors of reported psychosomatic symptoms, was used
without computing its reliability. It should be noted that Quinn and Staines (1979) who had used the same psychosomatic symptom items, derived one factor comprising 11 symptoms and computed its internal consistency reliability, unlike Cooke and Rousseau who mysteriously adopted one factor of the reported psychosomatic symptoms, and left its reliability unknown to the reader.

Third: It was mentioned earlier that some difficulties exist as to the conclusion provided by Burke, et al. (1980), that the analysis of their research data indicates that the employees' experience of work stressors relate to their wives' strains. It was observed, however, that only a modest number of correlation coefficients regarding this relationship were significant. The small number of the significant relationships between the husbands' reported work stressors and the wives' reported strains are valid not only for the individual measures of strain, but also the composite indices of strain.

In conclusion, still many aspects of the relationship between family-work interface and work stress need further examination. The aspects that merit more attention include:

(a)- The relationship of family life to work stressors.
(b)- The effect of family life on work strain, net of the effect of other predictor variables of concern.
(c)- The impact of work stressors on family life.
(d)- the moderating and/or the mediating effect of family life on the relationship of work stressors upon strain. It is of importance, in this context, to identify the directionality of that effect, that is, whether family life leads to the exacerbation or the mitigation of the effects of work stressors on strain.
2.6 CONCEPTUAL AND METHODOLOGICAL IMPLICATIONS FOR THE PRESENT STUDY

The present chapter was designed to examine the literature concerning empirical studies of the relationship of work stressors to strain. Drawing upon the discussion and conclusions that accompany each section, it is worthwhile to mention some general implications, both conceptually and methodologically, for the present research.

2.6.1 CONCEPTUAL IMPLICATIONS

Generally, the implications of the findings reported in the previous sections consist of the following:

First: With reference to role stressors, the findings reported are not unequivocal in many places. Often, significant relationships showed modest magnitudes. A need for further research is felt with regard to:

1. The association of each work stressor with each strain indicator, whether psychological or physiological.

2. The relationship of work stressors, analysed as a set, to the set of strain indices. This differs from (1) in that the unit of analysis is not a one-to-one relationship but a set-to-set relationship, owing to the potential redundancy of information between the stressors which form the first set and between the strain indicators that form the other set.

3. The independent effect of each stressor on strain net of the confounding effects of other stressors. That is, the contribution of each stressor to the prediction of strain.

4. The moderator or mediator variable that affect the relationship of each stressor to strain.

Second: With reference to individual differences, organizational structure and work-family interface, inconsistent evidence has frequently been encountered. Further research should be directed to the following issues:

5. Some forms of organizational stressors suffer from the paucity
of research concern. To illustrate, it was argued in the participation section that the type of participation frequently investigated is direct, informal, unilaterally initiated by management; concerns a limited number of an organization's members, and addresses fragmentary task-based issues. Therefore, the examination of stress arising from a system of participation introduced legally and systematically through explicit state legislation, and concerns specific tasks as well as organizational decision-making through some form of worker representation, is considerably needed.

(2) Some aspects of family-work interaction are frequently ignored: housing crisis, the standard of accommodation, travelling problems from and to work, family size, unique source of income when only the father is salaried, etc. All these aspects are common in most developing countries and constitute a major source of concern to the worker. Perhaps, some of these aspects are of minor importance for workers in industrialized countries, therefore, research tends to ignore them. Yet, they are indeed of crucial importance in developing countries.

(3) With reference to the studies of role stressors in particular, it was noted that some categories of work suffer from a lack of research concern. Most studies, for instance, have concentrated on "white collar" workers, to use the American appellation. Lower level of workers (production or shop-floor workers) are not less exposed to work stressors than managers, engineers or supervisors, but they may experience specific patterns of stressors that are less salient in higher level functions, such as physical working condition, repetitive work, accident risks, etc. Therefore, major emphasis of the present study is placed on the investigation of production workers.

(4) The geographical distribution of stress studies reveals immediately the dominant number of studies conducted in the U.S.A, and to a lesser
extent in Great Britain, Canada and some Western European Countries. However, if one addresses work stress research in developing countries, he will, no doubt, be frustrated owing to the paucity of stress investigations in these societies. Indeed, the majority of developing societies differ from the industrialized countries in social, cultural and economical aspects. The specific characteristics of developing societies such as tight bounds among family members, relatively larger family size, high birth rate, massive rural exodus, housing crisis, high rate of illiteracy, high religiosity, and inadequate communication and transport means; constitute important sources of stress, coping and support.

(5) The role of socio-demographics, personality characteristics, and organizational variables in the relationship of work stressors to strain, warrants further examination. The following are proposed aspects for more empirical inquiries:

a)- The relationship of these variables (i.e. socio-demographics, personality, organizational structure and off-work factors) to work stressors.

b)- The contribution of the above mentioned variables to the prediction of psychological and physiological strain.

c)- The potential role of socio-demographic, personality, organizational structure and non-work variables in the work stressor-strain relationship, as moderator or mediator.

2.6.2 METHODOLOGICAL IMPLICATIONS.

Throughout the literature review of the present chapter, various methodological shortcomings were mentioned. In addition to the heavy use of the self-administered questionnaires (unfeasible in case of illiterate workers), insufficiency of response rate, and failure to assess psychometric properties of the instruments, especially, reliability; other methodological aspects are noteworthy:

(1) A great deal of empirical studies (as can be easily seen in the
role stressor section) limit their concern to one or two stressors (e.g. role conflict and/or role ambiguity) and ignore other sources of stress. It is of importance to use a greater number of work stressors to gain more insight into the experience of stress and to better predict and understand the relationship of stressors to strain and coping.

(2) With reference to strains, some studies tend to use only one indicator of strain especially work dissatisfaction. However, more adequate and accurate picture of strain can be gained through the use of multiple indicators of strain whether psychological (i.e. tension, anxiety, depression, dissatisfaction, etc.;) or physical such as psychosomatic complaints and physiological changes (e.g. elevated heart rate, blood pressure, etc.)

(3) Regarding the hypothesized moderating or conditioning effects, many studies test only one or few potential moderator variables. However, a wider range of potential moderator variables, including some organizational variables, socio-demographics (e.g. age, sex, education, tenure, income etc.;), personality characteristics (e.g. type A behaviour pattern, locus of control, self-esteem, etc.), provide the working model or hypotheses with greater informative and predictive power.

(4) The analytic procedure frequently used in role stress studies, concentrates on the multiple univariate analysis consisting of examining each independent variable with each dependent variable, through the simple correlation coefficient. Tukey (1969) asks the question "we think we know what r = -.7 means. Do we? How often?". Fisher (1958, p. 129) argues that the correlation coefficient is an artificial concept of no real utility. Therefore, multivariate analysis is more informative and more realistic in that psychological and social phenomena are multifaceted. Harris' (1975) statement expresses forcibly the point: "If researchers were sufficiently narrow minded, or theories and measurement techniques so well developed or nature so simple as to dictate a single independent variable and a single outcome measure as appropriate in each study, there would be no need for multivariate statistical techniques" (p.5).
COPING AND WORK STRESS.

Growing up in China, I heard the saying "The moment you stop, everyone else will walk ahead of you." After coming to this country, I found that if I moved slowly, everyone flew past me. It took 30 years for me to adjust to the fast pace here. Now that I have reached the senior years, I must accept the words "slow down." That is anxiety. That is stress.

From a letter addressed to the TIME (June 27, 1983) by a reader.
Coping is rapidly gaining currency in medical and social sciences. Research into stress has been primarily concerned with sources and consequences of stress, but in recent years - a growing interest in the coping process has manifested. Pearlin and Schooler (1978) argue that "the limited attention social science has given to coping stands in striking contrast to its long and abundant interest in circumstances that are potentially deleterious to the well-being of people". A similar remark is made by Hall (1972), in that stress studies in the occupational domain have focussed principally on the nature of role stressors (conflict, ambiguity and load), their antecedents and consequences, and have paid little attention to adaptation.

The realization of the pivotal function of coping, not only as a response to aversive stimuli, but also as a dynamic and complex process in the stressor-strain relationship, has been associated with very limited empirical and conceptual efforts, in the occupational domain. Many writers, however, do ignore such a paucity of conceptualization and empirical research, and vividly enter the popular scene, displaying various "ready-to-wear" techniques. To report only a sample of these coping techniques relative to managerial work, one finds, seeking help and building supportive relationships with others (Fair, 1976; Walsh 1975), planning and problem-solving (Bensahel, 1974; Howard, 1978), leisure activities and hobbies (Marks and Banack, 1977; McCann, 1972), relaxation and transcendental meditation (Benson, 1974; Kory, 1976; McQuade, 1973; Student, 1977), biofeedback (Nedeffer, 1975; Smith, 1977; Whitehead, 1977), work-home life compartmentalization (DeVille, 1970), developing self-awareness (Overbeke, 1975), proper nutrition (Bensahel, 1977; Morano, 1977), and adoption of a philosophy of life (Kiev, 1974; Oates, 1971).
Regardless of the specificity of the situations, or of the characteristics of individuals, proponents of the lay coping literature seem to acknowledge the universal validity, applicability and effectiveness of these techniques, across situations, persons and time. The presupposed value and strength inherent in these strategies regardless of the personal, environmental and temporal contingencies, are largely questionable and rest on no empirical verification. Therefore, popular literature will be avoided to examine only academic and empirical research.

The chapter starts with a discussion of coping definitions and conceptual models; and continues with an examination of coping strategies, coping effectiveness, and coping relationships to various stress and contextual variables; and concludes with an overview of the conceptual and methodological implications of the review, for the present research.

3.2 THE CONCEPT OF COPING

3.2.1 DEFINING COPING

The opening section of the first Chapter dealt with the concept of stress and highlighted the confusion surrounding its definition and utilization. Coping too, is another concept difficult to define, "the definition of coping would be almost as elusive as the definition of stress" (Livine, 1983). Awareness of the complexity and conspicuity of coping, and therefore, the fragility of embarking upon its definition, discouraged Sidle et al. (1969) from attempting a definition of coping, although they were concerned with the development of a measuring scale of coping strategies. Similarly, Moos (1977, 1984), editing two volumes on coping with physical illness, simply avoided to define coping in the opening sections; rather, he and two collaborators, enlarged on the conceptualization of coping tasks.
and skills with illness (Moos and Tau, 1977; Moos and Schaefer, 1984). These difficulties notwithstanding, it is tempting to examine a sample of definitions.

Five types of coping definitions can be discerned according to their locus of emphasis:

(i) PHYSIOLOGICALLY-ORIENTED DEFINITIONS

An example of physiological definition is suggested by Levine (1983). Levine views coping in terms of reductions in neuroendocrine activity as a function of control, that is, the capacity to generate active responses (control) or information, that the initial coping attempts produce, tends to reduce hormonal responses of the organism to noxious stimuli.

Physiological conceptions of coping stem from laboratory studies on animals. Coping occurs when there is a reduction in physiological changes induced by acute stressors. The obvious difficulty of this conceptual orientation is whether it is relevant and applicable to human coping behaviour. Another problem is that the meaning of coping is associated with a positive change in the level of physiological activities induced by stress. Therefore, coping yields only adaptational outcomes. However, coping can have not only positive outcomes but also negative consequences, depending upon the individual and the circumstances. Coping is an effort to manage perceived stressors, irrespective of outcome, success or failure.

(ii) TRAIT-BASED DEFINITIONS.

Some personality characteristics are viewed as more responsive to situational demands. Some researchers of type A behaviour pattern, for instance, tend to define it as a way of dealing with environmental demands and challenges. Glass (1977), throughout his experimental work, conceives of type A behaviour pattern as a style of coping with situations, over which type A persons' control is threatened. Similarly, Chisney and Rosenman
describe type A behaviour pattern as "a characteristic style of responding to, and coping with, environmental challenge".

However, since type A behaviour pattern is usually viewed as relatively stable properties of a person that dispose him to react in a certain way, when his need for control over situational challenges, is endangered; therefore, it is a dispositional property of the individual that contributes to the construct of coping behaviour, and is not a coping process per se. Type A behaviour as well as other personality traits constitute psychological resources for coping.

Additionally, as Lazarus and Folkman (1984) point out, "the trait and style approach to coping is inevitably incomplete. Measures of coping traits and styles are not good predictors of actual coping processes; they underestimate both the complexity and the variability of the ways people actually cope." (p.140).

(iii) SITUATION-ORIENTED DEFINITIONS

The Person-Environment fit approach, dealt with in the foregoing Chapter, regards coping as consisting of an individual's activities or efforts directed to changing the objective environment or changing the objective person (in contrast to subjective person, i.e. self-concept; and subjective environment, i.e., as perceived by the individual), in order to improve the fit between one's need and capabilities, and environment demands and supplies (Caplan, et al. 1983; Harrison, 1978). Thus, the use of the term "coping" is relevant only to the actual person or environment. Another mechanism, namely, defence is reserved to one's alteration of the perception of the actual self and the objective environment.

The Person-Environment fit definition poses certain problems. The exclusive application of coping to objective environment and actual needs and abilities, ignores other aspects of the environment-person relationship, that is, the fit between perceived environment and perceived needs and capabilities.
The alteration in the latter is referred to as defence mechanism, "defence is defined as behaviour aimed at changing subjective perceptions of fit without changing objective fit" (Caplan, 1984). That is, defence represents cognitive distortion of an individual's ability and his environment. However, this distinction between coping and defence is not consonant with other approaches. Lazarus (1966), for instance, considers defence mechanism as an integrant part of the coping behaviour.

On the other hand, the major weakness is that the Person-Environment approach fails to provide adequate empirical evidence supporting the relationship of the objective measures of the person and the environment to strain. Unless this relationship is substantiated, it makes no sense to associate coping with objective environment and objective person. (e.g. Caplan et al., 1975; House, 1980).

(iv) FUNCTIONAL DEFINITIONS

This generic term encompasses definitions that emphasize the functions of overt and covert behaviour vis-à-vis the individual and the situation. In this context, there are examples of definitions which emphasize emotional regulation function of coping. According to Pearlin and Schooler (1978), Coping "refers to any response to external life strains that serves to prevent, avoid, or control emotional distress". Other definitions concentrate on the alteration of stressful situations. Coping, therefore, is "any attempt to deal with stressful situations which a person feels he must do something about, but which tax or exceed his existing adaptation response patterns" (Burke and Weir, 1974), "a process, involving effort, on the way towards solution of a problem." (White, 1974), an attempt to master a new situation potentially threatening, frustrating, challenging or gratifying (Murphy, 1962), "an array of covert and overt behaviour patterns by which the organism can actively prevent, alleviate or respond to stress-inducing circumstances." (McGrath, 1970b).
There are also definitions that emphasize the impact of coping upon the cognitive-affective processes and situational stressors. In this vein, Folkman and Lazarus (1980) view coping as "the cognitive and behavioural efforts made to master, tolerate or reduce external and internal demands; such coping efforts serve two functions: the management or the alteration of the person-environment relationship". Ilfeld (1980a, 1982), simply, refers to coping as "a response intended to resolve life stressors and emotional pain". Newman and Beehr (1979) elaborate: "coping is a response intended to eliminate, ameliorate, or change the stress producing factors in the job context or intended to modify in a beneficial way, the individual's reaction to the stressful job situation".

Examination of these functional definitions reveals the existence of some conceptual problems:

First: Definitions that concentrate on the emotion regulation function of coping (e.g. Pearlin and Schooler 1978) omit such important functions of coping as problem-solving. Those definitions which emphasize the modification of situations as a major function of coping (e.g. Burke and Weir, 1974; White, 1974) disregard other important functions such as redefinition of cognitions and alteration of emotional strain.

Second: The functional definitions tend to emphasize the adaptive outcomes of coping process. Coping, according to most of these definitions, brings about a decrease in emotional strains and effective change in the external stressful situations. However, coping, unlike adaptation and mastery, should be conceived of as an effort to deal with stress regardless of outcomes. Kahn, et al. (1964) aptly made the point when they wrote: "The study of coping behaviour should include failures as well as coping mechanisms which are successful. The concept of coping is defined by the behaviours subsumed
under it, not by the success of these behaviours" (p. 432). Perhaps, because more insight into the process of coping may be gained through the examination of ineffective coping behaviour, since "it is often in situation of failure where the ramifications of a particular coping mechanisms or defence can be seen most vividly" (Kahn, et al., 1964; p. 432).

(v) GENERAL DEFINITIONS

This group of definitions tends to equate coping with response to stressful situations. In this connection, Silver and Wortman (1980) view coping simply as "any and all responses made by an individual who encounters a potentially harmful outcome". Similarly, McCubbin, et al. (1976) refer to coping as "ways for dealing with stress".

The advantages of these definitions are twofold: First: They suggest the neutrality of coping behaviour. Coping involves strategies associated with positive outcomes or negative consequences for the individual. Second: The generality of these definitions renders possible the inclusion of those segments of behavioural, cognitive and emotional processes that are likely to be ignored by the restricted definitions.

However, the broad definitions, despite their large applicability, are less informative as to the distinguishing features of coping from the mere response to stressors. The statements such as "any and all responses" or "ways for dealing with stress" fail to inform the reader about some properties and functions of coping. Therefore, it is more beneficial for a definition to reconcile between generality and informativeness.

Before reaching a conclusion regarding coping definition, it is of importance to address the reasons for selecting the term "coping" among other terms. To do so, a brief description of these differences, proposed by some researchers, is necessary.

3.2.2 "COPING" AND RELATED CONCEPTS

Related to the concept of coping, are other terms such as "adaptation", 
"adjustment", "mastery", and "defence". The following, are some distinctions suggested by some writers.

White (1974) and Murphy (1974) differentiate between "coping" and "adaptation" on the ground that "adaptation" is usually associated with well established routinized response, readily available; but "Coping" refers to adaptation under relatively difficult situations where the adequate response is unclear, unavailable and difficult to construct. It is useful to mention that coping refers to attempts for adaptation, and does not denote the adaptation per se under the foregoing described conditions.

Adaptation is basically a biological concept although sometimes used psychologically. Psychologists have coined another term, namely adjustment as equivalent to adaptation, to denote the functional processes of behaviour, that is, behaviour serving the function of handling and mastering environmental demands (Lazarus, 1969). So, adjustment is a generic term that encompasses mastering, defence and coping.

Kroeber (1963) and Haan (1977) provide some distinctions between "defence" and "coping" on the ground that "defence" is rigid, compelled, channelled, distorting of intrapsychic reality or logic, allows covert impulse expression, and tends to regulate anxiety without directly addressing the problem; while coping is flexible, purposive, involves choice, addresses the external reality, and allows impulse satisfaction in open, ordered, and tempered ways. This distinction, although accurate and complete, creates the difficulty of devoting coping exclusively to those positively toned psychological processes.

The standpoint of the present endeavour is well reflected by Lazarus' position. Lazarus (1969) states that "defence mechanism may be regarded as a coping process, just as avoidance and attack are coping processes, because it is a psychological method of dealing with threat and frustration" (p.221). So, although defence refers to distortion of one's
perception of situational demands it is considered as a part of coping process.

3.2.3 CONCLUSIONS

The objectives of the review are twofold: (a) to suggest the reasons for the choice of "coping" from other related terms; (b) to propose a working definition.

(a) The term "coping" is selected from other terms on many grounds. It is preferred to "adaptation" and "adjustment" because it is less generic and does not suggest only positive outcomes. "Mastery", on the other hand, has acquired the property of controlling successfully situational stressors, a characteristic that is not necessarily associated with coping. "coping" is preferred to "defence" since it does not only include distortion of one's assessment of the reality, but also attempts to manage situational stressors themselves. Finally, "coping" is used instead of "response" because the latter is utterly general and largely inclusive.

(b) Coping is adopted in the present research to mean overt or covert (cognitive and affective) attempts to tolerate, prevent, reduce, or control perceived threat or constraint, and aroused unpleasant affective reactions. Response to this unpleasant psychological state is carried out by some strategies consisting of either changing (or withdrawing from) the situation, or altering cognitive-affective processes or both. These strategies may or may not produce the outcomes expected by an individual.

3.3 COPING MODELS

The conceptual models of coping proposed by researchers of various background differ (among other things) in their locus of emphasis, as well as in generality or specificity. Four models are selected for their importance and significance: two are of general applicability and two others are specific to occupational realm.

3.3.1 PHENOMENOLOGICAL COGNITIVE-APPRAISAL MODEL.
The work of Lazarus and co-workers (Averill et al., 1969; Folkman et al., 1979; Lazarus, 1966, 1968, 1970; Lazarus et al., 1970) is, perhaps, the most influential in the domain of coping. As coping is mediated by cognitive processes, Lazarus analyses in depth coping appraisal, defined as evaluations of situational demands for one's well-being.

According to Murphy (1962), the coping process involves three stages that manifest in the following sequence: preparatory steps towards coping, the coping actions, and secondary coping efforts required to deal with the consequences of the first two steps. Based on Murphy's coping phases, Lazarus et al. (1978) elaborated a cognitive-appraisal scheme based on three stages:

(a) **Primary Cognitive Appraisals**: It is the cognitive process of evaluating the significance of an encounter or event for one's well-being. The events can be perceived as irrelevant, benign, or stressful for one's well-being. Perceived stressors can be appraised as harm-loss (damage that has already occurred), threat (harm or loss that has not yet happen but is anticipated), and challenge (anticipated mastery or gain).

(b) **Secondary Cognitive Appraisal**: It is the evaluation of coping resources (e.g., material resources, social support, acquired coping skills, belief, etc.) and options open to the choice of coping strategy. In other words, secondary appraisal is a judgement of what can be done in situations perceived as stressful during the first stage. The appraisal of coping resources and the choice of a coping strategy are contingent on three forms of evaluation: evaluation of the consequences of adopting a particular strategy in the context of other internal and/or external demands and constraints; evaluation of the likelihood that a given coping option will accomplish the expected outcomes; and evaluation that a particular strategy or a set of strategies can be enacted properly.

Coping, therefore, follows from the cognitive activities. Additionally, the cognitive processes (primary and secondary appraisal and their interaction)
mediate and determine the degree of emotional strains and their quality and content.

(c) Cognitive Reappraisal: It represents the change that affects the foregoing cognitive appraisals as a result of the changing internal and external conditions. Therefore, reappraisal may stem from the after-effects of coping effort, new cues discerned in the situation, activation of search and reflexion on the original evidence, and defensive intrapsychic activity which is a form of coping.

Coping in Lazarus' conception is the product of cognitive appraisal activities (especially the secondary appraisal). Also, coping may influence cognitive appraisals particularly during the stage of reappraisal. Coping as a process possesses four forms: information search, direct action, inhibition of action, and intrapsychic modes. These coping forms serve two main functions: alteration of the person-environment relationships (instrumental or problem-solving coping), or modification of threat cognition and emotional reactions (palliative function of coping).

The process of coping or coping strategies are determined, in part, by one's coping resources including health and energy, existential beliefs (e.g. religion), general beliefs (e.g. locus of control), level of motivational commitment, problem-solving skills, social support and material resources. Coping also is determined by constraints that limit the exploration of resources. Constraints are personal (i.e. internalized cultural values and beliefs exerting pressure on certain ways of behaviour) and environmental (i.e. scarcity of resources, pressure and constraints from competing demands for the same resource).

DISCUSSION:

The key idea of Lazarus' model is that coping stems from cognitive appraisals; and that emotional strain is the product, rather than the antecedent or intervening process, of the cognitive appraisal. It is this
last very point in Lazarus et al's (Lazarus 1982, 1984; Lazarus and Averill 1972; Lazarus et al, 1980) theorization that is challenged by other critics; especially, by Izard (1971, 1972) and Zajonc (1980, 1984). Izard (1972), for example, argues that cognitive processes interact with (and do not determine) emotions to bring about some forms of cognitive appraisals; and that emotions play a crucial role in selecting sensory data and guiding cognitive processing of these data and subsequent activities. In other words, a person's emotional processes serve the selectivity, purposiveness and directionality in the perceptual-cognitive functioning. Without these functions of emotional patterns, Lazarus' conception of emotion and subsequent coping behaviour as a product of cognitive appraisals, is unable to answer the question of what motivates and sustains cognitive appraisals, what guides perceptual-cognitive activity, and what determines the selection of sensory information and the focusing of input.

On the other hand, some questions relating to Lazarus' conceptualization of appraisal and coping await further theorization and empirical verification: the model does not provide precise predictions regarding an individual's coping behaviour in a single instance. It is not clear what antecedent factors will determine whether the person under stress will appraise as a threat, or whether he will appraise the outcomes as a challenge. Also, it is not clear which particular emotional reaction, cognitively mediated, will predominate, or which coping mechanism will be selected (Silver and Wortman, 1980). More conceptual effort is needed to explicate the relationships and interactions among situational stressors, cognitive appraisals, emotional processes, defence mechanisms, coping resources whether individual or environmental, and coping responses. How do they influence one another? How does each component derive from others?

Nevertheless, Lazarus' work remains of substantial contribution to stress and coping. Although he underestimates the role of affective processes in
cognitive activities, he provides researchers with a clear and more comprehensive analysis of cognitive appraisals as mediators of coping; and suggests a typology of coping functions and strategies, largely adopted by research workers in different areas including occupational domain.

3.3.2 EGO-PROCESS MODEL

Writers in ego psychology believe that the ego functions are differently viewed in psychoanalysis and ego-psychology. According to Freud's (1949) analytic theory, the ego serves two main functions: (a) a mediating role between the demands of the Id's drives and instincts, and the pressure of the Superego's societal norms and values. Therefore, the ego acts as a buffer of the two sources of pressure. (b) The assimilation of information and the orientation towards experienced solutions. Central to both functions are the defence mechanisms of the Ego, their mediating role between the Id and Superego, and their protective action against internal and external threat.

The psychoanalytic perspective, according to ego-psychologists (Haan, 1969; Menninger, 1963; Vaillant, 1977) is too narrow to account for the adaptive effort of the ego, effective conflict resolution, and successful problem-solving. Anna Freud (1937) did suggest that, additionally to the protective function of the ego (i.e. mitigation of the internal conflict), the ego sometimes addresses the external danger or threat to change the situation. This very step towards the externally-oriented action of the ego was not enlarged upon.

Kroeber (1963) and Haan (1969) proposed a conceptual model of the ego coping functions. Their model rests upon three dimensions of the ego: ego process mode, ego defensive mode (defensive mechanisms of the ego), and ego coping mode (or the coping effort of the ego). They postulated that the ten generic ego processes (i.e. discrimination, detachment, means-end
symbolization, selective awareness, sensitivity, delayed response, time reversal, impulse diversion, affective transformation, and repression) involve ten corresponding defence modes inferred from the psychoanalysis literature, and ten corresponding coping strategies proposed; so that each distinct pair of modes (a defence mode and a corresponding coping mode) derive from the same generic process. To illustrate, among the ten ego processes, there is a generic ego process termed "means-end symbolization" consisting of the defence mechanism mode 'rationalization', i.e., superficially advancing plausible reasons to explain behaviour or intention which enable self-gratification to escape attention, but omitting crucial aspects of a situation; and the coping mode: "logical analysis", that is, analysing thoughtfully, carefully the causal aspects of a situation. As another example, the generic ego process called "delayed response" comprises the defence mode: 'indecision' denoting inability to resolve ambiguity, and the coping mode: 'tolerance of ambiguity', that is, the ability to cope with cognitive and affective complexity or dissonance.

It was suggested that the ego processes may be utilized in either their coping mode or their defensive form, or in combination of both, for any given individual, situation or time (Kroeber, 1963). Recently, Haan (1969, 1977) has added a third mode called 'fragmentation' to describe disorganized and pathological behaviour.

DISCUSSION:

The crucial part in Haan's (1977) model is the distinction between fragmentation, defence mode, and coping mode. These modes are hierarchically ranked with fragmentation at the bottom, because it is a primitive way of response; coping mode at the top, as it is the most mature and reality-oriented; and defence mode, occupying an intermediate position, since it is fixed, intrapsychic, but not necessarily primitive.
The distinction between coping mode and defence mode raises the problem of value. The criteria adopted for separating coping responses from defensive mechanisms rest upon some assumed normative values. For instance, any response which is flexible, purposive, rational, logical, integrative, reality-oriented is coping. On the contrary, any response which is rigid, compelled, channelled, reality and logic-distorting, irrational is defensive reactions. Thus, these attributes of coping are suggestive of positive value, while the defence mode attributes are suggestive of negative value. Therefore, the adaptive value is a priori assumed in the coping process, and not contingent on an individual interaction with the social reality.

To examine empirical evidence regarding Haan's model applicability, it is worth mentioning that Margolis (1970), in a study of a sample of students engaging in role playing performed under varying levels of stress, concludes that Haan's model does not permit new ways for categorization of behaviour, and that specific coping modes cannot clearly operationalized.

A related matter is the existence of inconsistencies across judges to identify and label coping and defence mechanisms on the basis of Haan's tripartite model. For instance, Hunter and Goodstein (1967); Folkins (1970) and Margolis (1970) found only moderate consistency in the identification and codification of coping functions made by independent judges. Therefore, the typology needs further differentiation and elaboration.

The foregoing criticisms notwithstanding, Kroeber's (1963) and Haan's (1977) theorization provides a comprehensive taxonomy of ego processes. Additionally, the model emphasizes the importance of ego functioning in stress and adaptation. Morrissey (1977), following a comprehensive review of empirical evidence, concludes that the empirical outcomes bearing on the model are encouraging.

3.3.3 BURKE AND WEIR'S MODEL

The two previous models reviewed and discussed aimed at theorizing the
structure and functioning of coping irrespective of a particular area of application. There exist, however, other conceptual models specific to a particular area (e.g. occupational situation) or a particular aspect of the social and occupational roles (e.g. role conflict). Burke and Weir, (1980), following a review of research on coping with managerial stress, suggest a model which integrates earlier work on occupational stress, and places major emphasis on individual coping effort with organizational stress. The raison d'être of their undertaking is the awareness that most studies on coping with work stress have been conducted "without references to a theoretical model of coping behaviour. Instead, most of this literature, either describes coping behaviours, relates these behaviours to some antecedents and consequences, or offers a taxonomy of coping responses" (Burke and Weir, 1980).

The model, as reproduced in Figure 3.1, indicates that events in the work environment are perceived as irrelevant, benign/positive, or threatening. Cognition of threat, that is, the anticipation or experience of loss or harm arouses negative affects (e.g. anxiety, depression), stressful thoughts and images, and physiological responses such as 'fight and flight' (Cannon, 1939) and general alarm syndrom (Selye, 1956) of the organism. These individual stress reactions evoke coping behaviour. Ineffective coping behaviour has positive outcomes in the short run but not in the long term. The outcomes of coping, whether effective or ineffective, feedback into cognitive appraisal to alter the threat cognitions, and into individual stress reactions to regulate affective, cognitive and physiological strains. At this stage the individual characteristics such as coping abilities or skills; past experience; physical and mental conditions; home, co-workers' and superiors' social support; personality traits; constraints of social, cultural or organizational norms; the intensity of chronic events, are viewed as mediators for both cognitive appraisal processes and coping behaviours.
FIGURE 3.1 Burke and Weir's (1980) model of coping with managerial work stress.
If coping behaviour is ineffective, mental and physical symptoms of strain develop (e.g. chronic disturbances of mood and cognitive processes, job dissatisfaction, low morale, psychosomatic symptoms, high blood pressure, high serum cholesterol, and absenteeism). Persistence and recurrence of work strains, if uncorrected, can eventually induce, in the long run, mental and physical breakdowns (e.g. mental illnesses, coronary heart diseases, ulcer, etc.).

**DISCUSSION**

The model of coping with managerial work stress reviewed, integrates into a conceptual framework some important processes, and outlines the causal relationships between the components of stress and coping. However, the model fails to produce or specify some relationships:

**First:** With reference to Figure 3.1, coping behaviour (panel 4) is depicted as a mediator of the effect of individual stress reaction (panel 3) on wellbeing−strain. The model seems to suggest that there is a perfect mediation, that is, a person's stress reactions (panel 3) do not induce directly wellbeing−strain, but only through coping behaviour (panel 4). However, it can be argued that stress reaction (e.g. disturbing cognitions, negative feelings, etc.) can affect directly and indirectly (through coping personal and situational intervening variables) individual strain. For example, feeling anxious because of the anticipation of some harm or loss to what an individual values in the work environment may sometimes, but not necessarily, affect his morale and wellbeing. Therefore, part of the stress reaction impinges directly on wellbeing, and part of it is channelled or modified by coping behaviour. So, another arrow that directly links panel (3) to panel (5), to represent the relationship between stress reaction and wellbeing−strain, is needed.

**Second:** Related to the previous remark is the posited mediating role of coping behaviour in the relationship between stress reaction (panel 3) and wellbeing−strain (panel 5). A mediator variable, according to Burke and Weir
(1980b) means a variable which serves to diminish or intensify the relationships between other variables. So, coping behaviour may serve to attenuate or exacerbate the impact of a person's stress reaction on wellbeing-strain. However, the model indirectly raises some important questions which remain unanswered: Does coping behaviour play only a mediating role in the stress reaction and wellbeing-strain relationship? Does coping behaviour, whether effective or ineffective, also exert a moderating or interactive effect on wellbeing-strain? Put differently, does coping interact with stress reactions to enhance the prediction of wellbeing-strain? Does the mere fact of coping, irrespective of the type of the individual stress reactions, have some effect on wellbeing-strain reduction? These possible relationships are not dealt with in Burke and Weir's (1980b) description and analysis of the model.

Third: As indicated in Figure 3.1, Burke and Weir (1980b) posit that the individual characteristics (panel 7) mediate cognitive appraisal and individual coping behaviour. This conception sounds plausible, but other forms of relationships are possible:

(a) Individual characteristics may mediate also stress reaction (panel 3) on the ground that some personality dimensions such as flexibility-regidity or trait anxiety may affect the responsiveness of an individual's affective processes (e.g. anxiety, tension, depression, etc.) to perceived threat.

(b) Individual characteristics may serve, not only as mediators, but also as moderators of the cognitive appraisal and the individual coping behaviour: individual characteristics may interact with cognitive appraisal to predict stress reaction; they may also interact with coping behaviour to enhance the prediction of wellbeing-strain. Thus, besides the mediating role of the personal characteristics, their moderating role is likely too.

(c) Individual characteristics may sometimes constitute an additional source of stress. It follows that the direct impacts or the main effects
of the individual characteristics on cognitive appraisal, stress reaction
and coping behaviour, warrant attention, in addition to their mediating and
moderating effects.

The model proposed by Burke and Weir (1980b) is a rare conceptual effort
of coping in the occupational domain, that outlines the relationships of
coping to perceived work stressors, strain, health consequences, and personal
characteristics; and integrates disparate elements of work coping literature,
into a conceptual framework.

3.3.4 HALL'S ROLE-BASED MODEL OF COPING.

Hall's (1972) paradigm is another example of the conceptual models
proposed in relation to work. It is recalled that Burke and Weir's
framework was concerned with coping with managerial stressors. The present
model deals with role conflict between home and work.

Following Levinson's (1959) conception of role processes, Hall (1977)
adopts three dimensions of role: (a) Externally defined demands, (b)
Personal role conception or internally defined expectations, and (c) Role
behaviour.

Building upon these dimensions of role, Hall (1972) logically derives
three patterns of coping behaviours, so that each pattern of coping
 corresponds to each dimension of role:

(a) - The first type of coping, namely, structural role redefinition,
involves the alteration (reduction, reallocation, rescheduling, etc.)
of externally or structurally imposed expectations held by others,
regarding the appropriate behaviour of role-occupant.

(b) - The second type: personal role redefinition; entails changing one's
personal perception of role expectancies, demands and pressure received
from others (e.g. setting priorities among roles, belief in the
The third type, namely, reactive role behaviour, involves attempts to ameliorate the quality of one's role behaviour so that all the expectations of role senders are met, without changing the external or personal definition of role (e.g. planning, absence of any strategy, working harder.).

Such a typology of coping behaviour based upon the categorization of role dimensions, permits the researcher to advance some propositions regarding the function of each class of coping behaviour:

(a) Structural role redefinition is most effective in reducing experienced conflict between a focal person and a role sender.

(b) Coping through personal role redefinition yields only short term relief but long term exacerbation of the stressors impingements.

(c) Reactive role behaviour would entail an increase in the total strain experienced by the stressee.

DISCUSSION:

The model, unlike Burke and Weir's (1980b) paradigm, was empirically examined. Hall (1972) concluded that, although structural role redefinition is positively related to satisfaction; and coping through personal role redefinition is related to dissatisfaction, the simple act of coping (as opposed to the absence of coping attempts) is more strongly related to satisfaction than to the particular type of coping strategy employed. This is an important finding in that coping, irrespective of its quality or quantity, has some effect on strain.

However, in testing the model, the researcher has used only one indicator of psychological strain, namely, satisfaction; and one form of stressors, i.e., inter-role conflict. One is left with the question whether these patterns of coping relate differently to other types of perceived stressors and affective strains. Therefore, three forms of relationships warrant examination:

(1) The relationship of coping strategies to different patterns of perceived
stressors. Although the researcher limits the study to the inter-role conflict, other role aspects (e.g., role ambiguity, role overload, etc.) merit consideration.

(2) The relationship of coping to a number of indicators of psychological and psychosomatic strain, since the focus of Hall's study was only on satisfaction.

(3) Moderator variables other than employment status and multiple roles that were addressed. Socio-demographics, personality characteristics, social support are potential moderators of the relationship of coping to stress.

In conclusion, Hall's model is much more a taxonomy of coping behaviour than an elaborated conceptual paradigm indicating the relationships among different components of coping, strain and perceived stressors. Nevertheless, the progressive conceptualization of coping from role typology, through coping categorization, and to coping outcomes is logically impressive.

3.3.5 CONCLUSIONS

The reviewed models address the relationships of coping to perceived stressors, strain, health outcomes, and coping resources, whether individual resources (personality attributes) or situational resources (social support). However, the discussion accompanying each model review emphasizes the need for further conceptualization of the following relationships:

(1) The association of coping strategies with perceived stressors. Under what conditions some forms of coping are more activated than others.

(2) The relationship of coping strategies to psychological strain indicators and physiological symptoms. Does coping influence most strain indices or affect them differentially?

(3) How individual resources (socio-demographics, personality characteristics) and situational resources (social support) relates to coping strategies and coping effectiveness.

(4) The relationships of coping strategies to the stressor-strain link,
that is, whether coping functions as

a) A mediator of the relationship of perceived stressors to strain.

b) A moderator interacting with perceived stressors to enhance the prediction
of strain.

These aspects express the need for other conceptual models that indicate
the relationship of coping strategies to stressors, strain and coping resources
in the occupational realm.

3.4 COPING STRATEGIES.

Having addressed the conceptual aspects of coping in the foregoing
section, there remains to examine some examples of coping strategies. Coping
strategies refer to the patterns of coping attempts or efforts intended
to manage (i.e., avoid, tolerate, reduce) stress. Coping strategies have
been proposed on both theoretical and empirical grounds. An outline and
criticism of which will be made.

3.4.1 THEORETICALLY-DERIVED COPING STRATEGIES

Some writers have proposed coping typologies generalizable to diverse
situations. In this connection, Lazarus and Launier (1978) suggest four
coping modes consisting of information seeking or search, direct action,
inhibition of action, and intrapsychic response (i.e., cognitive processes
that regulate the emotion by reducing its unpleasant feelings).

Moos and Schaefer (1984) advance another typology based on three main
sets of coping strategies: (a) Appraisal-focused coping involving logical
analysis, cognitive redefinition, and cognitive avoidance or denial;
(b) Problem-focused coping including seeking information and support, taking
problem-solving action, and identifying alternative rewards; (c) Emotion-
focused coping consisting of affective regulation, emotional discharge,
and resigned acceptance.
The importance of these theoretical efforts of categorizing coping strategies lies in the provision of a framework that guides empirical research in identifying coping strategies specific to a given situation.

3.4.2 EMPIRICALLY-DERIVED COPING STRATEGIES

Unlike the above typologies, empirical identification of coping behaviour is mostly situation-specific. Since there exist certain studies carried out in occupational environment, only coping strategies reported by work stress studies are considered.

Investigating the ways employees utilize to handle persistent life stress encountered in four areas: occupational, marital, household economics, and parental role, Pearlin and Schooler (1978) identify a number of coping strategies grouped into three broad categories, namely: (1) Responses that modify stressful situations: negotiation in marriage, punitive discipline in parenting, and optimistic action in occupation. (2) Responses that function to control the meaning of stressful experience following its occurrence and prior to the emergence of strain. These responses involve positive comparison (perception of a situation as being less stressful in comparison with that of significant others), selective ignoring (neglecting the aversive sides of stressors and concentrating upon positive attributes), substitution of rewards, and devaluation of money. (3) Responses that function more for the control or management of strain itself than for its vitiation after its emergence. These include emotional discharge (ventilation of feelings), passive forebearance (containment of feelings and avoidance of conflict), parental potency as opposed to helplessness resignation, and finally, optimistic faith.

Burke (1971) identified the following coping responses reported by a sample of middle level supervisors of engineering personnel: change to an engrossing non-work or play activities; analyse situations and change
the strategy of attack; withdraw physically from the situation; engage in physical exercise; work harder; talk through with others on the job; compartmentalization of work and home life; change to a different work task or job activity, talk through with spouses, and build body resistance to frustration (regular sleep and exercise). In a subsequent study of managerial work stress and coping strategies, Burke and Belcourt (1974), using factor analysis of reported coping responses, derived five patterns of coping behaviours, namely talking to others; working harder and longer; changing to an engrossing non-work or play activity; analysing the situation and changing the strategy of attack; and withdrawing physically from the situation.

Newton and Keenan (1985) examined responses to work incidents reported by a sample of young professional engineers contacted during the sixth month of their employment. They identified the following classes of coping: talking to others, direct action, preparatory activities (e.g. problem appraisal, and information search), withdrawal behaviour, and helplessness and resentment.

Dewe et al. (1979) developed a checklist of coping behaviour inferred from responses to a preliminary open-ended question. The checklist was then applied to a sample of supervisors (or white collar workers to use the researchers' term), and the responses were factor-analysed. The coping patterns derived include expression of feelings and search for social support at work; sensible task-oriented behaviour (e.g. take immediate action, set priorities, try not to worry.), engaging in outside work; and passive attempts.

Tung and Koch (1980) conducted a research into coping strategies that the School Administrators found useful to cope with work stressors. The strategies reported by respondents were grouped into three general areas: the first category - physiological activity - includes physical work or
exercises (e.g. jogging, competing, gardening); withdrawal activities (isolating oneself in one's home, travelling for an extended period, and establishing social friendship outside the immediate educational environment); relaxation activities. The second category: cognitive activity, includes approaching all problems with an optimistic attitude; sharing problems with colleagues and spouses; establishing realistic goals (recognition of one's limitations); maintaining a sense of humour; believing and practising religion. Finally, the third category — acquisition of interpersonal and work skills — involves updating professional skills, acquiring time management and conflict management skills, developing good relations, and learning team management efforts.

Kyriacou (1980) asked a fairly small sample of teachers to indicate how frequently they use each coping strategy listed in a questionnaire. Factor analysis revealed three main coping patterns: expressing feelings seeking advice—social support; reflecting on the situation and taking action; and finally, distracting attention away from work stress to more pleasant thoughts and interests.

3.4.3 DISCUSSION AND CONCLUSIONS

The section has progressed from general coping typologies to specific coping strategies. The examination of the coping strategies reported, and the methodology used raises some issues:

First: Various specific coping strategies have been reported. However, it is surprising that research has rarely mention moral attitudes, religious values and existential beliefs, people may resort to , in the presence of stress.

Second: The method used to assess coping behaviour in certain studies involves some shortcomings. To illustrate, it is worth mentioning two examples of items used by Pearlin and Schooler (1978) to identify perceived stressors and coping strategies:

An item supposed to assess perceived work stressors was:"How strongly do
You agree or disagree that: (1) My work has good fringe of benefits such as sick pay and retirement. (2) I can count on a steady income. (3) My chances for increased earnings in the next year or so are good.

An item supposed to assess coping response was: "How strongly do you agree or disagree that (1) The most important thing about my job is that it provides me the things I need in life, (2) I can put up with a lot on my job as long as the pay is good, (3) Time solves most problems on my job."

It can be argued that, asking respondents whether they agree or disagree about some occupational aspects is largely confusing. The respondents may not know whether they are asked about the existence of some stressful situational demands (factual data), or asked about their opinions or attitudes towards these situational demands (attitudinal data), since the format of the first question contains the key terms "agree" and "disagree". Therefore, both ways of interpreting the meaning of the question by respondents are very likely. Consequently, the results may, partly, mirror these misinterpretations rather than perceived stressors per se.

Additionally, the same format is applied to coping question. That is, the expression "how strongly do you agree or disagree" is used as well in connection with coping items. If the respondent answered that he agrees (or disagrees) that "the most important thing about (his) job is that it provides (him) the things (he) needs in life" (see the second item above). The answer can reflect his opinion or attitude towards the job rather than coping with work stressors. Furthermore, it is hard to admit that items do tap coping behaviour since there is a striking similarity between coping and perceived stressors' leading questions. Both start with the expression: "how strongly do you agree or disagree that ...", which reflects the respondent's opinions or attitudes towards some occupational variables and much less their perception of stressors and coping responses.
Third: Some researchers present the subjects with questions that ask them about actions or behaviours helpful or useful in reducing stress (e.g. Burke, 1971; Burke and Belcourt 1974). It is perhaps more safe to ask what they do or how they behave under some stressful situations, irrespective of any mention of negative or positive outcomes of coping behaviour. It can be argued that, asking people about coping responses in terms of usefulness, is based on the assumption that every coping strategy likely to be reported by respondents is necessarily perceived (by them) as effective. A person may behave in some way in order to manage (solve, tolerate, reduce, or avoid) the problem, not because he believes it is the most effective or successful, but because of significant others' explicit or implicit constraints and pressures.

Fourth: The most important lacuna in the studies of coping strategies with work stressors is that the majority of studies have dealt principally with managers, supervisors, and engineers' works, and have paid little attention to shopfloor or production workers.

To conclude, coping with work stressors, as suggested by the studies reviewed, exhibits various strategies, despite the fact that some forms of coping, such as coping based on moral attitudes, and religious and existential beliefs, have rarely been explored. Generally, the studies of coping with occupational stress are lacking compared with the amount of coping research in behavioural medicine and community psychology. Moreover, the existing occupational research on coping is mainly concerned with managers, supervisors, administrators and engineers, and rarely with shopfloor production workers.
3.5 COPING EFFECTIVENESS

Issues related to the analysis and assessment of coping effectiveness are complex and multifaceted. Effectiveness rests upon a number of parameters related to cognitive processes, behaviour, performance, situation, group processes, social and cultural norms and values. Change affecting one or more of these processes may represent, in the literature, an indicator of coping effectiveness. Therefore, tension reduction has been considered as a relevant criterion of coping effectiveness (e.g. Pearlin and Schooler, 1978). The emergence of some forms of cognitive processes such as denial (Bloom, et al., 1974; Cohen and Lazarus, 1973; Fenz and Epstein, 1962; Goldstein and Adams, 1967; Holmes and Houston, 1974; Steiner, 1970) and intellectualization (Lazarus et al. 1965; Speisman et al. 1964) was found effective. Coping responses that modify the situation or stressors were regarded as an expression of effectiveness (e.g. Janis and Mann, 1977; Lazarus 1966; Mechanic, 1962; Murphy, 1974). These examples reflect the complexity of the matter. In order to deal with some research examples of coping effectiveness, every study will be approached from two standpoints: What are the indicators of coping effectiveness adopted? What coping strategies are found effective or ineffective?

3.5.1 THEORETICAL GUIDELINES OF COPING EFFECTIVENESS.

Some writers advance some general guidelines to oriente studies towards a systematic assessment of coping effectiveness. In this vein, Lazarus et al., (1974) proposed three general criteria for evaluating the efficacy of coping strategies, namely: flexibility, rationality and effectiveness. By "flexibility" is meant variability of behaviour according to the internal or external environments. "Rationality" denotes the employment of problem-solving capacity. Finally, "effectiveness" refers here to the satisfaction of the task requirements or alteration of the task so that one's and other's expectations are met.
Antonovsky (1979) advances a few criteria for the assessment of coping maturity, including flexibility (creation and revision of contingent plans), foresightedness (anticipation of the long-range and immediate response to actions), and rationality (accuracy and objectivity of appraisal).

Mechanic (1974) believes that successful individual adaptation depends on the effectiveness of the solutions provided by culture and the preparatory institution (formal and informal learning and social support). The components of the individual adaptation such as coping, capabilities, motivation to meet environmental demands and maintenance of psychological equilibrium, capitalize upon the adequacy of socialization and acculturation in the social environment.

Kahn et al. (1964) offered some important orientations concerning coping behaviour in organizations. They recommend that inquiry into coping responses to organizational stress necessitates the consideration of the type of stress involved, the organizational condition creating stress, the personality of the individual experiencing stress, and the network of interpersonal relations. It follows from these, that the success of coping behaviour should be assessed with reference to all affected systems. The critical question to be asked concerning any coping response is: effective for whom? because "what is good for an individual and his role set needs not be consonant with the goals of the organizational system" (Kahn et al., 1964, p. 433).

These theoretical guidelines have outlined some general criteria ranging from the micro-level: cognitive processes (e.g. denial, intellectualization, etc.) to the macro-level: social structure and culture. The propositions made are indicative of the complexity of the phenomenon and the necessity for multiple criteria to assess coping effectiveness.

3.5.2 EMPIRICAL EVIDENCE OF COPING EFFECTIVENESS.

To examine some examples of empirical studies of coping effectiveness,
each study is examined on the basis of the criteria adopted for effectiveness, procedures used and effective or ineffective coping strategies reported.

Houston (1977) examined the efficacy of some cognitive coping strategies with apprehension in a laboratory situation, where avoidance of shock was contingent upon good performance on a memory task; and also with apprehension in a class examination situation. The criterion of cognitive coping effectiveness involved reduction of anxiety and improvement of performance. The laboratory experiment indicated that cognitive rationalization, reversal of affect and intellectualization threat groups were not significantly different from the non-threat group in the change of anxiety; while the denial, active mastery, search for strategy and worry groups were significantly different from the controls. The classroom study indicated that students resorting to rationalization, intellectualization denial and isolation, were successful in coping with the stress of the final exam, because they manifested lower anxiety and obtained relatively high exam scores. Houston (1977) concluded that intellectualization and rationalization were associated with the most effective coping, as opposed to worrying, being the most strainful and ineffective.

Hall (1972) related three types of coping to overall satisfaction addressed by a direct question: "overall, how satisfied do you feel with the way you deal with your problem life ". It was found that satisfaction was positively related to the structural redefinition class of coping, and negatively associated with the class of coping termed reactive role behaviour. An intriguing finding reported, was that the simple act of coping as opposed to non-coping was much more related to satisfaction than particular type of coping strategy employed.

Considering the reduction of affective strain as an indicator of coping effectiveness, Pearlin and Schooler (1978) found that some coping resources (i.e. personality attributes) were related to coping efficacy. In this
connection, they reported that freedom from negative attitudes (low self-denigration), the possession of a self-conception of being able to control the external environment (mastery) and the presence of favourable attitudes towards one's self (self-esteem) were effective in reducing the effect of stressors. The results also indicated that individual coping strategies are most effective when dealing with stressors within the close interpersonal roles of marriage and child-rearing, and least effective when dealing with the same stressors encountered in occupations. According to this study, the nature of a situation determines the efficacy of coping strategies.

Billings and Moos (1980) examined the efficacy of coping with stressful life events. The method of analysis consisted of assessing the reduction of affective strain (anxiety and depression) and psychosomatic symptoms, using multiple regression. The results showed that avoidance coping highly predicts depression, anxiety and psychosomatic symptoms, than the other two coping strategies: active cognitive and active behaviour, for both male and female samples. Comparing the last two coping strategies, avoidance coping were more effective than active behaviour in reducing strain and psychosomatic complaints.

Using some coping patterns identified by Pearlin and Schooler (1978), Menaghan (1982) attempted to test the effectiveness of four marital coping strategies: negociation, optimistic comparison, selective ignoring and resignation, adopting two different criteria of coping effectiveness, namely, the extent of experienced distress-reduction, and the problem-solving over time. She reported that two coping responses: selective ignoring and resignation, were associated with increased tension and with little effect on stressors. The coping response consisting of negociation was effective in reducing latter problems but ineffective in tension-reduction. The only coping strategy leading to lower tension and fewer subsequent problems, was optimistic comparison.
In a subsequent analysis Menaghan and Merves (1984) examined coping effectiveness with occupational problems. The data was based on a wide scale community study from which the sample examined in the above-mentioned study was drawn. The effectiveness of four coping strategies, namely, direct action, optimistic comparison, selective ignoring (concentrating on positive aspects and ignoring negative characteristics of the situation) and restricted expectations (focusing on monetary rewards rather than on work satisfaction) were assessed. It was found that optimistic comparison and unrestricted expectations were related to ongoing affective strain, but had a negligible effect on the work situation over time. Neither selective ignoring nor direct action has a direct effect on strain and later stressors. Surprisingly, the initial level of problems, difficulties, part-time employment, occupational prestige and income predicted later problem more than did coping strategies.

Burke and Belcourt (1974), using respondents' claim that given coping responses were effective or ineffective in reducing experienced tension, reported that the coping strategies: analysing the situation and changing the strategy of attack, were effective; but other coping strategies, namely, doing nothing and expressing feelings were reported ineffective.

Adopting similar typology of coping strategies used by Burke (1971), Howard et al. (1975) examined the effectiveness of coping strategies of managers based on the average frequency of reported strain symptoms (or psychosomatic symptoms) corresponding to each coping strategy, so that the smaller the average frequency of reported strain symptoms, the more effective a coping strategy. Therefore, they listed five effective coping strategies, including, building resistance (by regular sleep, exercises), compartmentalizing work and non-work life, engaging in physical exercise, talking through with peers on the job, and withdraw physically from the situation. The five coping strategies found ineffective were: changing to
a different work activity, changing the strategy of attack on work, working harder, talking through with spouse, and changing to a non-work activity.

Anderson et al. (1977) addressed the effectiveness of coping behaviour patterns with an environmentally-induced disaster (i.e. flood). They used an objective criterion to measure effectiveness consisting of two forms of performance: the ability of the owner manager to obtain scarce and valued resources to maintain the setting functioning, and the effective utilization of these resources once acquired. The results showed that the use of problem-solving (a class of coping strategy) was positively related to effectiveness, but emotion-centred coping and secondary or derivative problems (as other classes of coping strategies) were negatively related to effectiveness.

Ilfeld (1980) considered the same modes of managing daily stressors in marriage, parenting, finances, and job, among a large community sample. Coping efficacy rested on the extent to which one or more coping strategies predict affective strain and psychosomatic symptoms. Effectiveness, then, is evaluated in terms of the amount of variation explained by coping strategies in the foregoing dependent variables. Concerning occupational role, Ilfeld (1980) found that resignation and optimistic action significantly predict feeling of job distress and psychosomatic symptoms. However, unlike resignation, optimistic action did not predict job stressors.

3.5.3 DISCUSSION AND CONCLUSIONS

Methodologically, three main methods of assessing coping effectiveness can be inferred from the literature:

(a) Assessment of coping effectiveness based on objective criteria or outcomes. The best example is the study of Anderson et al. (1977) in which coping behaviour was linked to performance of managers owner of the enterprises struck by a flood. Performance consists of acquisition of scarce resources and effective exploitation of such resources.
(b)- Self-report of effective or ineffective coping responses. The effectiveness of a given strategy is indicated by the respondent's claim. For example, Burke and Belcourt (1974) asked their subjects to describe what they did - in some situations - that they found effective in reducing their tensions. Similar procedure was also applied to the assessment of ineffective coping behaviour.

(c)- Assessment of coping effectiveness by means of statistical techniques. The relationship of coping strategies to affective strain (anxiety, depression, dissatisfaction), psychosomatic symptoms and perceived stressors have been assessed by mean frequency (Howard et al. 1975), means differences (Houston, 1977) Chi square analysis (Hall, 1972) and multiple regression (Billings and Moos, 1980; Ilfeld, 1980b).

Examination of the methods used for assessing effectiveness and the types of effective and ineffective coping strategies reported, leads to some comments:

First: There are no clear cut patterns of coping strategies described as effective across empirical literature in the occupational and community realm. It seems that each study has come up with a specific configuration of effective and ineffective coping strategies. The research evidence reported earlier illustrates sufficiently this point. But, despite these differences, most researchers tend to consider situation-oriented coping, such as problem-solving, direct action, information search, etc., as more effective; and intrapsychic or emotion-oriented coping as less effective. This is suggested by the influential work of Lazarus and his collaborators. For instance, Lazarus and Launier (1978) differentiate between two functions of coping: instrumental coping consisting of correcting the troubled interaction between the person and his environment; and palliative coping which functions as a regulator or modifier of emotional strains. Mechanic (1962), too, suggests similar type of coping functions. The use of the term "palliation"
or "palliative", by these writers, suggests that this type of coping is less effective in dealing with stress than the instrumental type of coping. Therefore, implicit in the two labels, namely, "instrumental" and "palliative", is the prejudgement of their differential adaptive value.

Empirically, some researchers impose the assumed positive adaptive value of situation-oriented coping on the interpretation of their findings. To illustrate, McCubbin et al. (1976) identified six coping strategies used by wives to deal with the husband's prolonged separation. Conceptually, they compared these coping strategies with Lazarus (1966) typology of coping consisting of direct action, defensive reappraisal and anxiety reaction. They said that four of the coping strategies identified in their study "may be considered as highly functional for the wife in that they are all direct-action patterns". They said also that the remaining two coping strategies, namely, reducing anxiety, and maintaining the post and dependence on religion "fall within Lazarus' classification of potentially dysfunctional patterns". Furthermore, by applying Lazarus' (1966) psychological framework, they concluded on this note: "The majority of coping patterns are considered highly functional in that they are direct action". It seems, then, as if the mere attribute of coping strategies to be situation-oriented, is sufficient enough to convey their effective adaptive outcomes.

There is some bias that works in favour of the situation-focused coping. Coping through affective strain regulation or reduction is - by contrast - considered palliative, dysfunctional, ineffective and of ephemeral effect. Menaghan and Merves (1984) expressed strongly the matter stating that the "general bias toward problem-solving action is also evident in other discussions about occupational coping...Yet there is little empirical evidence confirming either the superiority of direct action attempts or the ineffectiveness of interpretive and emotion-management efforts". It is recalled that some studies reviewed found that some forms of situation-focused coping such as problem-solving, direct action, working harder, changing the strategy of
that non situation-oriented coping such as avoidance coping, was highly predictive of strain reduction than active-cognitive and coping-action behaviour (Billings and Moos, 1980); and that rationalization-resignation was predictive of job stressors more than did coping action. Furthermore, in a study of Hall (1972), it was found that the simple act of coping as opposed to non-coping was more highly related to satisfaction than particular types of coping, whether task-oriented or emotion-centred coping. Therefore, whether situation-centred coping is more effective than emotion-oriented coping is still at issue, and is not sufficiently documented.

Second: Of importance is the clarification of some procedures to identify coping behaviour, and to assess coping effectiveness. There are instances of studies where the demarcation between the procedure for the identification of coping strategies and the measurement of coping effectiveness, is absent. To illustrate, Burke and Belcourt (1974) employ the following question to identify coping strategies:

"Our jobs occasionally demand a good deal from each of us, what ways have you personally found useful in handling the tensions and pressures of your jobs?"

And use the question that follows to assess coping effectiveness:

"Describe situations which were stressful for you, for each situation describe what you did that you found particularly effective in reducing the tension for you."

And in the third question, they use the same format as the latter, except for the term "effective" replaced by the term "ineffective".

Thematically, the first two questions are essentially similar. By the first question, it is intended to identify coping behaviours that are useful or effective in reducing stress. So does the second question of coping effectiveness. Consequently, the investigators seemed puzzled by the fact
that fewer subjects responded to the second question of coping effectiveness. The reason would be that, since the first question about coping styles did also ask about effective coping responses, although not intended by the researchers, most respondents would have found the second question redundant and simply ignored it.

Another difficulty associated with assessing effectiveness based on the respondent's self-claim of usefulness of some coping responses used, consists of the possible tendency of the subjects to report those socially desirable responses to stressful situations. Although the questionnaire warrants anonymity, it is likely that the subjects concentrate on those desirable coping attempts that look logical, objective, rational, and efficacious in solving problems, in order to exhibit their capabilities and abilities to significant others (here the researchers), and pay little attention to intrapsychic coping responses. Indeed, the managers researched by Burke and Belcourt (1974) reported such effective coping strategies as talking to others (reported by 30 per cent), analysing the situation and changing the strategy of attack (28 per cent), working harder and harder (10 per cent) and delegating work (8 per cent). These most frequently reported strategies are all situation-oriented.

In conclusion, two aspects of the discussion warrant reiteration: Whether situation-oriented coping is highly effective than emotion-centred coping, is not empirically substantiated, although researchers conceptually favour the former over the latter. The second aspect is that, when objective indicators of coping effectiveness are unfeasible, measurement of effectiveness by means of analytic statistical procedures are an important alternative superior to self-claimed efficacy of coping responses as shown earlier. Should statistical methods be used, it would be more informative to adopt multivariate analytic techniques instead of simple correlations or mean differences.
3.6 COPING RELATIONSHIPS.

In the present chapter, the following types of relationships will be examined.

(1) The relationship of coping to the individual and social coping resources. Coping resources are of two types: (a) Socio-demographics, (b) Personality characteristics.

(2) The relationship of coping to stressor-strain link.

It should be noted, beforehand, that the relationship of coping to either stressors or strain will not be examined since they have been dealt with in connection with coping effectiveness.

3.6.1 COPING AND SOCIO-DEMOGRAPHIC VARIABLES.

The sample of studies that follows addresses the following questions:
What is the role of socio-demographic characteristics in the stress-coping relationships? Does people's utilization of coping strategies in response to stressful situations, dependent on socio-demographic variables?

In this vein, Burke and Belcourt (1974) reported that the preference of coping responses differs for various age levels, sex groups and educational levels. Less educated managers tended to cope more by working harder and longer than the more educated managers. However, educated managers, used more the coping strategy of talking the situation through with others. This last coping strategy is also used more by younger managers than any other age group. Male manager used more the strategy of changing to an engrossing non-work or play activities; female managers, on the other hand, make more use of talking problems through with others.

More detailed analysis of age, as a moderating variable, is provided by Howard and co-workers' (1975) study. Using the same typology of coping strategies as in the above study, the findings indicated that certain coping strategies associated with low stress differ across age-groups. That is, middle-aged managers used the strategy of changing to a non-work
activity; younger managers adopted the strategy of talking through with peers, and changing the strategy of attack on work; and the older managers employed the strategy of talking through with peers and with spouses, and withdrawing physically from the situation. However, coping strategies common to all age-groups were: building resistance by regular sleep, exercise, and compartmentalizing work and non-work life.

Menaghan and Merves (1984) examined the relationship of occupational prestige, income, marital status, age, sex, full/part time work and family size; to coping strategies, in a community sample of employed male and female. The results indicated that respondents with a low socio-economic status (income and occupational prestige) rarely attempted the strategy of direct action, adopted few optimistic comparisons, employed more selective ignoring, and reported greater restriction of expectations. Younger workers were higher in optimistic comparison and rarely resorted to restricting their expectations; but age was unrelated to direct action and selective ignoring. Coping strategies also vary by sex, with male worker using less selective ignoring and greater restriction of their expectation of job quality; but sex showed no relationship to optimistic comparisons and direct action. Full-time workers used more optimistic comparisons, and selective ignoring. Finally, workers with fewer children used the coping strategy of selective ignoring.

A number of socio-demographic variables were addressed by Fleishman (1984) using the first wave of data collected by Pearlin's team (Pearlin and Radabaugh, 1976; Pearlin et al. 1981). The analysis showed that female employees frequently used the coping strategy of selective ignoring. Older employees adopted more reward substitution and positive comparison. Less educated individuals engaged in more reward substitution and selective ignoring. Finally, income was the most potent predictor of the four coping strategies, in that people with low income preferred more reward substitution, used more selective ignoring, and employed less positive comparison and
direct action. On the other hand, sex was the weakest predictor of coping strategies.

Ilfeld (1980a), identifying two coping strategies specific to work environment, sought the contribution of demographic variables to the prediction of coping attempts. The researcher reported that the choice of coping through direct action was positively predicted by higher income and education, but failed to relate to age, sex, marital status, and race. The other coping strategy: rationalization-avoidance was predicted by lower educational level, and by being female worker; but was unrelated to income, age, marital status and race. Overall, the contribution of these socio-demographic characteristics to the prediction of coping strategies was negligible.

The study of Billings and Moos (1980) addressed, among other things, the relationships of a few socio-demographic variables to some coping behaviours. Women reported more frequent use of active coping, avoidance, and emotional-focused coping. Higher level of education was related to more frequent use of active coping, and less frequent use of avoidance. A person with higher income was more likely to use active cognitive, and active coping. However, age and employment status (part versus full-time employment) were unrelated to the coping strategies mentioned.

Pearlin and Schooler (1978) correlated gender, age, education, and income with different psychological resources and coping strategies, across marital, parental, household, and occupational roles; With regard to occupational vein, female employees used less optimistic action and more selective ignoring. Higher age was correlated with increased substitution of rewards, selective ignoring, and decreased positive comparisons. More extensive education was associated with more positive comparison, optimistic action, and less with substitution of rewards and selective ignoring. Finally, greater income correlated with less substitution of rewards, selective
In investigating coping responses in a middle-aged community sample, Folkman and Lazarus (1980) came to the conclusion that there was no effect on coping ascribed to age differences, and that men used more problem-solving strategies than women at work. However, there were no sex differences in the use of emotion-focused coping or tension-reduction strategy as opposed to problem-solving strategy.

Sidle et al. (1969) reported that, out of ten coping strategies identified, five coping attempts were subject to sex differences, that is, female tended to seek additional information, talk with others, become involved in other work activities, and reduce tension, more than male. Men, however, appeared more prepared to expect worse consequences. Higher educated persons tended more to see the humorous aspects of the situations, and to draw on past experience. Yet, coping styles showed no relationship to age, marital status and social class.

3.6.2 COPING AND PERSONALITY CHARACTERISTICS.

Do some personality characteristics affect the choice of coping strategies? What are the differences among people with varied personality attributes in the way they cope with stress? Do personality attributes predict the adoption of coping strategies? These are the questions to which the following sample of research is addressed.

With reference to type A/B behaviour patterns, the study of Howard et al. (1975) on managers indicated that type B and A behaviour patterns showed no differences on many coping attempts except on three coping strategies. Type B managers were more likely to use the coping strategy of compartmentalizing work and non-work activities, and talking the matter through with spouse, while type A managers made more use of changing to a different work activity. This last technique, frequently adopted by type A behaviour pattern managers, was the least effective coping strategy because it was associated with the
Pittner and Houston (1980) performed an experiment to examine whether type A and type B individuals differ in cognitive coping strategies. The results revealed that type A behaviour pattern persons compared with type B individuals, used more the mechanism of cognitive suppression and denial in response to threat. Additionally, the use of more denial by type A individuals was effective in reducing affective strains. The use of suppression, however, was associated with more emotional strains.

Identifying five coping strategies of a sample of young engineers in response to stress incidents encountered at work. Newton and Keenan (1985) related these coping strategies to type A behaviour pattern. Data analysis indicated that individuals identified as type A were more likely to feel helpless and to express feelings of resentment and frustration towards others under stressful situations. Neither type A nor type B behaviour pattern were related to the rest of coping strategies, namely, talking to others, direct action, preparatory action, and withdrawal.

With reference to locus of control, Anderson and associates (Anderson, 1977, Anderson et al., 1977), following a study of owner-managers' coping with a natural disaster (flood) affecting their small enterprises, reported that owner-managers, external in beliefs of control, perceived higher stress, and used much more emotion-regulation coping. In contrast, internals perceived less stress and utilized more task-centred coping behaviour. The conclusion was that managers, internal in locus of control, used more effective coping strategies (problem-solving) than managers with external locus of control.

Different findings were reported by Folkman et al. (1981) in a study of middle-aged community people. They failed to find a relationship between coping modes and locus of control. The researchers' expectation that people internal in locus of control use more problem-solving coping than the externals, was not supported.
Other personality characteristics have been addressed by some investigators. In this connection, Fleishman (1984) examined the function of three patterns of self-attitudes, namely, self-esteem, mastery (somewhat similar to internal locus of control), self-denial (a tendency to avoid thinking about a situation negative aspects), non-disclosure of problems (restraining from revealing one's problems to others). The results indicated that mastery significantly predicted the four coping strategies relative to occupational life. The more the belief in one's mastery, the higher the use of direct action and positive comparison coping, the lower the employment of reward substitution and selective ignoring. The more self-denial is used, the more reward substitution and selective ignoring are employed. Greater tendency to non-disclosure of problems was related to more reward substitution and less to coping direct actions. Finally, self-esteem was positively related to positive comparison, and coping direct action. Considering also marital and financial roles, the researcher found that mastery and self-esteem were the weakest predictors of coping strategies.

Sidle et al. (1969) have related a coping scale comprising ten coping strategies to the measures of self-esteem and locus of control. Persons with higher self-esteem tended to cope by talking with others, and by drawing on their past experience. Low self-esteem persons, however, were unlikely to reduce tension in response to stress. Finally, persons with internal belief in control were more likely to cope by drawing on past experience.

3.6.3 COPING RELATIONSHIPS TO STRESSOR-STRAIN LINK.

Having dealt with the relationships of socio-demographic and personality attributes to coping strategies, it remains to examine the effects of coping on the stressor-strain relationship. Does coping moderate the impact of stressors on strain? Does coping mediate the stressor-strain relationship
so that coping links the effect of stressors to strain? The following examples of studies address these issues.

Pearlin et al. (1981) examined the effect of coping on the relationship of disruptive job events to depression and to some mediators, namely, change in economic stressors, change in self-esteem, and change in mastery. Data analysis revealed that the interaction of coping with job disruption (work stressor) predicted a decrease in economic stressors and in depression, but an increase in self-esteem. However, coping exerted an interactive effect on mastery. Therefore, coping moderated the impact of job disruption upon economic stressors, self-esteem, and depression.

Anderson (1976), relating perceived stressors to some objective indices of performance, reported that the relationship of perceived stressors to performance followed an inverted-U-shaped curve. Then, he introduced coping strategies to examine whether they change the inverted-U-relationship between stressor and performance. The results showed that coping by problem-solving approximated the original relationship obtained between perceived stressors and performance, while coping through emotional adjustment changed the original inverted-U-shape to a linear relationship. The composite index of coping strategies also brought about a linear relationship to the original inverted-U-link of perceived stressors to performance. Therefore, it appears that the relationship of work stressors to performance varies depending on the nature of coping strategies.

Caplan et al. (1984) examined the interaction of the Person-Environment fit (the goodness of fit between a person's need and capabilities and his environment demands and supplies) as an indicator of perceived stressors, with coping (behaviour that changes the actual self or the objective environment as opposed to the perceived self and perceived environment) and defence (change in cognitions and emotion without changing the objective environment), to predict emotional strains, psychosomatic symptoms, self-esteem and satisfaction. The researchers found that the interaction of coping
strategies with the Person-Environment fit measures (P-E fit) did not predict strain indices. However, the interaction of defence responses, especially withdrawal and prayer, with the measures of the P-E fit, predicted most strain indicators. For instance, withdrawal conditioned the relationship of P-E fit measures and strain, towards increased positive affects, satisfaction and decreased psychosomatic complaints. Prayer, also, moderated the relationship of P-E fit to strain so that depression, negative affects and anger, were increased. Therefore, the study, contrary to the researchers' expectations, showed a net superiority of cognitive-emotional coping (termed in this study defence responses) over situation-focused coping (termed here coping) in the prediction of different indicators of strain.

Negative findings regarding coping strategies, have been also reported by Menaghan (1982), and Menaghan and Merves (1984). The first study of Menaghan (1982) indicated that no consistent significant interaction of marital stressors with coping strategies, to predict marital strain and later marital problems, was found. The second study of Menaghan and Merves (1984) relative to occupational stress, showed the same outcomes. That is, the interaction of possible work problems with each of the four coping strategies (direct action, comparison, selective ignoring, and restricted expectations), and the interaction of situational context (sex, age, income, type of employment, marital status, and family size) with coping strategies to predict occupational strain were not significant. Overall, there was no indication of the moderating or conditioning effect of coping strategies on the relationships of marital and occupational stressors to strain.

3.6.4 DISCUSSION AND CONCLUSIONS

The studies reviewed in connection with the relationship of coping strategies to socio-demographics, personality characteristics, and stressor-strain link contain some shortcomings:

First: With reference to the relationship of socio-demographic variables
to coping, no consistent pattern of relationships can be inferred across research findings. Age, for example, was a significant predictor of coping strategies in some studies (Burke and Belcourt, 1974; Howard et al. 1975; Menaghan and Merves, 1984), but was a negligible predictor of coping in other studies (Billings and Moos, 1980; Folkman and Lazarus, 1980; Ilfeld, 1980a).

Second: Related to the previous point is the difficulty to infer from the findings reported what patterns of coping strategies are related to what characteristics of socio-demographics. To illustrate, irrespective of the varied labelling of coping strategies, women used more situation-oriented coping, according to certain research (Burke and Belcourt, 1974; Sidle et al., 1969); used greater emotion-focused coping, according to some other studies (Fleishman, 1984; Folkman and Lazarus, 1980; Pearlin and Schooler, 1978); made more use of both emotion and situation-oriented coping, according to Billings and Moos' (1980) study; or manifested no difference from men in coping strategies (Ilfeld, 1980a).

Third: Some studies have examined the effect of each socio-demographic variable on coping while adjusting for the effect of others (e.g. Fleishman, 1984; Menaghan and Merves, 1984), whereas other studies failed to do so (e.g. Burke and Belcourt, 1974; Pearlin and Schooler, 1978; Sidle et al., 1969). It can be argued that socio-demographic variables (e.g. sex, age, education, occupation, income, etc..) are neither independent, nor simple variables. Age, for example, is not only a manifestation of the physical and psychological development, but also, possesses a complex and deeper ramification into social and cultural processes. Therefore, age shares some relationship with other socio-demographic characteristics; and examination of its relationship to coping, without controlling statistically for other socio-demographic variables, makes difficult the identification of whether the effect observed is due to age alone, or is ascribed to that part of the
relationship shared with other socio-demographic variables not adjusted for.

**Fourth**: Regarding the relationships of personality characteristics to coping, the evidence is conflicting. To illustrate, regarding locus of control, Anderson et al., (1977) reported that individuals with internal locus of control were more likely to use situation-oriented coping, Folkman et al. (1981) found no relationship between locus of control and coping strategies.

**Fifth**: Some researchers limit themselves to the use of only one particular dimension of personality as an indicative of psychological resources of coping. Howard et al. (1975) confined their choice to only type A behaviour pattern, and Anderson et al. (1977) restricted their concern to locus of control. It is, perhaps, more informative to utilize as many dimensions of personality as possible to better understand its relationships to coping.

**Sixth**: With reference to the relationship of coping to the stressor-strain link, there is no consistent pattern regarding whether coping moderates the effect of stressors on strain. For example, Pearlin et al. (1981) and Anderson (1976) provide evidence of the moderating effects of coping behaviour, whereas, Menaghan (1982), and Menaghan and Merves (1984), fail to provide such evidence.

**Seventh**: Although the review was concerned with occupational and non-occupational studies of coping, it is felt that further investigations should be oriented to the relationships of coping strategies to various personality characteristics such as locus of control, type A behaviour pattern and self-esteem, and to the interactive and mediating role of coping in the stressor-strain relationships.

To conclude, the discussion has shown the inconsistent pattern of coping relationships to socio-demographics, personality characteristics, and the stressor-strain link, that emerged from the research findings. Accentuation
of research is needed particularly in occupational vein, to contribute to
the clarification of the coping relationship issues. Additionally, more
attention should be paid to the following aspects of coping relationships:

(a)- The potential contribution of some personality attributes to the
prediction of coping strategies.

(b)- The potential contribution of social resources (e.g. social support)
to the prediction of coping strategies.

(c)- The direct effects (main effects) of coping strategies on perceived
stressors and strain indices.

(d)- The moderating or mediating role of coping strategies in the stressor-
strain relationships.

3.7 CONCEPTUAL AND METHODOLOGICAL IMPLICATIONS FOR THE PRESENT RESEARCH.

The chapter has evolved from the consideration of coping definition
and conceptual models, to the examination of coping effectiveness and coping
relationships to various components of stress. The following, are some aspects
of conceptual and methodological significance to the present research.

First: "Coping" is preferred to "mastery" and "adaptation" because
it conveys a neutral process, regardless of its positive or negative outcomes.
Some researchers, as shown in the first section, tend to equate coping with
effective behaviour or positive outcomes, and ignore those segments of coping
effort judged as ineffective. Indeed, coping derives its crucial significance,
not only from adaptational outcomes, but also from unsuccessful coping
attempts. Therefore, coping will be used to convey the process of managing
(avoiding, tolerating, reducing, mastering) work stressors regardless of
its success or failure.

Second: With reference to coping outcomes, it seems that certain approaches
prejudge the usefulness and effectiveness of some coping patterns, at the
detriment of others. Implicit in some typologies of coping behaviour is the
idea that situation-oriented coping is instrumental (or problem-solving); whereas, emotion-centred coping is palliative. Consequently, a great deal of empirical studies have been influenced by this tendency to value situation-centred coping and devalue emotion and cognition-centred coping. Yet, empirically, the superiority of coping by changing the situation over coping by altering cognitions or emotions aroused by stressful situations, in the prediction of strain and well-being, has not been substantiated by the existing studies. Therefore, there exists no positive or negative adaptive value inherent in a given pattern of coping, nor is there fixed criteria of effectiveness of absolute applicability.

Third: An alternative to the reliance on the respondents' claim that certain coping strategies are effective, lies in the statistical analytic procedure. This procedure rests on the analysis of the relationships of various coping strategies to different strain indicators, using statistical multivariate analytic techniques. Coping effectiveness assessed on the basis of a respondent's report is prone to socially desirable coping responses, so that the respondent is likely to evoke behaviours that look logical, rational, objective, desirable, and suggestive of his capabilities. Therefore, the statistical procedure of coping effectiveness is more safe because it avoids such artifacts.

Fourth: The relationships of coping to various components of stress reported by research attest to the existence of much inconsistency and conflict. It is hard to draw an unequivocal conclusion about a particular segment of coping relationships, considering the predominance of idiosyncratic findings of most studies. Furthermore, many aspects of coping relationships are not sufficiently investigated. Therefore:

Concerning the relationships of socio-demographic variables to coping, the following aspects need further clarification:

(a) The contribution of each socio-demographic variable to the prediction of coping strategies while controlling for the effect of others.
(b)- The role of socio-demographic factors in the relationship of coping to stressor, on the one hand; and the relationship of coping to strain, on the other.

Concerning the relationships of personality characteristics to coping, more attention should be paid to the following aspects:

(a)- The relationship of some personality dimensions (e.g. locus of control, type A behaviour pattern, self-esteem) to the use of coping strategies.

(b)- The interactive and mediating effect of personality variables on the relationships of coping to stressors, and upon the coping-strain link.

Concerning the relationships of coping strategies to the stressor-strain link, it is worthwhile to further the examination of the aspects that follow:

(a)- The direct (main) effects of coping strategies (considered individually and collectively) on work stressors, and strain.

(b)- The moderating and mediating effect of coping strategies on the stressor-strain relationship.

(c) If the hypothesis that coping acts as a moderator variable is empirically supported, it is worth examining the direction of its effect, that is, whether coping or some forms of it serve as a buffer of the effect of stressors on strain, or as an exacerbator of that effect.

Fifth: The review of coping literature reveals the paucity of conceptual as well as empirical work regarding the relationships of coping to psychological resources (socio-demographic characteristics and personality attributes), social resources (social-support, religion, socio-cultural values and norms), perceived stressors, strain indicators whether affective or physiological, and stressor-strain link.

Moreover, considering the few occupational studies that hitherto exist, researchers seem to be principally concerned with managers, administrators, engineers, supervisors and sometimes technicians. Shopfloor workers suffer
considerably from the paucity of research into coping behaviour.

Sixth: The geographical distribution of research is indicative of the overwhelming number of coping studies carried out in the United States, compared with research conducted in the European societies which have manifested a growing interest in stress and coping. With reference to developing countries, in general; and Algeria, in particular, there has almost been no indication of either the conceptual orientation, or the empirical work. Therefore, although the potential theoretical and practical gain likely to emanate from the studies in developing countries is important; stress and coping in these societies still remain an unbroken field.
SOCIO-ECONOMIC CHARACTERISTICS OF THE STUDY CONTEXT:
ALGERIA.

In countries where political and economic conditions are far more settled than in Algeria, and in systems where the workers have a much higher general level of industrial experience, education and political consciousness; participation...programmes have proved difficult to envisage, more difficult to implement, and most difficult to sustain. The Algerians urgently need increased productivity, yet they are willing to gamble on a participatory scheme to achieve it...The major themes and goals are quite clear, the document attempts to walk the narrow path between participation and productivity, between generating worker enthusiasm and satisfaction, and increasing the productivity so urgently needed in Algeria.

J. Nellis (1977)
4.1 HISTORICAL BACKGROUND.

Providing a historical outline of the development of Algeria is difficult owing to the complexity and fluidity of the events. A selective approach to relevant historical events – although somewhat arbitrary – is necessary.

The long period of French occupation which started in 1830, characterized by systematic confiscation of arable lands from the indigenous population left in near-total destitution, culminated in the war of liberation; which started in 1954, and ended with independence in 1962.

Immediately after independence, Algeria faced various pressing problems: The abrupt departure of nearly one million settlers created a large administrative and technical vacuum. The "scorched earth" technique, resorted to, destroyed the majority of machinery, communication network, administrative records and buildings. More than two million workers (mainly agricultural) were jobless, excluding half million refugees who fled from neighbouring countries: Morocco and Tunisia. Economic resources were still totally controlled by foreign companies.

The agricultural as well as the financial situation, were in critical and chaotic state. Briefly, the socio-economic situation had to be dealt with, with utmost urgency.

The state, adopting socialism and planned economy, approved of and introduced a self-management system to run abandoned agricultural estates and factories, following the initiative of workers' Unions which spontaneously installed Workers' Committees to manage industrial and agricultural properties.

Owing to the small scale of the abandoned industrial infrastructure, the stronghold of self-management was in agriculture. Self-management consists of the General Assembly of workers comprising all full-time employees. It is responsible for the examination and approval of the annual development plan and makes decisions regarding economic and financial
The Worker's General Assembly elects Worker's Council which establishes internal regulations, and decisions with regard to goods and equipment purchase, loans, recruitments and dismissals.

Management Committee, elected by Workers Council, is the executive instrument of the latter.

The director and his office are considered as representative of the state in the organization.

The large use of the Yugoslav model of self-management characterizes the structure and functioning of the Algerian model. However, Algerian self-management went astray in that no real exercise of decision making power by the respective organs existed (Clegg, 1971; Koulytchizky, 1974; Nellis, 1977); and consequently, gave a rather sad example of the experience of a developing country with a self-management approach.

Such a situation stimulated the Government to carefully elaborate an alternative scheme. Therefore, a model of workers' participation in management, called Socialist Management of Enterprises (Gestion Socialiste des Entreprises) was substituted for Self-Management in 1971. This system of participation will be dealt with in a forthcoming section owing to its significant influence on the present industrial organizations.

4.2 SOCIO-ECONOMIC CHARACTERISTICS.

Situated in the north-west of Africa, Algeria is the second largest country (after the Sudan) in Africa. It spreads over 2,381,741 sq Km (916,406 sq miles). According to 1984 statistics, Algerian population was 21 millions.

An outstanding characteristic of Algerian population is its demographic structure. With reference to age groups, youth aged up to 19 years constitute 58 per cent; adults in the age of work i.e. from 20 to 59 years old form 36 per cent. And people in the age of retirement i.e. aged more
than 60 years constitute only 6 per cent of the whole population. It can be easily inferred that there is an overwhelming proportion of youth, reflecting a substantial human potential in Algerian society, over the small proportion of elderly people (Table 4.1).

Also, the Algerian demographic rate of growth is among the highest in the third world. In 1983, for example, the annual rate of population increase reached 32%, considering the rate of natality (40%) and mortality (8%). Fecundity census statistics relative to 1981 indicate that the average number of final children per wife was 6.4 (source: Office National des Statistiques, 1984). This high rate of demographic increase, coupled with the high proportion of population under the working age, indeed create, in the future, a serious challenge to the present Government's responsiveness and adaptability to meet future job demands.

Housing is another important aspect that merits examination, 80% of Algerian families live in accommodation containing 3 rooms or less. The average number of family members per room is 2.49 and the mean of rooms per accommodation is 2.9 (Source: Office National des Statistiques, 1985b). Considering the family size being generally large; and the rate of population increase; the quality and shortage of housing constitute a major concern for Algerian families.

Public Health Service in Algeria provides free medical treatment and care. However, this important sector functions inadequately in terms of day-to-day running; and provides poor medical care and treatment. Table 4.2 provides some statistics of the medical personnel as compared with the population: In 1984, the number of inhabitants was 2,301 per physician; 7,823 per dental surgeon; and 18,329 per chemist.

Adopting a typology of economic sectors of activities involving agriculture, industry, building and public works, transport and communications, trade, administration, and services; the distribution of employed Algerian population over sectors is indicated in table 4.3. It can be observed
Table 4.1 Algerian population structure in 1983.

<table>
<thead>
<tr>
<th>Gross age groups</th>
<th>% of male</th>
<th>% of female</th>
<th>Total percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 19 years.</td>
<td>29.25</td>
<td>28.16</td>
<td>57.41</td>
</tr>
<tr>
<td>20 - 59 years.</td>
<td>17.59</td>
<td>19.07</td>
<td>36.66</td>
</tr>
<tr>
<td>60 years or more</td>
<td>2.81</td>
<td>3.12</td>
<td>5.93</td>
</tr>
<tr>
<td>Total.</td>
<td>49.65</td>
<td>50.35</td>
<td>100</td>
</tr>
</tbody>
</table>


Table 4.2 Medical personnel in relation to the population.

<table>
<thead>
<tr>
<th></th>
<th>1979</th>
<th>1984</th>
</tr>
</thead>
<tbody>
<tr>
<td>One doctor (physician) per</td>
<td>3,639</td>
<td>2,301</td>
</tr>
<tr>
<td>One dental surgeon per</td>
<td>18,784</td>
<td>7,823</td>
</tr>
<tr>
<td>One chemist per</td>
<td>23,825</td>
<td>18,329</td>
</tr>
<tr>
<td>Number of beds in hospitals per</td>
<td>45,160</td>
<td>49,680</td>
</tr>
</tbody>
</table>

Table 4.3: Distribution of employed Algerian population over different economic activity sectors (1982, 1984)

<table>
<thead>
<tr>
<th>Sector of Economic Activity</th>
<th>1982</th>
<th>%</th>
<th>1984</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture.</td>
<td>917,224</td>
<td>26.40</td>
<td>856,474</td>
<td>22.70</td>
</tr>
<tr>
<td>Industry.</td>
<td>489,898</td>
<td>14.10</td>
<td>515,330</td>
<td>13.70</td>
</tr>
<tr>
<td>Building and Public Works.</td>
<td>572,836</td>
<td>16.49</td>
<td>718,917</td>
<td>19.10</td>
</tr>
<tr>
<td>Transport and Communications.</td>
<td>207,396</td>
<td>5.96</td>
<td>239,653</td>
<td>6.38</td>
</tr>
<tr>
<td>Trade.</td>
<td>284,263</td>
<td>8.18</td>
<td>373,286</td>
<td>9.93</td>
</tr>
<tr>
<td>Administration.</td>
<td>762,973</td>
<td>21.96</td>
<td>833,855</td>
<td>22.10</td>
</tr>
<tr>
<td>Services</td>
<td>221,028</td>
<td>6.36</td>
<td>220,838</td>
<td>5.87</td>
</tr>
<tr>
<td>Not declared</td>
<td>18,287</td>
<td>0.53</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>3,473,905</td>
<td></td>
<td>3,758,353</td>
<td></td>
</tr>
</tbody>
</table>

that manpower in agriculture far exceeds employed manpower in other sectors, followed by the administrative sector, building and public works, and industrial sector.

Job creation regresses in the last couple of years. It decreases from 140,500 jobs in 1984 to 116,000 jobs in 1985; and regresses even further in 1986 to 100,000 jobs. The rate of unemployed active population represents 24% in 1967 and 18% in 1979. (see Table 4.4).

Table 4.4. Active population growth and the rate of employment.

<table>
<thead>
<tr>
<th></th>
<th>1967</th>
<th>1979</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active population.</td>
<td>2,300,000</td>
<td>3,678,600</td>
</tr>
<tr>
<td>Employed active population.</td>
<td>1,748,000</td>
<td>3,018,460</td>
</tr>
<tr>
<td>Rate of employment.</td>
<td>76%</td>
<td>82.05%</td>
</tr>
<tr>
<td>Unemployed active population.</td>
<td>552,000</td>
<td>660,140</td>
</tr>
<tr>
<td>Rate of unemployment.</td>
<td>24%</td>
<td>17.95%</td>
</tr>
</tbody>
</table>

(From HAMOU, R. 1986, Emploi: entre crise et demographie, Actualité, N° 1189 Algerie, 15 au 21 Janvier).

With reference to wages, the state has determined a guaranteed minimum wage as 1,100 DINARS (£ 137) a month for unskilled workers, 1,210 DINARS (£ 151) per month for semi-skilled workers, and 1,430 DINARS (£ 179) a month for skilled workers. According to a survey carried out in 1982, by the National Office for Statistics (Office National des Statistiques), the mean monthly wages in chemical industry that includes glass production, for unskilled, semi-skilled and skilled workers are 1,197 DINARS (£ 150), 1,987 DINARS (£ 248), and 2,583 DINARS (£ 323) in public enterprises,
respectively; and 1344 DINARS ( £ 168 ), 1348 DINARS ( £ 169 ), and 1688 DINARS ( £ 211 ), in private enterprises respectively.

The Algerian state possesses varied natural resources. Exported ore includes iron, lead, zinc, brass and phosphate. Manufacturing industry comprises metal ( e.g. ingot, cast-iron and iron-work ), mechanical and electrical industry ( tractors, industrial vehicles, trucks, buses, diesel engines, T.V sets, electric cables, accumulators, etc ..), petrochemicals, building materials, chemicals, food industry, textile and leather, and wood and paper.

Algeria imports mainly equipments, semi-finished goods, food and consumers' goods. Exportation is largely dominated by hydrocarbons ( oil and natural gas ) as depicted in Figure 4.1.

4.3 SYSTEM OF WORKERS' PARTICIPATION IN MANAGEMENT.

"In countries where political and economic conditions are far more settled than in Algeria, and in systems where the workers have a much higher general level of industrial experience, education and political consciousness; participation...programs have proved difficult to envisage, more difficult to implement, and most difficult to sustain. The Algerians urgently need increased productivity, yet they are willing to gamble on a participatory scheme to achieve it....The major themes and goals are quite clear, the document attempts to walk the narrow path between participation and productivity; between generating worker enthusiasm and satisfaction, and increasing the productivity so urgently needed in Algeria". ( Nellis, 1977 ). Therefore, a system of workers' participation, called "Gestion Socialiste des Entreprises" ( Socialist Management of Enterprises ), was enacted by the Algerian Government, promulgated in 1971; and gradually applied to organizations. A Charter was issued that describes the general philosophy and objectives of this system of workers' participation. A Code,
Figure 4.1 Algerian imports and exports
accompanying the Charter, contains legislative articles that define the structure, procedure, functioning and sanctions relative to the application of the system of workers' participation.

This system of workers' participation involves five participatory organs: Workers' Assembly, Managing Council and five Permanent Committees as diagrammed in Figure 4.2.

To avoid a lengthy account regarding the structure and functioning of these participatory bodies, a summary table is provided which indicates the composition, functioning and responsibilities of each organ.

Table 4.5 Summary of the Algerian participatory system.

<table>
<thead>
<tr>
<th>Organ</th>
<th>Composition</th>
<th>Functioning</th>
<th>Prerogatives and responsibilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workers' Assembly</td>
<td>Varies from 7 to 25 depending upon the size of the enterprise or unit</td>
<td>Renewed every 3 years. Meets at least once a year. Chairman elected every year.</td>
<td>Consultative role: Information sharing; emits opinions and recommendations over basic reforms and modifications. Joint decision making with the management over working conditions, personnel and work revenue policy. Decision making regarding the distribution of financial outcomes of the enterprise or unit, social welfare and cultural policies. Monitoring and controlling the functioning of the unit or the enterprise.</td>
</tr>
<tr>
<td>Managing Council</td>
<td>Varies from 9 to 11 at the enterprise level, and from 7 to 9 at the enterprise or unit</td>
<td>Weekly meetings</td>
<td>Is informed about matters relative to the functioning of the organization. Attends to the application of its different organs and services. Elaborates the annual and long-term plans relative to investments,</td>
</tr>
<tr>
<td>Organ.</td>
<td>Composition</td>
<td>Functioning</td>
<td>Prerogatives and responsiblies.</td>
</tr>
<tr>
<td>--------</td>
<td>-------------</td>
<td>-------------</td>
<td>--------------------------------</td>
</tr>
<tr>
<td>Unit level</td>
<td>The manager is the chairman of the council. 2 members come from the Workers Assembly.</td>
<td>extension, trading, financing, employment and provisioning. Examine balance sheets, trading account, annual statement of debts and credits and the past annual report of activities. Decides upon the loans contracted with Algerian and foreign banks.</td>
<td></td>
</tr>
<tr>
<td>Permanent Committee For Economy and Finance.</td>
<td>Varies from 3 to 5 members</td>
<td>Appointed by the Workers Assembly. Renewed every 3 Years. Monthly meetings.</td>
<td>Assists the Workers Assembly by studying information about various economic and financial matters such as draft plan of extension, previsional income and expenditure account, investment programme, provisioning, production and financing programmes.</td>
</tr>
<tr>
<td>Permanent Committee for Personnel and Training</td>
<td>Varies from 3 to 5 members</td>
<td>Appointed by the Workers Assembly. Renewed every 3 years. Monthly meetings.</td>
<td>Assists the Workers Assembly in the general policy of personnel. Examines recruitment procedure, career scheme of employees and salary scale. Studies the salary scale and the distribution of profit to workers. Controls the functioning of the training service, implementation of the general plan of recruitment and internal and external training.</td>
</tr>
<tr>
<td>Organ</td>
<td>Composition</td>
<td>Functioning</td>
<td>Prerogatives and responsibilities</td>
</tr>
<tr>
<td>--------------------------------------</td>
<td>-------------</td>
<td>-----------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>Committee for Social and Cultural Activities</td>
<td>Varies from 3 to 5 members.</td>
<td>Appointed by the Workers' Assembly, renewed every 3 years, monthly meetings.</td>
<td>Designs and elaborates social and cultural activity programmes. Manages social welfare and cultural activities. Follows up and controls the implementation of social and cultural schemes.</td>
</tr>
<tr>
<td>Permanent Committee for health and Safety</td>
<td>2 to 5 members appointed by Workers' Assembly.</td>
<td>Renewed every 3 years, monthly meetings.</td>
<td>Organizes training sessions for the safety personnel. Ensures that working conditions fit health and safety regulations, and that safety measures are observed. Makes recommendations concerning the issues of health, safety and occupational medicine.</td>
</tr>
<tr>
<td>Permanent Committee for Discipline</td>
<td>3 standing and 3 acting members appointed by the Workers Assembly.</td>
<td>Renewed every 3 years, meets as many times as required by the circumstances.</td>
<td>Examines any case of failure to observe internal work regulations. Studies and suggests disciplinary sanctions. Examines complaints lodged by workers regarding disciplinary procedures. Proposes amendments to update the internal regulations.</td>
</tr>
</tbody>
</table>

(Continued)
Figure 4.2 Algerian system of workers' participation in management.
The idea is a seed; the method is the earth furnishing the conditions in which it may develop, flourish and give the best fruit according to its nature. But as only what has been sown in the ground will ever grow in it, so nothing will be developed by the experimental method except the idea submitted to it. The method itself gives birth to nothing.

Claude Bernard
5.1 RESEARCH MOTIVES.

It has been stressed, in the foregoing discussions relating to the chapters on perceived work stressors and coping literature, that studies of occupational stress are very limited. Very limited too, is research into coping behaviour in industrial organizations. Furthermore, the few empirical studies, hitherto available, are mainly concerned with managerial and supervisory work. Thus, very little is known about stressors, strain and coping concerning lower levels of workers in the organization. The hiatus becomes larger and larger when the cultural and socio-economic context is considered. It was pointed out that the majority of studies on occupational stress (or stress in general) and coping behaviour have been conducted in the industrialized countries, particularly, in the United States, and to a less extent, in the United Kingdom and other European countries. However, in developing countries, stress and coping research is almost absent, although organizations in developing societies constitute a fecund and still unbroken ground for stress and coping research. All these considerations form the "raison d'être" of the present investigation. Therefore, the motives for this research are manifold:

First: Paucity of research relative to production workers in industrial organizations.

Second: Because of the almost complete absence of research into stress and coping behaviour conducted in developing countries, this motivates considerably the choice of the research context. Therefore, an industrial organization in Algeria—culturally and socio-economically characterized as a developing country—represents the ground for the present research.

Third: Dual concern is to be espoused in the study: theoretical and practical. Theoretically, departure of the present inquiry from the major concern of many studies, lies in the focus, not only upon factors conducive
to strain, but also upon behaviour and its role. It is intended to examine the role of coping behaviour to ascertain whether it functions as a moderator variable in the stressor-strain relationship, as most models tend to suggest; or exerts a mediating effect, a role of coping behaviour ignored or confused with the moderating effect in the literature.

Practically, implications which would emanate from this research, will concern proposing strategies for managing and preventing work stress, and approaches to the processes of personnel selection, training, appraisal and career. Additionally, practical implications will address suggestions in order to evolve effective workers' participation, to restructure and design roles, work places, and physical and social working conditions, and to put forward a planning framework for the management and prevention of stress, that can be incorporated in the organization's development of human resources or integrated in the personnel policy.

5.2 RESEARCH OBJECTIVES.

The present research is designed to meet the following objectives:

(1) - Identification of perceived work stressor factors.

(2) - Identification of coping strategy factors.

(3) - Qualitative analysis of perceived-work stressors, coping strategies and contextual variables: family-work interface, participation and supportive relationships.

(4) - Examination of the relationships between perceived work stressors and coping strategies; and the relationships of perceived work stressors and coping strategies to perceived strain indicators.

(5) - Study of the contribution of perceived work stressors, contextual variables, personality (Type A behaviour pattern, locus of control and self-esteem), and socio-demographic characteristics (age,
education, income and tenure), to the prediction of strain indices (anxiety, depression, dissatisfaction, psychosomatic complaints and overall strain).

(6) - Examination of the mediating effects of coping strategies, contextual variables, personality and socio-demographic variables, upon the relationships of perceived work stressors to strain indices.

(7) - Consideration of the moderating or interactive role of coping strategies, contextual variables, personality and socio-demographic variables, in the perceived work stressor-strain relationships.

The foregoing objectives were formulated in generic terms to serve the introduction of the research questions which constitute a detailed description of the research objectives and issues.

5.3 RESEARCH QUESTIONS.

(1) - What is the prevalence of perceived work stressors and coping strategy factors?

(2) - How does the set of perceived work stressors relate to the set of coping strategies?

(3) - How does the set of perceived work stressors and coping strategies relate to the set of perceived strain indicators (anxiety, depression, dissatisfaction and psychosomatic complaints)?

(4) - How does the set consisting of overall perceived work stressors and overall coping behaviour relate to the set of strain indices?

(5) - What types of perceived work stressors predict what kind of perceived strain indicators, and to what extent?

(6) - What types of contextual variables (Disrupted family-work interface, low participation and supportive relationships) predict what types of perceived strain, and to what extent?

(7) - What kind of personality variables (Type A behaviour pattern, locus of control and self-esteem) predict what types of perceived strain
and to what extent?

(8) - What types of socio-demographic variables (age, marital status, education, tenure and salary) predict what types of perceived strain and to what extent?

(9) - What coping strategies mediate the relationships of overall perceived work stressors to perceived strain indicators, so that overall work stressor effect on strain is either attenuated or exacerbated by coping strategies?

(10) - Do each coping strategy mediate (attenuate or exacerbate) the effects of all types of perceived work stressors studied, or specifically mediate the effects of some particular perceived work stressors on perceived strain indicators?

Put differently, what kinds of coping strategies mediate the effect of what types of perceived work stressors on strain indicators?

(11) - What contextual variables (disrupted family-work interface, low participation and supportive relationships) mediate the relationships of overall perceived work stressors to perceived strain indicators, so that the effect of overall work stressors on different strain indicators is either attenuated or exacerbated by specific contextual variables?

(12) - What personality variables (Type A behaviour pattern, locus of control and Self-esteem) mediate the relationships of overall perceived work stressors to perceived strain indicators, so that the effect of overall work stressors on different strain indicators is either buffered or aggravated by particular personality variables?

(13) - What socio-demographic variables (age, marital status, education, tenure and income) mediate the relationships of overall perceived work stressors to perceived strain indicators, so that the effect of overall work stressors on different strain indicators is either decreased or increased by particular socio-demographic variables?
(14) Does the interaction of each coping strategy with overall perceived work stressors enhance the prediction of different perceived strain indicators?

(15) Does the interaction of each contextual variable with overall perceived work stressors increase the prediction of different perceived strain indicators?

(16) Does the interaction of each personality variable with overall perceived work stressors enhance the prediction of different perceived strain indicators?

(17) Does the interaction of each socio-demographic variable with overall perceived work stressors enhance the prediction of different perceived strain indicators?

5.3 RESEARCH TASKS.

Having formulated the issues to be researched, it remains to clarify operationally and in details the research work implied by research questions. Therefore, research tasks’ section details the aspects to be addressed regarding each research question.

(1) Examination of the relationship between the set of perceived work stressors and the set of coping strategies, to identify the subgroups of perceived work stressors belonging to the first set, that relate to the subgroups of coping strategies in the other set.

(2) Consideration of the relationships between the set of perceived work stressors and coping strategies, and the set of perceived strain indicators, to identify what subgroups within the set involving perceived work stressors and coping strategies, that relate to what subgroups within the set of perceived strain indicators.

(3) Examination of the relationships between the set of overall perceived work stressors and overall coping strategies, and the set of perceived
strain indicators, to identify what subgroups within the set containing overall perceived work stressors and overall coping strategies, that relate to what subgroups within the set of perceived strain indicators.

(4) - Analysis of the contribution of each perceived work stressor to the prediction of different perceived strain indicators, while controlling for the other perceived work stressors. Thus, the task consists of:

(i) Identifying significant predictors of strain indices, among perceived work stressors.

(ii) Finding out the direction of the relationships of significant predictors (among perceived work stressors) to different perceived strain indices.

(iii) Assessing the magnitude of prediction as indicated by the percentage of variance accounted for by work stressor predictors.

(iv) Examining whether perceived strain indices are affected selectively or generally by perceived work stressors.

Perceived work stressors.

- Role conflict
- Pay
- Work overload
- Career
- Task
- Communication

Perceived strain indicators.

- Anxiety
- Depression
- Dissatisfaction
- Psychosomatic complaints
- Overall strain
(5)- Examination of the contribution of each contextual variable (disrupted family-work interface, low participation and supportive relationships) to the prediction of different perceived strain indicators, while adjusting for the remaining contextual variables. Therefore, the task is fourfold:

(i)- Identifying significant predictors of strain, among the contextual variables.

(ii)- Studying the direction of the relationships of significant predictors (among the contextual variables) to different perceived strain indicators.

(iii)- Assessing the level of prediction as indicated by the percentage of variance accounted for by the contextual variables.

(iv)- Examining whether perceived strain indices are affected selectively or generally by the contextual variables.

Contextual Variables. Perceived strain indicators.

<table>
<thead>
<tr>
<th>Disrupted family-work interface</th>
<th>Anxiety.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low participation</td>
<td>Depression.</td>
</tr>
<tr>
<td>Supportive relationships</td>
<td>Dissatisfaction.</td>
</tr>
<tr>
<td></td>
<td>Psychosomatic complaints.</td>
</tr>
<tr>
<td></td>
<td>Overall strain.</td>
</tr>
</tbody>
</table>

(6)- Consideration of the contribution of each personality variable (Type A pattern of behaviour, Locus of control and Self-esteem) to the prediction of different perceived strain indicators, while controlling for the remaining personality variables. Therefore, the task involves:

(i)- Identifying significant predictors of strain, among the personality variables considered.
(ii) Studying the direction of the relationships of significant predictors (among the personality variables) to different perceived strain indicators.

(iii) Assessing the magnitude of prediction as indicated by the percentage of variance accounted for by the personality variables.

(iv) Examining whether perceived strain indices relate selectively or generally to the personality variables considered.

Personality Dimensions. Perceived strain indicators.

<table>
<thead>
<tr>
<th>Type A Behaviour Pattern</th>
<th>Anxiety.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Locus of control:</td>
<td>Depression.</td>
</tr>
<tr>
<td>Self-esteem.</td>
<td>Dissatisfaction.</td>
</tr>
<tr>
<td></td>
<td>Psychosomatic complaints.</td>
</tr>
<tr>
<td></td>
<td>Overall strain.</td>
</tr>
</tbody>
</table>

(7) Examination of the contribution of each socio-demographic variable (Age, marital status, education, tenure and income) to the prediction of different perceived strain indicators, while taking into account the remaining socio-demographic variables. The task, therefore, is:

(i) To identify significant predictors of strain, among the socio-demographic variables studied.

(ii) To study the direction of the relationships of significant predictors (among the socio-demographic variables) to different perceived strain indices.

(iii) To assess the level of prediction as indicated by the percentage of variance accounted for by the socio-demographic variables.
(iv)- To examine whether perceived strain indices relate selectively or generally to the socio-demographic variables considered.

<table>
<thead>
<tr>
<th>Socio-demographic characteristics</th>
<th>Perceived strain indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age.</td>
<td>Anxiety.</td>
</tr>
<tr>
<td>Marital status.</td>
<td>Depression.</td>
</tr>
<tr>
<td>Tenure.</td>
<td>Dissatisfaction.</td>
</tr>
<tr>
<td>Education.</td>
<td>Psychosomatic complaints.</td>
</tr>
<tr>
<td>Income.</td>
<td>Overall strain.</td>
</tr>
</tbody>
</table>

(8)- Examining whether coping strategies mediate the effects of overall perceived work stressors on different perceived strain indicators. That is, whether overall perceived work stressors activate some particular coping strategies, and whether such coping strategies lead to the attenuation or exacerbation of the effects of overall perceived work stressors on strain indicators. Therefore, the task consists of:

(i)- Identifying those coping strategies that mediate the effect of overall perceived work stressors on different perceived strain indicators.

(ii)- Examining the nature of the mediating effect of coping strategies. That is, whether the significant mediators among coping strategies attenuate or exacerbate the effect of overall perceived work stressors on different strain indicators.

(iii)- Considering whether coping strategies provide additional power to the prediction of various strain indicators.
(9)- Studying whether coping strategies mediate the effects of each perceived work stressors on different perceived strain indicators, so that coping strategies — being stimulated by particular work stressor conditions — bring about either the reduction or aggravation of the effect of these perceived work stressor conditions on strain indicators. Therefore, the task consists of:

(i)- Identifying those coping strategies that mediate the effect of some particular perceived work stressors on perceived strain indicators.

(ii)- Finding out the nature of the mediating effect, that is, whether the significant mediators among strategies allivate or exacerbate the effect of some specific work stressors on different strain indicators.

(iii)- Examining additional predictive power regarding various strain indicators, generated by coping strategies.
(10)- Examining whether contextual variables, namely disrupted family-work interface, low participation, and supportive relationships, mediate the effect of overall perceived work stressors upon different perceived strain indicators. That is, whether overall work stressors affect contextual variables, which in turn, lead to the exacerbation or vitiation of the effect of overall work stressors on strain indicators. The task, therefore, is to:

(i)- Identify those contextual variables which mediate the effect of overall perceived work stressors on strain indicators.

(ii)- Considering the nature of the mediating effect, that is, whether the significant mediators among contextual variables attenuate or aggravate the effect of overall perceived work stressors on strain indicators.

(iii)- Examining additional predictive power concerning different strain indicators, accounted for by the contextual variables.
(11)- Studying whether personality variables, namely Type A behaviour pattern, Locus of control and Self-esteem, mediate the effects of overall perceived work stressors on different strain indicators, so that these personality dimensions - being mobilized by overall perceived work stressors - lead to the buffering or exacerbation of the effects of overall perceived work stressors on strain indicators. Therefore, the research task consists of:

(i)- Identifying those personality variables that mediate the effects of overall perceived work stressors on perceived strain indicators

(ii)- Addressing the nature of the mediating effects of personality variables. That is whether the significant mediators among personality variables buffer or intensify the effect of overall perceived work stressors on different strain indicators.

(iii)- Examining additional predictive power concerning strain indicators, accounted for by the personality variables considered.
Examining whether socio-demographic variables, namely age, marital status, education, tenure and income, mediate the effects of overall perceived work stressors on different strain indicators. That is, whether overall perceived work stressors affect socio-demographic variables, which in turn, lead to the attenuation or exacerbation of the effect of overall work stressors on strain indicators. The task involves:

(i) Identifying those socio-demographic variables that mediate the effect of overall perceived work stressors on perceived strain indicators.

(ii) Studying the nature of the mediating effect of socio-demographic variables. That is, whether the significant mediators, among socio-demographic variables, increase or decrease the effect of overall perceived work stressors on strain indicators.

(iii) Examining additional predictive power regarding perceived strain indicators accounted for by socio-demographic variables.
(13)- Examining whether coping strategies moderate perceived work stressor-strain relationships, so that the effects of overall perceived work stressors on strain indicators vary depending on the level of each coping strategy.
(14) Studying whether contextual variables (disrupted family-work interface, low participation and supportive relationships) moderate the relationships of overall perceived work stressors to strain indicators, so that the work stressor-strain relationships differ depending on the level of each contextual variable.

(Contextual variables: moderators)

(15) Considering whether personality variables (Type A behaviour pattern, Locus of control and Self-esteem), moderate the relationships of overall perceived work stressors to strain indicators, so that the effects of overall work stressors on strain vary across the levels of each personality variable.

(Personality variables: moderators)
(16)- Examining whether socio-demographic variables (age, marital status, education, tenure and income), moderate overall work stressor-strain relationships, so that the effect of overall perceived work stressors on strain indicators differs across the levels of each socio-demographic variable.

5.5 HYPOTHESES.

Some hypotheses will be formulated. Their order of presentation follows the sequence of the afore-mentioned objectives, research questions and research tasks. It should be noted too that these sets of proposed research hypotheses are accompanied by the underlying reasoning, or rationale.

5.5.1 HYPOTHESES RELATIVE TO THE PREDICTION OF STRAIN BY PERCEIVED WORK STRESSORS.

Hypothesis (1).

Role conflict predicts increased anxiety, depression, work dissatisfaction and psychosomatic complaints.
Hypothesis (2).

Role overload positively predicts anxiety, depression and psychosomatic complaints.

Hypothesis (3).

Career stressors predict increased anxiety, depression and work dissatisfaction.

Hypothesis (4).

Task stressors positively predict psychosomatic complaints.

Hypothesis (5).

Communication stressors predict increased anxiety, depression and work dissatisfaction.

Hypothesis (6).

Pay stressors positively predict anxiety, depression and work dissatisfaction.

Corollary (1).

It can be inferred from the foregoing six hypotheses that work strain indicators: anxiety, depression, dissatisfaction and psychosomatic complaints, are more responsive to perceived role conflict than to any other perceived work stressor of concern.

Corollary (2).

From the afore-mentioned hypotheses, it can be inferred that work strain indicators: anxiety, depression, dissatisfaction and psychosomatic complaints, are less responsive to perceived task stressors than to any other perceived work stressor of concern.

Recapitulatory table.

The following table nicely summarizes and illustrates the first six hypotheses, mentioned above.
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<table>
<thead>
<tr>
<th>Strain indicators</th>
<th>Anxiety</th>
<th>Depression</th>
<th>Work dissatisfaction</th>
<th>Psychosomatic complaints</th>
<th>Overall strain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived work stressors</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Role conflict (Hypothesis 1)</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Role overload (Hypothesis 2)</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Career stressors (Hypothesis 3)</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Task stressors (Hypothesis 4)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication (Hypothesis 5)</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Pay stressors (Hypothesis 6)</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>

Note: A cell with " plus " sign stands for hypothesized positive relationships.

5.5.2 HYPOTHESES RELATIVE TO THE PREDICTION OF STRAIN BY CONTEXTUAL VARIABLES.

Hypothesis 7
Disrupted family-work interface predicts increased anxiety, depression, work dissatisfaction and psychosomatic complaints.

Hypothesis 8
Supportive relationships predict decreased anxiety, depression, work dissatisfaction and psychosomatic complaints.

Hypothesis 9
Low participation predicts increased work dissatisfaction, anxiety and depression.

Hypothesis 10
Disrupted family-work interface, compared with supportive relationships and lack of participation, is the major contributor.
to the prediction of strain indices (anxiety, depression, dissatisfaction and psychosomatic complaints).

**Hypothesis 11**

Overall perceived strain is *positively* predicted by disrupted family-work interface and low participation, and *negatively* predicted by supportive relationships.

**Recapitulative table.**

<table>
<thead>
<tr>
<th>Contextual variables</th>
<th>Strain indices</th>
<th>Anxiety</th>
<th>Depression</th>
<th>Work dissatisfaction</th>
<th>Psychosomatic complaints</th>
<th>Overall strain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disrupted family-work interface.</td>
<td></td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Supportive relationships.</td>
<td></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Low participation</td>
<td></td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td>+</td>
</tr>
</tbody>
</table>

*Note: Cells with "plus" signs suggest hypothesized positive relationships. Cells with "minus" signs denote hypothesized negative relationships.*

5.5.3 **Hypotheses relative to the prediction of strain by personality variables.**

**Hypothesis 12.**

Type A behaviour pattern predicts increased anxiety, depression, work dissatisfaction and psychosomatic complaints.

**Hypothesis 13.**

Self-esteem predicts decreased anxiety, depression, work dissatisfaction and psychosomatic complaints.

**Hypothesis 14.**

Internal locus of control predicts decreased anxiety, depression, work dissatisfaction and psychosomatic complaints.
Hypothesis 15.

Overall strain is positively predicted by Type A behaviour pattern and negatively predicted by self-esteem and internal locus of control.

Recapitulative table.

<table>
<thead>
<tr>
<th>Personality variables</th>
<th>Strain indices.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Anxiety</td>
</tr>
<tr>
<td>Type A pattern of behaviour.</td>
<td>+</td>
</tr>
<tr>
<td>Self-esteem</td>
<td>-</td>
</tr>
<tr>
<td>Internal locus of control</td>
<td>-</td>
</tr>
</tbody>
</table>

Note: Cells with "plus" signs stand for hypothesized positive relationships.

Cells with "minus" signs denote hypothesized negative relationships.

5.5.4 Hypotheses relative to the prediction of strain by socio-demographic variables.

The prediction of strain indices, by each demographic variable, can be hypothesized as being positive as well as negative prediction. Since each hypothesis and its alternative regarding the prediction of strain indicators, by each socio-demographic variable, are conceptually plausible, they are both mentioned.

Hypothesis 16A.

Higher age predicts increased anxiety, depression, work dissatisfaction, and psychosomatic complaints.
Hypothesis 16B (The alternative)
Higher age predicts decreased anxiety, depression, work dissatisfaction, and psychosomatic complaints.

Hypothesis 17A.
Higher educational level predicts greater anxiety, depression, work dissatisfaction and psychosomatic complaints.

Hypothesis 17B (The alternative)
Higher educational level predicts less anxiety, depression, work dissatisfaction and psychosomatic complaints.

Hypothesis 18A.
Higher income predicts increased anxiety, depression, work dissatisfaction and psychosomatic complaints.

Hypothesis 18B (The alternative).
Higher income predicts decreased anxiety, depression, work dissatisfaction and psychosomatic complaints.

Hypothesis 19A.
Longer tenure predicts increased anxiety, depression, work dissatisfaction and psychosomatic complaints.

Hypothesis 19B (The alternative).
Longer tenure predicts decreased anxiety, depression, work dissatisfaction and psychosomatic complaints.

Hypothesis 20A.
Marital status (being married) predicts higher anxiety, depression, work dissatisfaction and psychosomatic complaints.

Hypothesis 20B (The alternative).
Marital status (being married) predicts lower anxiety, depression, work dissatisfaction and psychosomatic complaints.
5.5.5  HYPOTHESES RELATIVE TO THE MEDIATING EFFECTS OF COPING STRATEGIES
ON THE STRESSOR-STRAIN RELATIONSHIP.

Hypothesis 21.
Coping strategies, namely externalization, evaluation, action, non-work
activities and withdrawal, mediate the relationships of perceived
work stressors to strain indicators (i.e. anxiety, depression,
dissatisfaction and psychosomatic complaints), so that the effects
of perceived work stressors on strain are changed (either attenuated
or exacerbated as specified by the following hypotheses), by each
coping strategy.

Hypothesis 22.
"Externalization" buffers the effects of perceived work stressors
on strain indicators, so that perceived work stressors stimulate
the coping strategy: externalization, and externalization attenuates
work stressors effects on strain.

Hypothesis 23.
"Evaluation" mitigates the effects of perceived work stressors
on strain indicators, so that the effects of perceived work stressors
transmitted to strain through the coping strategy: evaluation, are
reduced.

Hypothesis 24.
"Action" reduces the effects of perceived work stressors on strain
indicators. That is, perceived work stressors activate coping through
taking action, and this coping strategy, in turn, attenuates the effects
of work stressors on strain.

Hypothesis 25.
"Non-work activities" buffers the impact of perceived work stressors
on strain indicators, so that the effects of perceived work stressors
on strain are mitigated by the coping strategy: non-work activities.
Hypothesis 26.

"withdrawal" exacerbates the effects of perceived work stressors on strain indicators, so that the effects of perceived work stressors transmitted to strain by the coping strategy: withdrawal, are exacerbated by this coping strategy.

5.5.6 HYPOTHESES RELATIVE TO THE MEDIATING EFFECTS OF CONTEXTUAL VARIABLES ON THE STRESSOR-STRAIN RELATIONSHIP.

Hypothesis 27.

Contextual variables, namely disrupted family-work interface, supportive relationships and lack of participation, mediate the relationships of perceived work stressors to strain indicators (i.e. anxiety, depression, dissatisfaction and psychosomatic complaints), so that the effects of perceived work stressors on strain are changed (either attenuated or exacerbated as specified by the following hypotheses) by each contextual variable.

Hypothesis 28.

Disrupted family-work interface exacerbates the effects of perceived work stressors on strain indicators so that perceived work stressors affect family-work interface, and the latter, in turn, exacerbates the effects of work stressors on strain.

Hypothesis 29.

Supportive relationships buffer the impact of perceived work stressors on strain indicators, so that the effects of perceived work stressors transmitted to strain by supportive relationships is attenuated by the latter (supportive relationships).

Hypothesis 30.

Low participation exacerbates the effects of perceived work stressors on strain indicators, so that the effects of perceived work stressors
transmitted to strain by low participation are accentuated by the transmitter (participation).

5.5.7 HYPOTHESES RELATIVE TO THE MEDIATING EFFECTS OF PERSONALITY VARIABLES ON THE STRESSOR-STRAIN RELATIONSHIP.

Hypothesis 31.
Personality variables, namely Type A behaviour pattern, locus of control and self-esteem, mediate the relationships of perceived work stressors to strain indicators (i.e. anxiety, depression, dissatisfaction and psychosomatic complaints), so that the effects of perceived work stressors on strain are changed (either attenuated or exacerbated as specified by the following hypotheses) by each personality variable.

Hypothesis 32.
Type A behaviour pattern exacerbates the effects of perceived work stressors on strain indicators, so that perceived work stressors stimulate Type A behaviour pattern, and this type of behaviour pattern, in turn, inflates the effects of perceived work stressors on strain indicators.

Hypothesis 33.
Internal locus of control reduces the effects of perceived work stressors on strain indicators. That is, perceived work stressors stimulate generalized beliefs in internal control, and these beliefs in internal control, in turn, mitigate the effects of perceived work stressors on strain.

Hypothesis 34.
Self-esteem buffers the effect of perceived work stressors on strain indicators, so that perceived work stressors stimulate self-esteem,
and this personality dimension, in turn, attenuates the effects of perceived work stressors on strain.

5.6 UNDERLYING RATIONALE FOR THE HYPOTHESES.

5.6.1 Rationale concerning the prediction of strain by perceived work stressors, contextual variables, personality and socio-demographic variables.

It is hypothesized that perceived work stressors differentially predict strain indicators, namely anxiety, depression, work dissatisfaction and psychosomatic complaints; that role conflict, compared with other work stressors, predicts more strain indicators; and that task stressors are the least predictor of strain.

Role conflict is a potent predictor of strain for many reasons. One reason is that, role conflict is more pervasive a process than any other perceived work stressor. It can be argued that every perceived work stressor implies a form of role conflict. To illustrate, one type of work overload consists of conflicting demands stemming from the quantity of work (i.e., excessive work) and its quality (i.e., complexity and high quality standard required). Perceived under-promotion (a form of perceived career stressors) involves incompatibility between the actual and the desired upward mobility in the organization.

The second reason is that, owing to the problematic nature of role conflict, heavy demands upon coping resources and coping repertoire are likely. However, the construction of a coping strategy to deal with the problematic situation of role conflict entails greater cognitive (i.e., activation of mental processes) and emotional (i.e., experiencing emotional strains during the elaboration of a coping strategy) cost.

The third and last reason is that, role conflict usually involves one’s relationships and interaction with people more than with objects.
such as task, equipment and physical working conditions. In other words, the ground of role conflict is social relationships. The interactive nature of role conflict engages, not only the incompatible expectations from significant others, but also their social status, prestige, role in the organization, coercive and reward power, and their significance to the well-being of the recipient. Perception of these characteristics of people originating conflicting demands upon a worker, and the interpretation of the significance of these characteristics to the well-being of that worker, determine the level of his affective strains.

Other perceived stressors are expected to predict affective strain such as anxiety and depression. To address an illustrative example, perceived lack of promotion (a perceived career stressor), involving staying at the present level for too long without being promoted, renders the expectation of a future promotion very unlikely. This arouses anxiety concerning the stagnant career, and hopelessness of any advancement. These strains are exacerbated if a worker believes that promotion is unfairly granted by management among workers.

With reference to work dissatisfaction, this affective attitude is more responsive to some perceived work stressors, such as role conflict, career, communication and pay stressors; and is less responsive to work overload and task or physical working conditions. Work satisfaction is more sensitive to the first group of perceived work stressors because of their social relation significance. For example, the inadequacy of communications (a perceived work stressor) is hypothesized to predict work dissatisfaction, not only because the need for information to satisfy the curiosity of a worker is not met, but also because of the perceived social significance of sharing information; that is, being inadequately informed is associated with the feeling of being marginalized and ignored in the organization; hence, the sense of frustration and dissatisfaction.
Work satisfaction, on the other hand, is hypothesized to be weakly related to perceived work overload, task and physical working conditions. It can be advanced that workers tend to value more those perceived work stressors (e.g., role conflict, pay and career stressors) possessing connection with, and ramification into social relationships; than those perceived stressors of a very limited social significance such as perceived work overload, task and physical working conditions. Therefore, the dominance of pay stressors, role conflict and career stressors overshadows the impact of perceived work overload, task and physical working conditions. Another plausible reason is that a decrease or improvement in role conflict, pay and career stressors, compensates considerably for the negative impingement of work overload, task and physical working conditions on work satisfaction.

Turning to the prediction of strain by contextual variables, it is hypothesized that contextual variables, namely disrupted family-work interface, supportive relationships and lack of participation, predict strain indicators. To limit the analysis to one example, it is hypothesized that disrupted family-work interface predicts increased anxiety, depression, dissatisfaction and psychosomatic complaints. Owing to the dominating characteristics of the Algerian families (i.e., large size, unique source of income, inadequate accommodation, strong bonds among family members whether young, adult or old, etc.), stressors originating from family-life or from its interaction with work, add considerably to an employee's work strains. The family is a source of support as well as of stress. Being a source of stress, the family stressors are accentuated by the very nature of the typical Algerian family characteristics: father has too many things to worry about: even when sons and daughters become adult, they still live with their parents and are financially dependent on their fathers. Fathers even worry about the suitable husbands for daughters and spouses for sons,
and care more about post-marriage problems. Also, the strong ties that link fathers, not only to their wives and children, but also to their grand-parents, brothers, sisters and relatives, would inflate stressors’ effects if some members of the larger family are involved.

With regards to personality variables, it is hypothesized that strain indicators are positively predicted by Type A behaviour pattern and negatively predicted by self-esteem and internal locus of control. For example, individuals with Type A behaviour pattern show enhanced hostility, ambitiousness and competitiveness, and are often preoccupied with deadlines and with work. Caught - or placing themselves - in a chronic struggle to reach an ever-expanding numbers of goals in the shortest period of time and/or against opposing environmental forces, type A's continuously experience impatience and a chronic sense of time urgency (Chesney and Roserman, 1980; Friedman and Roserman, 1959). If these are the characteristics of type A behaviour as opposed to type B behaviour, it can be inferred that these characteristics predispose type A behaviour persons to more strain (than type B's), since such characteristics sensitize type A individual to situational stressors and make them over-react emotionally to these experienced work stressors.

Socio-demographic variables (age, marital status, education, tenure and income) are hypothesized to predict strain indicators. However, alternative hypotheses are advanced regarding the direction of prediction of strain by each socio-demographic variable, since each hypothesis and its alternative are conceptually tenable. To take tenure as an illustrative example, hypothesis 19A stipulates that longer tenure predicts increased anxiety, depression, work dissatisfaction and psychosomatic complaints. But, the alternative of the afore-mentioned hypothesis suggests that longer tenure predicts decreased anxiety, depression, work dissatisfaction and psychosomatic complaints. The rationale of the first hypothesis is that workers, with longer tenure, who perceive that
financial rewards (pay, bonuses, etc.) and promotion lag behind the amount of work, time and experience invested in the organization; who perceive that this long period of service and its implications (in terms of skills, experience, age, etc.) are not respected by co-workers (especially younger workers), representatives, or supervisors tending to control tightly their work, imposing a work method, or treating tenured old workers and short tenured younger workers alike; these workers are very likely to be deeply affected by such examples of perceived work stressors.

The alternative hypothesis is also plausible, on the ground that a worker, having been working for a long time in an organization, experiences a variety of stressful circumstances, demands and constraints, and possesses a rich coping repertoire owing to varied work stressors experienced over time. Therefore, a work stressor would be perceived as highly stressful and is responded to with greater affective strain by a relatively new worker. However, an equivalent work stressor would be perceived as benign and exerts a negligible effect on another worker with longer tenure. Thus, experience (rich coping repertoire), learning and accoutumance, or briefly—a person's work history in an organization as shaped by time dimension—contribute to the attenuation of the work stressors' effects.

5.6.2 Rationale regarding the mediation effect of coping strategies, contextual variables and personality dimensions, on the stressor-strain relationship.

The set of hypotheses (hypotheses: 21 through 26) suggests that coping strategies mediate the effects of perceived work stressors on strain indices, and predicts the nature of the mediating effect (i.e., whether an attenuating or exacerbating effect) performed by each coping variable. The mediating effect means that a proportion of the effect of perceived work stressors (the indirect effect) on strain indicators, impinges
on the hypothesized mediators (coping strategies), and these coping mediators, in turn, attenuate or exacerbate part of the effects of perceived work stressors on strain indicators.

Conceptually, it is more plausible to view the role of coping strategies in the relationships of perceived work stressors to strain, as a mediating role than a moderating one.

Conceiving of coping strategies as moderators, means that the impact of perceived work stressors on strain indicators varies, depending on the level of a coping strategy. Here, coping is viewed as given, or considered as existing prior to the experience of perceived work stressors. Hence, coping as a moderator does not depend, in a sense, on the activation or stimulation of experienced work stressors, in order to affect strain. The moderating role simply is: given a coping repertoire, does high level as opposed to low level of coping, make any difference to the effect of perceived work stressors on felt strain? Moderating situation, therefore, emphasizes the static characteristics of coping, considered as a pre-existing condition and not as a process activated and mobilized owing to the presence of perceived work stressors.

On the other hand, coping does not become a mediator of the relationship of perceived work stressors to strain indicators unless a certain level of experienced work stressors to stimulate coping exists. It follows that coping—viewed from the mediating standpoint—cannot be functional unless it is activated by the experience of work stressors. In other words, coping is not a given characteristic or a resource of the individual, the change of which (coping characteristics or resources) affects unilaterally the relationships of perceived work stressors to strain indicators. On the contrary, coping resources are affected (activated or mobilized) by perceived work stressors, and influence, in turn, strain by either attenuating or exacerbating perceived stressor effects.

It emerges, therefore, from this analysis that the conceptual advantage
of considering coping as mediator instead of moderator, is twofold:

First: It provides a dynamic rather than a static conception of the role of coping in the relationships of perceived work stressor-strain relationships. Coping as a mediator indicates that experienced work stressors activate or mobilize individual coping resources (e.g., past experiences, coping repertoire etc.). Coping, when stimulated, changes the effect of perceived work stressors on felt strains.

Second: Another advantage is that coping, as a mediator, provides more explanation of the perceived stressor-strain relationships. As perceived work stressors impinge directly and indirectly upon strain, the mediating role of coping offers additional information about the nature and degree of the indirect relationships of perceived work stressors to strain. That is: the degree and direction of the effect of perceived work stressors on coping, and the level whereby the transmitted effect of perceived work stressors to strain is exacerbated or attenuated by coping.

Contextual variables (i.e., disrupted family work interface, lack of participation and supportive relationships), and personality characteristics (i.e., type A behaviour pattern), are hypothesized as mediator variables in the stressor-strain relationships. To limit the analysis to one example, supportive relationships is expected to mediate the relationships of perceived work stressors to strain indicators, by buffering the effect of perceived work stressors on strain indices. Situational demands and constraints perceived by a worker as stressful trigger the search of sources of social support. A worker's perception of the nature of ongoing relationships that link him to significant others; a worker's expectation of obtaining support from significant others, when needed; and a worker's appraisal of his abilities and capabilities to generate support or to make others serve as a source of support; mitigate the aversive effects of perceived work stressors upon strain indicators.
Hiking on footpaths can delight your senses and let you discover life you have never seen before, but driving is sometimes necessary, and flying may be the most sensible way to cover great distances. So, too, with research methods.

Louise H. Kidder
6.1 OBJECTIVES OF THE PILOT STUDY

The pilot study served two objectives: conceptual and methodological.

Conceptually, the pilot study was designed to generate preliminary information about perceived work stressors, felt strains, coping strategies and extra-organizational factors of interest to the study.

Methodologically, it contributes to the design, development and refinement of various data-collection instruments, and to the improvement of the questionnaire translation technique, and the interview procedure that will be adopted in the main study.

6.2 RESEARCH SETTING

The pilot study was carried out in a glass works situated in the North West of Algeria at the outskirt of the city of Oran (The second large city in Algeria: 485,000 inhabitants). This factory was created in 1944 by French settlers, nationalized by the Algerian government in 1962 and was joined to the National Enterprise for Chemical Industries (Société Nationale des Industries Chimiques), in 1968.

The setting has since known a massive state investment. The old glass blowing workshop was modernized by a West German firm. Another German firm built the Safety Glass Department. A Russian enterprise created the Flat-Glass Department. And a Belgium firm contributed to the expansion of the Glass-blowing Department and built the Crystal-Glass Workshop. The setting, therefore, becomes a place where different glass technologies originating from various countries coexist.

As shown in the chart (Figure 6.1), the factory involves two main production departments: Glass-blowing Department and Flat-Glass Department. The former produces bottles of various types and glasses, and comprises such production activities as glass melting, monitoring feeder machines, inspection of products and maintenance. All these processes are automated except inspection
Figure 6.1 Chart of the research setting (Glass works)
and maintenance. The Flat-Glass Department involve such production activities as fusion, glass stretching, reburning, punching and packing. The first three processes are fully automated, the fourth semi-automated and the fifth manually performed.

In addition, there are other departments and workshops concerned with mixing raw material, safety-glass production, and a handicraft glass manufacturing.

The factory employs 1520 workers: 1035 work in the production departments, 181 employees in the managerial services and 262 workers in departments supporting production (e.g. maintenance and trading).

6.3 SAMPLE AND INTERVIEW PROCEDURE

A sample of 40 workers were interviewed: 20 workers interviewed were from the Glass-Blowing Department performing inspection and pack-filling tasks, 10 workers from the Flat-Glass Department performing cutting tasks, and 10 workers from mechanical workshops concerned with milling, welding, turning, fitting and polishing. The sampling procedure was guided by the consideration that the respondent should be a full-time production worker having at least 2 years tenure in the factory.

Before each interview the subject was approached at work. Following a short conversation that explained the purpose of the interview, he was invited to a room where the interview took place. Each interview started with a general introduction, then the introductions specific to each questionnaire measure, followed by the reading of items and the response-choice categories. All the questionnaire items were read as worded (The questionnaire measures were translated into the local language by the researcher).

The interviews were performed during working time at the rate of 2 to 3 interviews a day. The mean time for each interview was 2 hours and 30 minutes. Respondents were all male. 80% of them were married and father of 4 children on the average. The mean for age was 35 years (S.D. = 11), and the
average length of service was 9.3 years (SD = 6.8). It should be noted that 15% of the respondents were illiterate, 15% can read or write but have attended no school, 35% attended primary school, 23% intermediate school and 12% reached secondary school. Respondents received a mean salary of 2470 Dinars (£308) per month (SD = 450 Dinars, i.e. £50).

6.4 QUESTIONNAIRE MEASURES.

The objectives of the research is to investigate the relationships among perceived work stressors, coping strategies and strain. To further the analysis of these relationships, the role of contextual variables (i.e. work-family interface, participation, inter-personal relationships and communications), personality characteristics (i.e. Type A behaviour pattern, locus of control and self-esteem) and socio-demographic characteristics (i.e. age, marital status, education, tenure and pay) in the stressor-strain relationships will also be considered.

For each variable a set of items was designed, adapted or drawn from some measures. The questionnaire measures used in the pilot study is included in the Appendix.

6.4.1 PERCEIVED WORK STRESSOR MEASURES

(i) Task and physical working conditions.

The items used assess perceived discomfort caused by inadequate physical working conditions, risk of accidents, work monotony, excessive work, and potential work threat to health. The 5 items adopted were associated with 3-point scale response whose anchors differ from one item to another. An example of the items used is:

Does your work have:

- much risk of accidents?
- Some risk of accidents?
- Safe?

The 3-point scale was scored 5, 3, and 1 in the direction of increased
task stressors. These scores were preferred to 1, 2 and 3 because the response continuum for the items of other perceived work stressors were all 5-point scale whose scores ranged from 1 to 5.

Cronbach's alpha coefficient of internal consistency is .57, the mean of the item means is 3.6, the minimum of which is 3.2 and the maximum 4.0, reflecting a tendency toward reporting increased level of experienced task and physical working condition stressors.

(ii) Pay stressors

The items adopted gauge pay inequity, pay inadequacy as compared with the cost of living and the mismatch between the pay and workers' input in (contribution to) work: responsibility, effort and experience.

The 3 items composing the measure are anchored on a 5-point scale ranging from: "Very much" to "None", and scored from 1 to 5 in the direction of increased pay stressors. An illustrative example of the items is "To what extent does your pay match your responsibility, effort and experience?"

Cronbach's alpha is moderate (\( \alpha = .62 \)). The scale item mean is 3.8, ranging from 3.7 to 4.0, and suggesting a tendency toward increased report of pay stressors.

(iii) Role overload

The items composing the scale tap perceived excessive pace of work, work complexity, interference of the quantity with the quality of work, and performance of many things at the same time.

The items used were adapted from Kahn et al.'s (1964) Work Tension Scale. An illustrative example is:

"How often must you work very fast to complete your work on time?"

All the items were rated on a 5-point scale ranging from "Never" to "Always" and scored from 1 to 5 in the direction of increased role overload.

Cronbach's alpha is very low (\( \alpha = .29 \)), suggesting that the scale needs various changes and alterations.

(iv) Role conflict
The set of items used measure conflicting demands made by supervisors and co-workers, and the incompatibility between the nature of work demands or one's judgement, and work requirement or available resources to perform them. An illustrative example is:

"How often do you receive contradictory demands from your workmates and from your supervisors?"

The 4 items used were rated on 5-point scale ranging from "Never" to "Always" and scored from 1 to 5 in the direction of increased role conflict. Cronbach's alpha is .54. The scale item mean is 3.5, ranging from 3.1 to 4.0, and indicating greater perceived role conflict.

(v) Role ambiguity

The items assess the extent to which a worker lacks information about his work demands, performance appraisal and other matters of concern such as promotion, decision, regulation, etc.

Among the 4 items used, one was adapted from Kahn et al.'s (1964) scale of work tension. An illustrative example is:

"To what extent are you clear as you would like to be, about what you have to do this job?"

All items were rated on a 5-point scale running from "very much" to "none" and scored from 1 to 5 in the direction of increased role ambiguity.

Cronbach's alpha is low (\(\alpha = .47\)). The mean of the scale means is 2.8, ranging from 1.9 to 3.6 suggesting a tendency toward decreased perceived ambiguity.

(vi) Promotion

The items adopted were designed to assess perceived lack of promotion and absence of objective criteria for promotions. 4 items were worded in the direction of increased promotion stressors and 1 item was worded in the direction of decreased promotion stressors. An illustrative example is:

"You have obtained less promotion than you deserve."

The 5 items used were rated on a 5-point scale ranging from "Definitely
false" to "Definitely true", and scored from 1 to 5 respectively for negatively worded items, and from 5 to 1 respectively for positively-worded item, to unify the direction of scoring toward increased perceived promotion stressors.

The Cronbach's alpha is .55. The mean of the scale item means is 3.9 with a range running from 3.6 to 4.3, suggesting higher level of perceived promotion stressors.

6.4.2 STRAIN MEASURES

(i) Psychosomatic complaints:

The majority of items used by Gurin et al. (1980) to measure psychosomatic troubles people complain of were adopted in the pilot study. The items addressed such complaints as insomnia, nervousness, headaches, stomachaches, general uneasiness, shortness of breath, cardiac troubles, dizziness, nightmares, weight loss and general ailments.

Subjects were asked how often they have experienced the health troubles indicated by the items. Examples of which are:

"How often are you bothered by having an upset stomach?"

"Do you have trouble getting to sleep or staying asleep?"

The 14 items used were rated on a 4-point scale, ranging from "Never" to "Nearly all the time", and scored from 2 to 4 in the direction of increased psychosomatic complaints.

Cronbach's alpha is .77. The mean of the item means is 3.0, the minimum of which is 1.8 and the maximum is 2.7, reflecting a tendency toward frequent reporting of psychosomatic complaints.

(ii) Anxiety

House and Rizzo (1972), drawing upon some items from the Taylor Manifest Anxiety Scale (Taylor, 1953), formed a scale to measure work-induced anxiety, that is, work tensions, general uneasiness or fatigue, and somatic tension. 7 items describing the feelings of tension, nervousness and worries were employed in the present pilot study because they are job-oriented items. Items addressing somatic tension and general fatigue were dropped because a Psychosomatic
Complaint Scale used in the present study contains similar items. An illustrative item is:
"You have felt fidgety or nervous as a result of your work".

The 7 items used were rated on a 5-point scale running from "Never happen to you" to "Always happen to you" and scored from 1 to 5 respectively in the direction of increased anxiety.

Cronbach's alpha is .80. The mean of the item means is 3.3 ranging from 3.0 to 3.5.

(iii) Depression

The 10-item version of the Self-Rating Depression Scale (Zung, 1965) adopted by Quinn and Shepard (1974) in their 1972 and 1973 quality of employment survey, was used in the present pilot study. The items address depressed mood, agitation, hopelessness, indecisiveness, irritability, confusion and fatigue. An illustrative item is:
"How often do you feel downhearted and blue?

5 items were negatively worded indicating increased depression, and 5 items were positively worded in the direction of decreased depression. All items were rated on a 5-point scale ranging from "Never" to "Always" and scored from 1 to 5 respectively in the direction of increased depression. The scores relative to positively worded items were reversed.

Cronbach's alpha is .79, and the mean of the item means is 3.2 ranging from 3.0 to 3.3.

(iv) Satisfaction

Job satisfaction refers to "pleasurable emotional state resulting from the appraisal of one's job as achieving, or facilitating the achievement of one's job values" (Locke, 1969). There are various types of satisfaction measures ranging from a simple item (Bomundo and Kopelman, 1980) to multiple items yielding an overall job satisfaction index (Quinn and Staines, 1979; Taylor and Bowers, 1972; Warr et al. 1979; Weiss et al. 1967); and multiple clusters of items measuring specific satisfactions (Cross, 1973; Katzell et
Specific satisfaction regarding such frequently cited dimensions of work as the organization, pay, opportunities for promotion, the job itself, immediate supervisor and co-workers (Cross, 1973) were considered in addition to satisfaction with workers' representatives. Respondents were asked to indicate how they feel about each of these aspects of work using a 5-point scale ranging from "Not satisfied at all" to "Very satisfied", and scored from 1 to 5 respectively, in the direction of increased satisfaction.

The scale exhibits a Cronbach's alpha of .76. The mean of the item means is 1.9, ranging from 1.5 to 3.2, and suggesting a tendency of increased dissatisfaction.

6.4.3 PERSONALITY MEASURES.

Three sets of items were used in the pilot study to assess Type A behaviour pattern, Locus of Control and Self-esteem.

(i) Type A behaviour pattern

According to Friedman and Roseman (1959), Type A behaviour is characterized by "an intensive, sustained drive to achieve self-selected but usually poorly defined goals; profound inclination and eagerness to compete; persistent desire for recognition and advancement; continuous involvement in multiple and diverse functions constantly subject to time restriction (deadlines); habitual propensity to accelerate the rate of execution of many physical and mental functions; and an extraordinary mental and physical alertness".

Bortner and Roserman (1967) scale of Type A behaviour was used. Cooper and Davidson (1982) judge the scale as "one of the most widely validated and comprehensive of the Type A coronary-prone behaviour inventories" (p. 177).

The 11 items used in the pilot study possessed a format different from the original scale. Instead of using a semantic differential item format as was the case in the original measure, a 5-point Likert type scale was employed. The anchors were percentages, namely "Nothing", "25%", "50%", "75%" and "100%". 6 items reflected the Type A behaviour characteristics and 5 represented Type B
attributes. An example of the former is:

"You try to do many things at once".

An example of the latter is: "You are easy going".

All items were scored from 1 to 5 in the direction of increased Type A characteristics. The scores for Type B behaviour items were reversed.

The Cronbach's alpha is .69. The mean of the item means is 3.7.

(ii) Self-esteem.

Self-esteem is the "extent to which the individual believes himself to be capable, significant, successful and worthy" (Coopersmith, 1967, P. 4-5). Many measures of self-esteem have been examined (Berger, 1952; Eagly, 1967; Phillips, 1951; Rosenberg, 1963, 1965; Sherwood, 1968), and Rosenberg's (1965) scale of self-esteem was used because of its shortness and balance for positive and negative responses.

The scale used involved 6 positively-worded items denoting higher self-esteem, and 4 negatively-worded items indicating lower self-esteem. All items were rated on a 4-point scale ranging from "Strongly disagree" to "Strongly agree" and scored from 1 to 4 in the direction of increased self-esteem. The scores for negatively worded items were reversed.

It should be noted that the scale was not applied to all the pilot study sample owing to some difficulties. For example, the majority of respondents interviewed could not understand the meaning of item 6: "You take a positive attitude toward yourself", and asked for more clarification regarding Item 10: "At times you think you are no good at all". Also, the majority of respondents provided similar answers to some items, particularly to Item 1: "You feel that you are a person of worth at least on an equal with others", and to Item 2: "You feel that you have a number of good qualities", suggesting that these items are likely to be associated with socially desirable responses.

(iii) Locus of control.

Locus of control refers to a person's tendency to believe being responsible
for the outcomes of his behaviour (internal locus of control), as compared to the tendency that his behaviour outcomes are not under his control, but rather under the influence of significant others, chance, luck, fate, etc. (Rotter, 1966).

11 items were drawn from Rotter's Locus of Control Scale covering beliefs in personal control over events, beliefs in others' control, and beliefs in virtual sources of control such as luck, fate, etc. 7 items represent internal locus of control and 4 items indicate beliefs in internal control. The subjects were asked whether they agree or disagree with each idea indicated by each statement. An illustrative example of the statements used is:

"Many of the unhappy things in people's lives are partly due to bad luck".

The scale could not be applied to all the sample because of some difficulties. For example, the majority of respondents interviewed answered in apparently contradictory ways to items regarding beliefs in virtual sources of control. For example, most respondents agreed that "there is no such thing as luck" (Item 8); but they did not disagree with the statement of Item 9: "Many of the unhappy things in people's lives are partly due to bad luck". This may suggest that the scale used is multidimensional. Also, some items were responded to in a similar way. For example, workers interviewed agreed with Item 9: "How many friends you have depends upon how nice a person you are", possibly because of one's defensive reactions against self-denigration or devaluation.

6.4.4 ORGANIZATIONAL VARIABLES.

(i) Participation

Three items were used addressing workers' perception of indirect participation in discussion, representatives' performance and the relevance of the issues examined by workers' representatives. The items reflect the local characteristics of the participatory system. An example of which is:

"How often do you talk or discuss with representatives matters or problems that concern your work".
Items were rated on a 4-point scale whose anchors differed from one item to another, and scored from 1 to 4 in the direction of increased participation. Cronbach's alpha is .86 with the mean of the item means of 2.6 ranging from 1.3 to 4.0.

(ii) Communication.

Communication concerns the circulation of information regarding new regulations, decisions, happenings, claims, requests and suggestions. Items were rated on a 4-point scale, and rated from 1 to 4 in the direction of increased communications. An illustrative item is:

"When you submit a request, a claim, a suggestion or anything else to the management, how long do you usually wait to get a reply?"

The scale has a Cronbach's alpha reliability as low as .15. The mean of the item means is 3.4 ranging from 1.9 to 4.1.

(iii) Interpersonal relationships.

The items composing the scale address the nature of the respondents' relationships with supervisors, co-workers and representatives. 6 items were worded in the direction of positive relationships, and 5 items in the direction of negative relationships. An example of the items used is:

"Your supervisor is more aggressive toward you in particular than toward other workers."

All items were rated on a 5-point scale ranging from "Not at all true" to "Completely true", and scored from 1 to 5 respectively, in the direction of increased supportive relationships. The scores for negatively-worded items were reversed.

Cronbach's alpha for the scale is very low (α = .26). The mean of the item means is 2.9 ranging from 2.0 to 3.5.

6.4.5 EXTRA-ORGANIZATIONAL VARIABLES.

(i) Family-work interface.

Five items were used addressing family life and work overlap, perceived work stressors affecting workers at home, and family life stressors that
exacerbate workers' strain at work. An illustrative item is:

"Shift work and overtime work disturb a lot your family life".

Items were rated on a 4-point scale ranging from "Not true" to "true", and scored from 1 to 4 respectively, in the direction of increased strain from family-work interface.

Cronbach's alpha is .71. The mean of the item means is 3.3 ranging from 3.1 to 3.5.

6.4.6 COPING STRATEGIES.

Coping refers to overt (behavioural) or covert (cognitive-affective) attempts to tolerate, prevent, avoid or control perceived stressors. 7 open-ended items were used to explore coping strategies likely to be used by workers. Unfortunately the output (the number of workers' responses generated) were meager. Moreover, most responses (reported coping strategies) were generally similar. For example, when asked, "What do you do when you have too much work?" the majority of answers were to do what can be done differing the remaining amount of work for the following day.

Besides the foregoing open-ended items, a checklist composed of 42 coping strategy statements were used. The majority of these statements were adapted from the coping literature (Aldwin et al., 1980; Folkman, 1982; Lazarus and Folkman, 1984; Osipow and Spokane, 1983; Sidle et al, 1969).

Respondents were asked to tell how often they think, do or behave the way indicated by each statement. Each statement was rated on a 5-point scale running from "Never" to "Every time" and scored from 1 to 5 respectively.

Cluster analysis employing Ward's Hierarchical method, yielded 4 clusters of coping strategies. Table 6.1 shows the items composing each cluster. It can be noted that the majority of items denote interaction-focused coping in Cluster I, tension-oriented coping in Cluster II, cognition-focused coping in Cluster III and finally, situation-centred coping in Cluster IV.

Table 6.1 also exhibits Cronbach's alpha coefficient of internal consistency for each cluster. The alpha coefficients for the four clusters
Tableau 6.1: Coping Strategy Clusters.

<table>
<thead>
<tr>
<th>Cluster I : COGNITION-FOCUSED COPING.</th>
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<tbody>
<tr>
<td>(37) Keep optimistic whatever the problem would be.</td>
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<tr>
<td>(33) Keep busy in order not to have time to think or to keep your mind off the problem.</td>
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<tr>
<td>(29) Issues are not important and are not worth worrying about.</td>
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<tr>
<td>(28) Compare your difficulties with others' problems.</td>
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<tr>
<td>(24) Compare your present with your past in the job.</td>
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<tr>
<td>(23) Life without problems has no charm.</td>
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<tr>
<td>(17) Read or listen to koran or religious talks.</td>
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<tr>
<td>(11) Seek the help of God.</td>
</tr>
<tr>
<td>(8) Draw upon your past experience, perhaps you have been in a similar situation before.</td>
</tr>
<tr>
<td>Cronbach's alpha reliability</td>
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<tr>
<th>Cluster II : TENSION-FOCUSED COPING</th>
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<tr>
<td>(2) Ignore the problem until you cool off.</td>
</tr>
<tr>
<td>(5) You do not carry your work worries home.</td>
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<tr>
<td>(9) Accept the problems because there is little to do about.</td>
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<tr>
<td>(19) Try to see the humorous aspects of the problem.</td>
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<tr>
<td>(22) Drink too much coffee and/or smoke a lot than usual.</td>
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<tr>
<td>(27) Leave your work area and go somewhere.</td>
</tr>
<tr>
<td>(39) Do nothing about it.</td>
</tr>
<tr>
<td>(41) Leave the matter to time, time brings a solution to it.</td>
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<td>Cronbach's alpha reliability</td>
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<table>
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<tr>
<th>Cluster III : INTERACTION-FOCUSED COPING.</th>
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<tbody>
<tr>
<td>(1) Talking about your problem with your family.</td>
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<tr>
<td>(4) Seek additional information about the problem.</td>
</tr>
<tr>
<td>(30) Seek the help of others at work.</td>
</tr>
<tr>
<td>(31) Learning more about yourself, you may be the source of the difficulties.</td>
</tr>
<tr>
<td>(40) Discuss the matter with the individuals concerned.</td>
</tr>
<tr>
<td>Cronbach's alpha coefficient</td>
</tr>
</tbody>
</table>
Cluster IV PROBLEM-FOCUSED COPING.

(14) Concentrate on the aspects of job suffering from neglect rather than tackling simultaneously many aspects of it.
(18) Pay more attention to work problems than out-of-work problems.
(35) Pay attention only to problems that directly affect you.
(36) Share work problems with nobody.

Cronbach's alpha coefficient \( .58 \)

Note: Numbers represent the coping item order in the questionnaire.

are generally low ranging from \( .42 \) to \( .71 \).

6.5 IMPLICATIONS OF THE PILOT STUDY FOR THE MAIN STUDY.

(1) Many measures used in the pilot study were very short. Multiple items measures are necessary in the main study in order to tap the dimensions of the construct that a set of items purports to measure.

(2) Many measures were of low reliability. In order to improve the reliability of the measures to be used in the main study, a careful attention should be directed to the size of the measures, the design of the items, response format and interview procedure.

(3) A number of items as well as the verbal anchors of the scales (response categories) were too long to be easily and adequately understood by respondents. Therefore, item verbosity should be cut down without rendering the item contents complicated or ambiguous.

(4) The 5-point scale format was examined to find out whether production workers can cope with the items associated with five response choices. It was observed that the 5-point scale format was feasible provided that the verbal anchors are kept as short as possible.

(5) Items composing various scales were worded in one direction only in the pilot study. For example, all role overload items were worded in the direction of increased perceived role overload. Therefore, to reduce the respondents' possible tendency to acquiescence, negatively as well as
positively—worded items should be included in each measure to balance for response bias.

(6) The application of the questionnaire measures in the pilot study contributed extensively to the determination and identification of the production workers' vocabulary of potential relevance to the main study questionnaire. Consequently, the translation of the main study measures from English into the local language will be somewhat eased by the performance of the pilot study.

(7) The descriptive statistics regarding each measure suggested the respondents' tendency to report greater task and physical working condition stressors, role conflict, pay stressors, promotion stressors, and disrupted family–work interface; and the tendency to report decreased role ambiguity, work satisfaction, and work participation. The implications of which are twofold: First, it provides a general idea about the perceived prevalence of some stress sources and coping strategies. Second, it helps in deciding upon the directionality of scoring the items pertaining to these variables.

(8) The introduction of the questionnaire needs to be modified and enriched. For example, the introduction of the pilot study started with: "I'm a student doing a research...". The word "research" may convey in the local language investigating workers' opinions and behaviours to disclose them to the management. Therefore, the word "study" is preferred to "research" because it is neutral in the local dialect. Additionally, the questionnaire introduction did not inform the respondent how the answers will be treated and the format serving for the presentation of results to the management.
We are continuously confronted by the necessity of developing new concepts and new ways of measurement. There is hardly any measurement...that is generally recognized as fully satisfactory.

F. Adler
CHAPTER VII  

7.1 INTRODUCTION:

It should be noted, beforehand, that the research objectives, questions and hypotheses have been spelt out in Chapter V. It is not necessary, therefore, to mention research objectives in the present chapter.

The pilot study has conceptually and methodologically been of great importance for the main study. The raison d'être, as well as, the implications of the pilot study for the main study have been detailed in Chapter VI.

It remains, therefore, to address the main study starting with a description of the method used, and deferring the examination of results, discussion and conclusions to the next chapters.

7.2 SAMPLE.

The investigation was carried out in a state-owned glass enterprise situated in the north west of Algeria, in the outskirts of Oran, the second large city. The unit (enterprise) produces different types of bottles, glasses, flat glass, safety glass (automobile wind-screen), and handicraft glass. Created in 1944, the factory has since known a progressive expansion, particularly after independence. Presently, the enterprise comprises two large production departments: Glass Blowing Department and Flat Glass Department; two small departments: Safety Glass and Handicraft Departments; and Supporting departments: Mixing (raw material) Department, maintenance Department etc... The enterprise employs 1520 workers, most of them (i.e. 1035 workers) working in the production departments. The opening section of the pilot study in Chapter VI provides more details concerning the research setting.

A sample of 110 male full-time workers were interviewed. The majority of workers interviewed come from the largest Glass Blowing Department (59 workers). Others were from Flat Glass Department (41 workers) and Mechanical Workshop (20 workers). The criteria adopted in the composition
of the sample were:

First: The subject should be a production worker excluding clerical, supervisory and managerial employees.

Second: The subject should have at least two years length of service in the enterprise.

Third: The subject must be a full-time worker. Workers on trial period or working on part-time basis were not considered.

Since it was not feasible to obtain a random sample, the following sampling procedure was adopted: The lists of production workers were examined; as the lists did not contain all the necessary socio-demographic data, supplementary information was sought from the supervisors and the personnel department. Every morning, two production workers were chosen on the basis of their availability at a particular time, and satisfaction of the criteria mentioned above. Each worker selected was approached by the researcher (sometimes, in the presence of a supervisor) and his permission was solicited after a very short conversation. Then, the worker was invited to a room where the interview took place.

As indicated in Table 7.1, the mean of the sample age was 34 years (SD=12 years). 61% of respondents were married, none divorced or widowed and 39% single. The level of education consisted of 33% illiterates, 23% having attended Primary School (From 1 to 5 years schooling), 32% Intermediate School (From 6 to 9 years schooling) and 12% Secondary School (From 10 to 13 years schooling). The length of time worked in this factory ranged from 2 to 32 years, with an average of 8.4 years (SD=8.2).

The unit for computing the income was Dinar (8 Dinars are equivalent roughly to £1; at the time of the study): The sample monthly salary ranged from 1500 Dinars (£187) to 3300 Dinars (£412). The mean was 2310 Dinars (£289) and the standard deviation (SD) was 440 Dinars (£55).

The sample characteristics permit the inference of some important features of the sample. The sample contains an important proportion of illiterate
workers, a characteristic that should be taken into consideration in designing the data collection instruments. Moreover, the sample looks relatively young. This is not a surprising demographic feature considering that 65% of the Algerian population are aged below 25 years. The length of service is moderate: the median indicates that 50% of workers have so far worked no longer than 6 years, perhaps because of the dominant number of young workers and the organization's policy of recruitment of new workers owing to the expansion of most production departments.

TABLE 7.1: Descriptive statistics of the sample socio-demographic characteristics (n = 110).

<table>
<thead>
<tr>
<th></th>
<th>%</th>
<th>Mean</th>
<th>SD</th>
<th>Intercorrelations (r's)</th>
</tr>
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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(1)</td>
</tr>
<tr>
<td>(1) Age.</td>
<td>34</td>
<td>12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(2) Tenure.</td>
<td>8.4</td>
<td>8.2</td>
<td></td>
<td>.87</td>
</tr>
<tr>
<td>(3) Income.</td>
<td>2310</td>
<td>440</td>
<td>.62</td>
<td>.62</td>
</tr>
<tr>
<td>(4) Education.</td>
<td>2.2</td>
<td>1.1</td>
<td>-.68</td>
<td>-.48</td>
</tr>
</tbody>
</table>
- Illiterate. | 33% |      |      |           |       |      |      |
- Primary     | 23% |      |      |           |       |      |      |
- Intermediate | 32% |      |      |           |       |      |      |
- Secondary   | 12% |      |      |           |       |      |      |
| (5) Marital. |      |      | .66  | .56       | .59   | -.54 |      |
- Married.    | 61% |      |      |           |       |      |      |
- Single.     | 39% |      |      |           |       |      |      |

Note: "Age" and "tenure" were measured in years, "income" in Algerian dinars (8 dinars equal roughly £1). 'Education' was scored as follows: illiterate = 1, Primary school (1 to 5 years) = 2, Intermediate (6 - 9 years) = 3, and Secondary (10 - 13 years) = 4. "Married" was scored 2 and "single" : 1. The observed correlation coefficients would have to be equal or exceed the value : ±.19 to be significant at the 5% level (Two-tail test).
Another interesting feature is the moderate discrepancies in pay (bonuses included). Considering the mean and standard deviation, it can be concluded that the income of approximately two thirds of workers ranged from 1870 Dinars (£234) to 2750 Dinars (£344).

Further insight into the sample characteristics is gained by examining the intercorrelation among age, education, marital status, income and tenure. It can be seen in Table 7.1, that age correlates substantially with tenure \((r = .87)\). A moderate association exists between tenure and income \((r = .62)\) indicating the longer the tenure the higher the income. The relationships of the level of education to other socio-demographic are interesting. Workers with higher level of education tend to be younger \((r = -.68)\), Single \((r = -.54)\), less paid \((r = -.36)\) and having short tenure \((r = -.48)\).

It should be noted that the main study sample did not include workers interviewed during the pilot study.

7.3 Interview Procedure.

Access to the enterprise was facilitated by the administrative formalities of the pilot study performed four months before the main study. Before the end of the pilot study, the Personnel Manager and the head of the training services accepted the researcher's request to conduct the main study expected to commence on 3rd February, 1985, and to last for two months. One week before the agreed date, the personnel manager was reminded of the pilot study date, and a notification was issued by the personnel department to the heads of departments to inform them about the date of the study. Actually, the heads of departments and supervisors were informed while carrying out the pilot study. Therefore, the notification serves only as a formal recall of the date of the main study.

Throughout the period of the data collection, and before the start of each interview, the following preliminary precautions were observed:

ONE: The room serving as a place for the interview must be close to the
shop-floor concerned, and should not be an administrative office, security office, or union-party office. This is to avoid any connotation these places may suggest to the interviewed worker, and to enhance his confidence in the researcher as a neutral person with no link with the management, or with workers' representatives. Therefore, the rooms preferred were those used for miscellaneous purposes (or spare ones), where the interviews can be carried out without great disturbances (noise or interferences).

TWO: The look or appearance of the researcher matters very much in the interview. Wearing a smart suit and carrying a briefcase by an interviewer is sufficient enough to arouse a worker's fear, suspicion, and embarrassment. Care was taken to avoid any appearance that may attract the attention of workers in the factory.

THREE: To promote workers' impression of the researcher's neutrality in the factory, the researcher avoided frequent contacts with management personnel, worker's representatives, security officers, head of departments and supervisors. Also, the researcher used the facilities usually utilized by workers, such as the factory restaurant and buses. (Provided by the enterprise for the workers' transportation).

The introduction of the interview to the worker proceeded in the following manner:

First: The researcher introduced himself to the worker in the interview room, as a student at the University of Oran. The researcher's study in the university consists of understanding the experience of workers with their jobs and also how the enterprise in which they work functions. Additionally, to justify the raison d'être of the interview, the researcher explained: "Because the study in the University is more theoretical than practical, I decide to learn directly from workers themselves: how they see their work, what kind of problems they face, how they solve them. So, I'm actually learning from workers".
In considering this first part of introducing the interview, many points need clarification:

- The researcher avoided using the lexical equivalent (in the local language) of the word "research" or "investigation" and preferred to use "study" instead, for fear that the equivalent word in the local language for these terms may be associated with gathering information on some workers' sensible opinions and behaviour, to disclose them to the management. The term "study", therefore, is a neutral word in dialect, connoting collecting information for educational purposes.

- The researcher preferred to introduce himself as a student in the University of Oran (student in the dialect automatically means undergraduate and not postgraduate student), instead of "a researcher or postgraduate's student doing a research to obtain a Doctorate in Great Britain". This manner of describing the identity of the researcher is likely to deeply impress the workers and widen the gap between the perceived status of the interviewer and the perceived status of the interviewee. On the contrary, workers from different educational backgrounds seemed familiar with students frequently attending the factory for short training periods, to administer short questionnaires for a short period, as part requirements of their courses.

- The term "Psychology" was avoided. Instead of saying in the introduction: "I am a student in psychology (or in the Department of Psychology) at the University of Oran", the researcher preferred to describe in simple and general terms the subject matter of the study (as mentioned earlier), to dismiss the term "Psychology". A person who describes himself a psychologist or student in psychology is likely to be perceived by lay people as able to "read through the head" of his interlocutor.

Second: The description of the subject matter of the questionnaire ran as follows; "I have questions about your work, what kind of difficulties and problems you have encountered in the factory; what you do about them, the effect of work on your feelings and your health, and about other things".
It should be noted that such concepts as "stress", "stressor", "strain", "coping" were avoided in the description of the topic because of the ambiguity that shadows such terms.

Third: The researcher encouraged the respondent to dispel his fears and wear off his reservations by adding: "...There is no right or wrong answer. Every worker has his own opinion, sees his work in his own way, has his own difficulties and problems, and his own ways of tackling them. One cannot say that this worker is right and that worker is wrong. As I would like to interview as many workers as I can in this factory, every day two workers are invited for interview provided that the production is not disturbed. You have been invited for the interview today because I can talk with you for some time without disturbing the production".

Perhaps in this way, the respondent knows why he (in particular) was chosen for the interview, and he is encouraged to answer frankly the questions.

Fourth: To enhance the feeling of security of the worker and motivate him to answer as frankly as possible, the addition of the following statement was indispensable: "... Your answers and those of many workers like you will be transformed into mathematical form, so that individual cannot be identified. For example, the results will say how many workers have such or such problems; how many workers solve some problems in this way and how many solve them that way. Anything you say in this interview is completely confidential. To maintain this complete confidentiality. I'm not going to ask you your name, because it is not needed in my study".

Following the general introduction of the interview, the researcher proceeded to interview the respondent by reading first the introduction specific to each measure. Measure introductions were kept as short as possible. They aimed at stressing and reminding the respondent of some points likely to motivate him, that were briefly mentioned in the general introduction of the questionnaire. The following illustrative example is the introduction of locus of control scale (All questionnaire measures can be found in the Appendix):
"Once again I'd like to know your opinions about general things of life. There are no right or wrong answers. Let's have an example: 'Do you believe a kid can usually be whatever he wants to be when he grows up'. Some people may agree with it, some others may disagree with it. Shall we say the first group of people are right and the second group of people are wrong? No, there is no wrong or right answer. There is no good or bad idea. The only difference it makes is that people are not alike. Everyone has his own way of thinking, his own opinion about some aspects of life. Here, are some statements about some aspects of life in general. I'd like you to tell me whether you agree or disagree with each statement. If you want me to repeat a question, please do so."

Regarding each measure three things are read to the respondent: (a) The scale introduction together with the leading question, (b) response categories (response formats), (c) Items (whether statements or questions).

The order or the sequence of presenting the three measure components was as follows:

Firstly: Reading the introduction of the measure including the leading question as illustrated by the foregoing example of Locus-of-Control Scale introduction.

Secondly: The response categories (most response categories had the format of a five-point scale).

Thirdly: Reading the first item (statement or question), immediately followed by the five-response choices.

Forthly: Then, the researcher proceeded to read the next item followed also by the five-response categories. This procedure was repeated until all the items of a scale measure were exhausted.

All the items of the questionnaire measures were read as worded. The order of the scales remained similar across all interviews. During each interview, the sequence of the scales was: (1) Socio-demographic, (2) Perceived Work Stressors, (3) Perceived Strain (Anxiety, Depression, Dissatisfaction, and Psychosomatic Complaints sub-scales), (4) Contextual measures (Family-Work Interface, Supportive Relationship, and Participation sub-scales), (5) Personality
measures (Type A/B Behaviour Pattern, Locus of Control, and Self-Esteem scales), (6) finally, Coping Strategy Checklist.

Many reasons justify this questionnaire measure order:

First: Conceptual and temporal order: As strain and coping take place following the experience of work stressors, and as coping is triggered after experiencing work stressors and associated strains; therefore, perceived work stressors sub-scales were presented first, followed next by strain sub-scales and finally by coping checklist.

Second: Degree of sensitivity of the questions that form the scales: Contextual measures involved many sensitive questions. For example, Supportive Relationships and Participation Scales address such sensitive areas as the relationships of the respondent with his co-workers, supervisor and representatives. Therefore, these contextual measures come before the end of the questionnaire measures. Another example is that Perceived Work Stressor sub-scales differ in their degree of sensitivity. Therefore, Role Overload sub-scale come first as the questions generally addressed the task and not people. However, more sensitive areas as career stressors, role conflict and role ambiguity that involved others as a source of stress, were left to the end of the work-stressor sub-scales.

Third: Variety. In order to introduce some change in the item content, personality measures were introduced half time through the interview. For example, Locus-of-Control scale items invite the respondent to reflect on a wider range of life aspects, and not only on his working life as the previous scale items did.

Responses were recorded immediately in the form of worded anchors instead of writing down the corresponding score. For example, if a respondent selects the response category: "sometimes", this response was written down literally avoiding the use of respective score. The reasons are twofold:

First: Recording the scores in the presence of the respondent is very likely to puzzle him. Intrigued, the interviewee may try to vary systematically his
responses to break through the scoring system.

Two: Scoring of responses during the interview is prone to errors, especially, when the items are sometimes negatively worded, and sometimes positively worded, regarding the characteristics assessed by the scale (and consequently, scoring sometimes need to be reversed). This was the case with the majority of the measures used in this study.

The scoring was performed (at home) after the completion of each interview. The average time required by each interview was 2 hours and 45 minutes. Some interviews necessitated only 2 hours and some others exceeded 3 hours and 30 minutes, depending on the level of instruction and the characteristics of the respondent. The interviews were all carried out during working hours (usually from 9 p.m. to 5 a.m.), at the rate of 2 interviews per day except the weekends (in Algeria, the Weekends are: Thursday and Friday instead of Saturday and Sunday), for 74 days (from 3rd February to 17th April 1985). A total of 110 interviews were achieved. One interview was not completed because the respondent was called during the interview, and therefore ignored.

7.4 TRANSLATION PROCEDURE.

The question of translation needs an introductory discussion. Language is a cultural artifact that reflects the patterns of perception, thinking, emotion, and behaviour of a community. Language shapes, to a great extent, the cognitive structure of those who speak it (Sapir; 1931; Whorf, 1956). However, translating is equivalent to adjusting a culturally-determined cognitive-affective structure of a society to another society cognitive-affective pattern, despite the large differences that may exist between the two socio-cultural systems.

Considering the cross-cultural dilemma of measure translation, a plausible and most popular technique of translation termed "back translation" is described by Mitchell (1965) as follows: "First, the original instrument is translated into the local language, and then another translator independently translates
this translated version back into the original. The original and retranslated versions are compared and the discrepancies are clarified. This procedure contributes to the identification of semantic discrepancies between the two languages.

However, according to Deutscher (1978), back translation "can instill a false sense of security in the investigator by demonstrating a spurious lexical equivalence ... It is not sufficient to know simply that the words are equivalent. It is necessary to know the extent to which those literally equivalent words and phrases convey equivalent meaning in the two languages or cultures" (underlines added).

Therefore, Deutscher (1978) proposes the following:

1. The necessity that the researcher be familiar with the cultural milieu of which the language is a part.

2. Effort should be oriented towards obtaining conceptual equivalence without concern for lexical comparability.

These recommendations actually reflect the wisdom of the Arab proverb: "with every language a (different) man". (Cited in Blanc, 1956).

With reference to the Algerian society, particularly the north-west of Algeria where the research was carried out, the spoken language (the dialect) differs more or less from Standard Arabic (Academic Arabic Language as taught in educational organizations), and French. The words and expressions pertaining to Arabic and French are altered, shortened or deformed in day-to-day language. Therefore, the relationships of the local dialect to its sources have the following forms:

(a) Words drawn from Arabic without modification.

(b) Words derived from Arabic with alterations (These constitute, perhaps, the majority of the local dialect vocabulary).

(c) Words derived from French with alterations.

(d) Words derived from neither Arabic nor French.

To map people in the North West of Algeria according to the spoken
language, the following categories apply:

(1) Those who speak Standard Arabic and Dialect but little French.
(2) Those who speak French and more or less Dialect, but little Standard Arabic.
(3) Those who speak sufficiently Standard Arabic, French and Dialect.
(4) Those who speak Dialect and little Standard Arabic and French.

If this configuration of people in terms of spoken language is applied to the industrial organization, one finds that managers, heads of departments, engineers, technicians and the majority of managerial personnel are of the category (2). On the other hand, shop-floor workers represent generally the category (4); This linguistic map has deep implications for the design of data collection instruments. If this study is concerned only with managers or engineers, a questionnaire edited in French is most appropriate, because if it is written in Standard Arabic, the investigator is obliged to translate many terms and expressions into French in order to be assimilated by the majority of managers or engineers. However, as the prime concern of the present study is centred on production workers, the questionnaire measures must be worded in dialect. If it is edited in French, for example, the measures become largely incomprehensible.

The translation and the validation of the translation have passed through four stages:

First: Questionnaire measures were all translated into the dialect. The criteria of translation capitalized on the conceptual equivalence more than lexical equivalence. When two expressions in dialect conveyed roughly the same idea they were recorded to be discussed in later stages. It should be noted that the pilot study had substantially contributed to the identification of expression and words that are more frequently used by production workers than others.

Second: The translated measures (using arabic characters) were checked item-by-item, in the presence of a teacher in the department of psychology at the University of Oran. (He was reading for diploma and M.Sc. in Applied
Psychology in the United Kingdom, and spoke Arabic, French, English and the local dialect. After explaining the objectives of the research, the motive of the inclusion of each measure, and the criteria used in the translation, we proceeded with item-by-item comparison of the original and the translated measures, to discuss the extent to which each pair of versions were equivalent in meaning. Sometimes, problems occurred when the original item was judged not clear enough for translation; therefore, the original version of the item was rephrased and then translated. Also, sometimes the Dialect offered alternative words or expressions. In this case, if a consensus was not reached concerning which alternative is more frequently used by production workers, the alternative words or expressions were recorded and deferred to subsequent stages.

Third: A psychologist practitioner was contacted. He held a degree in industrial psychology (Licence) in 1978 from the University of Oran, and has since worked in the National Enterprise of Gas and Electricity. He spoke Standard Arabic, French and Dialect. As he has been working in the training department, his contacts with workers from different levels of the hierarchy were frequent. Owing to these qualities, his contribution to the validation of the translation was twofold:

(a) Having outlined the research objectives, and the criteria adopted in the translation, the researcher read the doubtful translated items, one at a time, and asked the practitioner to explain in his own vocabulary what he understood from each item. Since the practitioner did not speak English, he was not biased by the original meaning of the item. Then, the researcher compared the meaning of the English version of an item and the description of that item meaning made by the practitioner. When a need was felt for an alternative expression, the practitioner was explained the meaning of the original English version in Arabic or French, and asked to suggest a more appropriate expression.

(b) The practitioner, owing to his experience, was asked to judge whether the
translated items can be understood by illiterate workers.

Fourth: A pretest of the questionnaire measures was finally carried out on two workers from two main departments: a glass-cutter from the department of flat-glass, and a bottle inspector from the glass-blowing department. They had 4 and 10 years tenure respectively. The purpose of the interview was to test the translation and the feasibility of the five-point response categories. Generally, the dialect version did not pose serious problems in understanding. The five-point response choices were feasible when kept short, and repeated every time an item was read to the subject. The two subjects were not included in the main study sample.

7.5 QUESTIONNAIRE MEASURES.

Research objectives, research questions and hypotheses formulated in Chapter V involve the following groups of variables: (1) Perceived work stressors; (2) Reported strain: anxiety, depression, dissatisfaction, and psychosomatic complaints; (3) Coping strategies; (4) Contextual variables: family-work interface, supportive relationships, and participation; (5) Personality variables: type A behaviour pattern, locus of control, and self-esteem; (6) Socio-demographic variables: age, marital status, education, income, and tenure.

For each variable (except socio-demographic variables), a set of items was developed on the basis of stress and coping literature, the foregoing pilot study and the specificities of the Algerian glass works environment. The Questionnaire is included in the Appendix.

7.5.1 PERCEIVED WORK STRESSOR MEASURES.

Work stressors refer to those characteristics of the job conditions (whether physiological or socio-psychological conditions) that an individual perceives as affecting (being painful, harmful, dysfunctional or threatening) psychological (cognitive-affective) or physiological processes.

Items composing perceived work stressor questionnaire were drawn and
adapted from some important stress measures in the literature (Billings, et al. 1977, Carkman, et al. 1979; Ivancevich and Matteson, 1980; Moos, 1981; Osipow and Spokane, 1983; Rizzo, et al;1970), or designed to fit the socio-cultural characteristics of the research setting and the potential sample.

Perceived work stressor questionnaire was broken down into five different sets (or sub-scales) of perceived stressor items on the basis of their apparent contents:

(i) Role overload: It was composed of 10 items. Generally, the items tapped perceived excessive workload; the overlap of quantitative (too much work) with qualitative (work complexity); work overload; work threat to health; risk of accidents; underutilization of skills; and finally, physical working conditions. Seven items were negatively worded denoting more frequent work overload, and three items were positively worded indicating less work overload. An illustrative example of the former is:

"how often do you have too much work that you cannot finish in a normal work day?"

An illustrative example of the latter is:

"How often do you have a right amount of work that keeps you busy without much pressure?"

The response categories consisted of Likert-type five-point scale response format. However, owing to the content of the work overload items, 6 items were associated with response categories reflecting the frequency of work overload occurrences (namely never, rarely, sometimes, often, and always). The other 4 items were accompanied with anchors denoting the intensity of perceived work overload (namely very little, a little, some, a lot, a great deal). Scoring concerning positively-worded items ranged from 1 (Never / very little) to 5 (Always / great deal). Regarding the negatively worded items, the scores were reversed so that the higher the scores, the more frequent the perceived stressor occurrences.
(ii) Role conflict.

Ten items were used to assess incompatibility of demands from co-workers, conflicting demands from superiors, and incompatibility of demands from workers, on one hand, and superiors, on the other. The items tapped, also, the misfit between the external demand and one's opinions, and imbalance between the task requirements and the availability of equipment and material.

Role conflict sub-scale involved six negatively worded items indicating increased perceived role conflict, and four positively worded items denoting decreased perceived role conflict. An example of the former is:

"You feel being caught between two opposite demands: demands from your workmates and demands from your supervisors".

An example of the latter is:

"You feel able to satisfy totally different demands from different persons at work".

All the items were scaled on a five-point Likert type format. The five response categories and the scoring method consisted of the following:

"Every time" = 5; "Often" = 4; "Sometimes" = 3; "Rarely" = 2; and "never" = 1.

It is worth noting that the positively worded items were conversely scored, so that the higher the score, the greater the perceived occurrence of role conflict.

(iii) Financial rewards.

This subscale contained 12 items. The statement contents covered: perceived mismatch between the pay and effort or experience invested in work, pay inequity, inadequacy of pay and bonuses compared with the cost of living, and the absence of some due bonuses. Six items were negatively worded denoting the existence of greater perceived pay stressors, and six items were positively worded expressing decreased perceived pay stressors. To illustrate:

A negatively- worded item is: "The pay you receive is much lower than the amount of effort and experience you put into your work."

An example of a positively-worded item is:

"Your present pay and bonuses enable you to make some monthly savings."
All items were rated on a five-point scale anchored and scored in the following manner: "Completely true" = 5; "Quite true" = 4; "Half true half not" = 3; "Slightly true" = 2; and "Not at all true" = 1. With reference to positively-worded items, the scores were reversed in the direction of greater perceived pay stressors.

(iv) Career.

Career subscale measured the perception of the extent to which a worker was promoted, ambiguous criteria and inequity in handling promotions by management, and the paucity of opportunities for training. Among the nine items utilized, six were negatively worded to indicate increased perceived career stressors, and the rest of items were positively worded to express decreased perceived career stressors. An illustrative example of the former is: "Working too hard or having a long experience has usually no effect on the way promotions are handled around".

An illustrative example of the latter is: "You feel you are getting ahead in this factory".

Items were rated on a five-point scale. The scoring ranged from 1: "Not at all true", to 5: "Completely true". In case of positively-worded items, the system of scoring was reversed so that the higher the score, the greater the perceived career stressors.

(v) Role ambiguity.

Role ambiguity sub-scale comprised twelve items and purported to assess the lack of clarity associated with work scope, performance feedback, expectations of significant others, power relationships, regulations or instructions, and communications.

Eight items were negatively worded, expressing increased perceived role ambiguity, and four items were positively worded reflecting increased role clarity. An illustrative example of the former is: "You are not clear about what to be done on your work, or why it should be done".

An illustrative example of the latter is:
"Regulations, rules and instructions that concern your work are clearly explained to you".

All items were scaled on a five-point scale format. Response categories and scores ran from "Never" = 1, to "Always" = 5, except positively-worded items which were conversely scored. This is to uniform the direction of scoring towards greater perceived role ambiguity.

(vi) **Factor analysis of perceived work stressor items.**

It is recalled that the foregoing sub-scales of perceived work stressors were formed on the basis of the face content of the items. It was suspected that certain work stressor categories may be very heterogeneous, and that certain items may tend to relate more to other stressor categories than to their own category (or sub-scale). Therefore, all perceived work stressor items were submitted to factor analysis using principal component procedure.

The term "factor analysis" refers to various statistical techniques, "the single most distinctive characteristics of factor analysis is its data-reduction capability. Given an array of correlation coefficients for a set of variables, factor analysis techniques enable us to see whether some underlying pattern of relationships exists such that the data may be 'rearranged' or 'reduced' to a smaller set of factors or components that may be taken as source variables accounting for the observed interrelations in the data" (Kim, 1975a).

As the prime concern of the present research is to use a technique that permits the identification of a small number of variables that accounts for most variance in the data; or derives as much information as possible from the sample of perceived work-stressor items, Principal Component serves sufficiently this objective.

Principal Component differs from other factor analysis procedures in that the main diagonal of the data correlation matrix is not altered but contains unities (the correlation of a given item with itself). Principal Component proceeds by extracting the first linear combination of variables that maximizes the explained variance more than other possible linear combinations. It is,
therefore, the first component that best summarizes the linear relationship of the variables. The second component is the second most important linear combination of variables, accounting for the proportion of variance left after the removal of the variance explained by the first component. Subsequent components are extracted similarly until no more variance in the data is left. Theoretically, all variance in the data is exhausted by the extracted components that equal the number of the original variables or items. Practically, however, "much of the variance may be accounted for by the first few components, and in these cases the complete matrix of intercorrelation of variables may be of little interest" (Edmunds and Kendrick, 1980, p. 199). In other words, it is likely that the small amounts of variance left are often due to idiosyncratic variations in the items or individual variables.

Therefore, Principal Component was performed. To aid the interpretation of factors, the initial matrix of factor loadings was rotated using Varimax method (Kaiser, 1958). Considering the rotated matrix of factor loadings, a few issues need to be examined:

First: Number of factors that best suit the purpose of the study concerning perceived-work-stressor data reduction.

Second: Deciding upon a cut-off point that identifies significant loadings.

Third: Interpretation of retained factors.

With reference to the number of factors to be retained, a combination of three criteria was adopted. The first criterion consisted of retaining factors associated with eigenvalues greater than unity. Kaiser (1960), based on an early work of Guttman (1954), proposed this criterion as the best answer to the number of factor decision.

The second criterion was the examination of the Scree Test, a rule-of-thumb procedure for determining the number of significant factors to retain, advocated by Cattell (1965) on the ground that the factor variance levels off when the factors are largely measuring random errors. Usually, eigenvalues are plotted against ordinal eigenvector number or factor number.
The third criterion adopted was the interpretability of components, that is, the extent to which factor with small explained variance have a substantive meaning.

An examination of the Scree test in Figure 7.1 indicates that the number of factors whose eigenvalues are more than unity are 11 factors. Within the range of these 11 factors, the curve exhibits a smoothly decreasing slope, but starts to level off at a point corresponding to the eighth factor. Considering the criterion of interpretability, seven factors yield the best interpretable configuration of factors.

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Figure 7.1 Scree-Test for perceived work stressor factors.
With reference to the cut-off point that demarcates significant loadings on a given factor, a loading as low as .30 was recommended by Child (1970) as significant. However, a more stringent criterion was adopted in this study, that is, only those magnitudes of perceived stressor loadings on the retained factors that equal or exceed .50, were considered.

Table 7.2 shows the items composing each perceived work stressor factor, together with the corresponding significant loadings. The cumulative percentage of explained variance by the six factors retained amounts to 69%. The percentage of explained variance by individual components ranges from 4% to 30%. Communalities (the amount of the variance of a component that is shared by at least one other component in the set of factors) range from .41 to .83.

In figure 7.2, the seven factor loadings are depicted in a two-dimensional space of the two first factors. The isoplanes clearly display: (a) The item clusters pertaining to each factor; (b) The location or configuration of these item clusters, (c) The extent to which the items reflect the proportion of explained variance accounted for by the respective factors.

Three isoplanes are drawn around the items composing each factor: The inner isoplane surrounds items with 70% or more of their variance accounted for by the respective factor. The next isoplane is drawn around items with 59% to 69% of their variance explained by the respective factor; and, finally, the outer isoplane encompasses items with 25% to 58% explained variance.

It remains, however, to address the third and last issue related to the labelling of the factors retained. There exist two forms of factor interpretation: Interpretation performed in terms of the observed factor loadings without presupposition of any underlying construct or process; and interpretation made on the basis of a latent construct or process underlying the factor constituents (Coan, 1964). Since the purpose of performing factor analysis on perceived-work-stressor data is the reduction of items to a few item clusters, a descriptive approach to factor labelling was employed.

In table 7.2, the common denominator of the item pertaining to Factor I
Figure 7.2: Location of variables on the first two rotated factor space. Isoplanes are drawn around the points to distinguish loading magnitudes of a factor items. The inner isoplane contains items with 70% or more of their variance accounted for by the respective factor. The second isoplane surrounds items with 59 to 69% variance, and the outer isoplane includes items with 25 to 58% variance.
is financial reward or pay. Perceived inadequacy of pay in terms of its misfit to effort and experience, pay inequity (as compared to others’ earning), incompatibility of pay with the cost of living and family needs, constitute the content of the factor. Therefore, The label "pay" describes sufficiently the theme common to the items of factors I. It is worth mentioning that a short label as "pay" lends itself to recall and satisfies the criterion of wording parsimony. Rummel (1975) recommends that how well a possible factor label is mnemonic is an important property; "a one-or two-word name is much better in this regard than four-or five-word title, although perhaps slightly less descriptive" (p.475).

Items composing Factor II in Table 7.2 relate to promotion. In addition to upward mobility, two items concern perceived lack of opportunities for training and skill development. So, the label that encompasses these perceived stressors is "career".

Factor III, as indicated in Table 7.2, comprises items denoting incompatibility of expectations originating from others towards one’s role, and misfit between the requirements of a role and the opinions of its occupant. Central to these items is the idea of role conflict. Therefore, Factor III is named "role conflict".

Unlike the foregoing factors, only five items form Factor IV. The item content articulates around high quantitative (too much workload) and qualitative (incompatibility between the quality and quantity of work) workload; and threat (perhaps partly originating from excessive workload) to health. Therefore, Factor IV can be named: "role overload".

Central to the content of items forming Factor V in Table 7.2, is information circulation, disruption or inadequacy of communication channels, and the ambiguity of information; seem to be the common perceived source of stress. The label which looks more pertinent to Factor V is simply "communications".

Factors VI in Table 7.2, is composed of items tapping the ambiguity
Table 7.2: Factor items, loadings ($\geq .50$); communalities, explained variances, means and standard deviations.

<table>
<thead>
<tr>
<th>Factor I</th>
<th>PAY.</th>
<th>Mean</th>
<th>S.D</th>
<th>Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td>S 11 - The pay is much lower than the amount of effort and experience you put into your work.</td>
<td>4.10</td>
<td>.10</td>
<td>.9</td>
<td></td>
</tr>
<tr>
<td>S 17 - The pay looks right for the job you are doing (reversed scoring).</td>
<td>3.95</td>
<td>.98</td>
<td>.89</td>
<td></td>
</tr>
<tr>
<td>S 22 - The amount of money you earn in this factory encourage you to work harder and harder (scores reversed).</td>
<td>3.86</td>
<td>.89</td>
<td>.84</td>
<td></td>
</tr>
<tr>
<td>S 19 - Your pay is much lower than that of people you know having similar job.</td>
<td>3.40</td>
<td>.72</td>
<td>.83</td>
<td></td>
</tr>
<tr>
<td>S 12 - Your pay has not increased at the rate you expected it to be.</td>
<td>4.01</td>
<td>.80</td>
<td>.83</td>
<td></td>
</tr>
<tr>
<td>S 13 - Your pay is higher than the pay of your relatives, neighbours, and friends working in industry (Scores reversed).</td>
<td>3.43</td>
<td>.77</td>
<td>.83</td>
<td></td>
</tr>
<tr>
<td>S 15 - The way the pay is handled around discouraged hard work.</td>
<td>3.81</td>
<td>.91</td>
<td>.81</td>
<td></td>
</tr>
<tr>
<td>S 18 - Compared with two years ago, you are able to afford a better quality of living (scores reversed).</td>
<td>3.09</td>
<td>.84</td>
<td>.79</td>
<td></td>
</tr>
<tr>
<td>S 16 - Your pay is much below the normal cost of living in this city.</td>
<td>4.45</td>
<td>.76</td>
<td>.79</td>
<td></td>
</tr>
<tr>
<td>S 21 - There is sometimes, a substantial increase in your pay (scores reversed).</td>
<td>4.16</td>
<td>.73</td>
<td>.78</td>
<td></td>
</tr>
<tr>
<td>S 20 - Some bonuses that you think you are entitled to are not given to you.</td>
<td>4.91</td>
<td>.77</td>
<td>.73</td>
<td></td>
</tr>
<tr>
<td>S 14 - Your present pay and bonuses enable you to make some monthly savings (scores reversed).</td>
<td>4.06</td>
<td>1.13</td>
<td>.72</td>
<td></td>
</tr>
</tbody>
</table>

Percentage of explained variance: 30%

Communality: .81

<table>
<thead>
<tr>
<th>Factor II</th>
<th>CAREER.</th>
<th>Mean</th>
<th>S.D</th>
<th>Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td>S 27 - You do not feel you are getting anywhere on your job in the future.</td>
<td>3.60</td>
<td>1.09</td>
<td>.78</td>
<td></td>
</tr>
<tr>
<td>S 28 - You feel you are getting ahead in this factory (scores reversed).</td>
<td>3.65</td>
<td>1.02</td>
<td>.77</td>
<td></td>
</tr>
<tr>
<td>S 23 - You feel you have stayed at the present rank for too long.</td>
<td>3.83</td>
<td>1.15</td>
<td>.77</td>
<td></td>
</tr>
</tbody>
</table>
S 30 - Working too hard or having a long experience has usually no effect on the way promotions are handled around.  
3.41  .96  .71

S 31 - Good jobs, you think you are entitled to, are usually taken before you hear of them, in this factory.  
3.28  .76  .71

S 25 - To be promoted in this factory, one must work hard and have a good behaviour (score reversed).  
3.32  .91  .68

S 29 - You are provided with opportunities for training to improve your skills. (score reversed).  
3.42  .97  .64

S 26 - Most people who get ahead in this factory do not deserve it.  
3.44  .83  .64

S 24 - For the kind of job you are doing, there is no chance for training or for progress.  
3.25  1.11  .58

S 47 - You get confused of the way promotions are handled in this factory.  
3.44  .79  .56

Percentage of explained variance : 12%
Communality : .74

Factor III : ROLE CONFLICT.  

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Mean</th>
<th>S.D</th>
<th>Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td>S 34</td>
<td>You feel being caught between two opposite demands : demands from your workmates, and demands from your supervisors.</td>
<td>3.25</td>
<td>1.17</td>
<td>.90</td>
</tr>
<tr>
<td>S 33</td>
<td>You receive demands, instructions, or requests that are totally different, from your superiors.</td>
<td>3.30</td>
<td>1.22</td>
<td>.89</td>
</tr>
<tr>
<td>S 35</td>
<td>The instructions, demands, or requests you are asked to execute complement one another. (score reversed).</td>
<td>3.05</td>
<td>.91</td>
<td>.87</td>
</tr>
<tr>
<td>S 40</td>
<td>What you are asked to do on your job, matches your own opinion or judgement (score reversed)</td>
<td>3.44</td>
<td>.80</td>
<td>.82</td>
</tr>
<tr>
<td>S 39</td>
<td>To satisfy some people on your job you have to upset others.</td>
<td>3.53</td>
<td>.74</td>
<td>.81</td>
</tr>
<tr>
<td>S 36</td>
<td>Most of the demands and instructions you are asked to do go against your own opinion or judgement.</td>
<td>3.43</td>
<td>.85</td>
<td>.80</td>
</tr>
<tr>
<td>S 37</td>
<td>You feel able to satisfy totally different demands from different persons at work (score reversed).</td>
<td>3.32</td>
<td>.72</td>
<td>.80</td>
</tr>
<tr>
<td>S 32</td>
<td>Some of your workmates want you to do one thing, and some other workmates want you to do something else totally different.</td>
<td>3.40</td>
<td>1.10</td>
<td>.76</td>
</tr>
</tbody>
</table>

Percentage of explained variance : 8%
Communality : .83
### Factor IV: Role Overload

<table>
<thead>
<tr>
<th>Item</th>
<th>Mean</th>
<th>S.D</th>
<th>Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1.</td>
<td>How often do you have too much work that you cannot finish in a normal work day?</td>
<td>3.54</td>
<td>.92</td>
</tr>
<tr>
<td>S3.</td>
<td>How often do you have a right amount of work that keep you busy without much pressure? (score reversed)</td>
<td>3.56</td>
<td>.88</td>
</tr>
<tr>
<td>S2.</td>
<td>How often are you annoyed by having to do many things at the same time?</td>
<td>3.53</td>
<td>.92</td>
</tr>
<tr>
<td>S4.</td>
<td>How often does the high amount of work you have decrease the quality of the work done?</td>
<td>3.14</td>
<td>.81</td>
</tr>
<tr>
<td>S5.</td>
<td>To what extent is your job harmful to your health?</td>
<td>3.48</td>
<td>1.19</td>
</tr>
</tbody>
</table>

Percentage of explained variance: **6%**

Communality: **.7**

### Factor V: Communications

<table>
<thead>
<tr>
<th>Item</th>
<th>Mean</th>
<th>S.D</th>
<th>Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td>S46.</td>
<td>A lot of things happen in this factory without being informed.</td>
<td>4.00</td>
<td>.78</td>
</tr>
<tr>
<td>S50.</td>
<td>You are given enough information about what goes on in this factory (score reversed).</td>
<td>4.05</td>
<td>.74</td>
</tr>
<tr>
<td>S53.</td>
<td>You have little information of what you need to learn about your work. (score reversed).</td>
<td>3.50</td>
<td>.76</td>
</tr>
<tr>
<td>S48.</td>
<td>It is very hard to understand the purpose of many regulations and rules.</td>
<td>3.58</td>
<td>.74</td>
</tr>
<tr>
<td>S45.</td>
<td>Regulations, rules and instructions that concern your work are clearly explained to you. (score reversed).</td>
<td>3.28</td>
<td>.76</td>
</tr>
</tbody>
</table>

Percentage of explained variance: **5%**

Communality: **.41**

### Factor VI: Role Clarity

<table>
<thead>
<tr>
<th>Item</th>
<th>Mean</th>
<th>S.D</th>
<th>Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td>S44.</td>
<td>You are not clear about what to be done on your work or why it should be done.</td>
<td>1.65</td>
<td>.67</td>
</tr>
<tr>
<td>S42.</td>
<td>You know what has to be done or why it should be done (score reversed).</td>
<td>1.58</td>
<td>.64</td>
</tr>
<tr>
<td>S51.</td>
<td>You cannot know (anticipate) what your workmates expect you to do on your work.</td>
<td>2.54</td>
<td>.62</td>
</tr>
</tbody>
</table>
regarding one's role content, predictability of others' expectations, and lack of performance feedback. Therefore, the underlying dimension seems to be ambiguity. However, considering the mean and standard deviation for each item pertaining to Factor VI, three items have means below 2. This value corresponds to the response category "rarely ambiguous", and the two remaining items possess means approaching 3, that is, close to a moderate level of ambiguity. Thus, the highest mean is 2.54 with a standard deviation of 0.62 indicating that only a negligible proportion of individuals reported frequent instances of role ambiguity, whereas the majority reported high frequencies of role clarity. Therefore, perceived role clarity is much more salient than perceived ambiguity.
Factor VI is, consequently, termed "role clarity" instead of "role ambiguity".

Factor VII is the shortest. Those items with fairly high loadings (Items 7 and 9 in Table 7.2) tap task monotony and simplicity. Two other items concern physical working conditions. The items generally concentrate on the physical characteristics of the task and the surrounding physical working conditions. Factor VII can be called "task and working condition", and can be shortened simply to "task" implying the inclusion of physical working conditions.

(vii) Perceived work stressor indices.

Since Principal Component procedure was used mainly as an empirical classificatory device to form clusters of variables, the scores of items were summed across the sample using their original metric instead of adopting derived weights of the item scores.

Therefore, seven composite indices (sub-scales or variables) corresponding to the seven factors extracted for perceived work stressors were created by adding the item scores forming each factor. The seven composite indices were: pay, career, role conflict, role overload, communications, role clarity and task.

Having constructed the work stressor indices, a question emerges: are these sub-scales reliable?

To measure the reliability for Principal Component-derived indices, two methods are relevant: The first is Cronbach's alpha of internal consistency and the second is Theta reliability. Cronbach's (1951) alpha is a general formula that subsumes the Spearman-Brown prophecy formula and related Split-half methods, as well as Kuder-Richardson coefficients. Theta coefficient (Armor, 1974) is used when composite weighted scale items are derived by the principal component procedure and orthogonally rotated. For a single factor solution, the reliability of the composite scores based on this factor is assessed by the following formula:

$$\theta = \left[ \frac{n}{(n-1)} \right] \left[ 1 - (1-\lambda) \right]$$

where $\lambda$ is the first eigenvalue of a principal-component analysis, and $P$ is the
number of items. Armor (1974), specifying the circumstances appropriate to either of the two methods, states that given a group of derived factors, one can construct unweighted scales using the highest loading items on each factor. In such circumstance empirical results demonstrate that usually Alpha coefficient is superior in magnitude than Theta coefficient for multiple factor solution.

Since the composite scales of the factors with unweighted items were used with respect to perceived work stressors, Cronbach's alpha of internal consistency is more relevant.

Table 7.3 shows the intercorrelations, mean, standard deviation and Cronbach's alpha coefficients of internal consistency relative to the composite indices of work stressors. Internal consistency coefficients range from moderate ($\alpha = .75$) to high ($\alpha = .97$). All perceived work stressor sub-scales, therefore, can be used as reliable variables in subsequent analysis, except the sub-scale of role clarity. This composite index is ignored because, contrary to other subscales measuring different aspects of work stressors that are perceived as salient characteristics of work stress, role clarity is associated with negligible frequency of ambiguity and therefore cannot be considered as a salient source of stress.

In addition to the earlier composite sub-scales of perceived work stressors, a general index of perceived work stressors was constructed by summing items scores belonging to all perceived work stressor sub-scales, except those pertaining to role clarity sub-scale for the reason mentioned earlier. This overall scale of perceived work stressors exhibits a substantial alpha coefficient of internal consistency ($\alpha = .94$).

The correlations among perceived work stressor sub-scales range from weak to moderate, indicating their relative independence to one another. The overall index of perceived stressors is highly related to career stressor sub-scale ($r = .80$), and moderately associated with Pay stressor ($r = .71$), Communication stressor ($r = .62$), Work overload ($r = .61$), Task stressor ($r = .56$), and Role conflict ($r = .52$) sub-scales.
TABLE 7.3: Intercorrelations of perceived stressor indices (sub-scales), Cronbach's alpha coefficients of reliability, means, and standard deviations (S.D) (n = 110).

<table>
<thead>
<tr>
<th>Perceived work stressor indices.</th>
<th>Intercorrelations</th>
<th>Mean</th>
<th>S.D</th>
<th>Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Pay.</td>
<td></td>
<td>3.85</td>
<td>.74</td>
<td>97</td>
</tr>
<tr>
<td>(2) Career.</td>
<td></td>
<td>3.47</td>
<td>.80</td>
<td>94</td>
</tr>
<tr>
<td>(3) Role conflict.</td>
<td></td>
<td>3.25</td>
<td>.80</td>
<td>94</td>
</tr>
<tr>
<td>(4) Overload.</td>
<td></td>
<td>3.45</td>
<td>.79</td>
<td>91</td>
</tr>
<tr>
<td>(5) Communications.</td>
<td></td>
<td>3.68</td>
<td>.65</td>
<td>87</td>
</tr>
<tr>
<td>(6) Role clarity.</td>
<td></td>
<td>2.04</td>
<td>.48</td>
<td>77</td>
</tr>
<tr>
<td>(7) Task.</td>
<td></td>
<td>3.56</td>
<td>.69</td>
<td>75</td>
</tr>
<tr>
<td>(8) Overall stressor index.</td>
<td></td>
<td>3.54</td>
<td>.48</td>
<td>94</td>
</tr>
</tbody>
</table>

Note: Decimal points are omitted for correlation coefficients and Alpha coefficients of internal consistency. The overall stressor index is formed by summing the item scores of all stressor sub-scales except role clarity sub-scale. Figures are rounded to two decimal points.

- \( r = .19 \), ( \( P < .05 \), two-tail test )
- \( r = .25 \), ( \( P < .01 \), two-tail test )

In summary, perceived work stressor items were initially categorized on a priori ground into five perceived work stressor sub-scales. Then, Principal Component procedure was performed yielding seven orthogonally-rotated components (factors) explaining a total of 69% variance. The retained seven factors were named: Pay, Role conflict, Career, Communications, Role overload, Role clarity and Task. Seven perceived work stressor indices (composite sub-scales) were constructed by summing the scores of items, loading highly (equal or greater than the cut-off point: .50) on their respective factors. Cronbach's alpha coefficients of these unweighted composite sub-scales of perceived work stressors ranged from moderate (\( \alpha = .75 \)) to high (\( \alpha = .97 \)). One sub-scale, namely, "role clarity" was not retained for subsequent use as it was associated with negligible perceived role ambiguity. An overall index was formed by summing
the scores of the retained sub-scales of perceived work stressors.

7.3.2 COPING STRATEGY MEASURE.

Coping refers to cognitive-affective, and behavioural attempts to deal with (e.g. master, control, tolerate, avoid, redefine, etc.) perceived work stress-inducing conditions.

In the main study, 35 coping items (coping strategies) were adopted from the coping literature (Aldwin, et al. 1980; Lazarus and Folkman, 1984; Pearlin and Schooler, 1978; Sidle, et al. 1969), or designed to match the socio-cultural environment and the sample characteristics. The items used were supposed to cover behavioural, cognitive and emotional coping attempts. Respondents were asked how often they have thought or behaved in the way described by the coping statements when faced with problems, difficulties, hassles and painful experiences at work. The five-response choices and the scoring of each coping statement consisted of: "Never" = 1; "Rarely" = 2; "Sometimes" = 3; "Often" = 4; and "Always" = 5, so that the higher the score the more frequent the use of a coping strategy.

(i) Factor analysis of coping items.

To reduce the coping items to a few factors that summarize the information in the data, principal component procedure was used. The initial matrix of item loadings was rotated by means of Varimax method. The decision concerning the number of components to be retained was made on the basis of three criteria: First: The loadings should initially be associated with eigenvalues not less than one. Second: The Scree Test, based on plotting eigenvalues, roughly identifies the number of factors at the level of which the curve levels-off. (Figure 7.3) Third: Selecting the best interpretable configuration or set of components within the range of factors determined by the two previous criteria.

Therefore, 8 factors were retained. They account for 62% of the variance. The cut-off point between high and low item loadings was set to .45. Those
item loadings equal or greater than .45 on a particular factor were considered. Generally, the factors' items range from two to six items. Table 7.4 provides the type of items pertaining to each factor, factor labels, loadings, means, standard deviations, percentage of explained variance by each factor, and communalities.

On the other hand, Figure 7.4 displays the item clusters of the retained factors drawn in a two-dimensional space of the two first factors. Each factor is depicted by three isoplanes: the inner isoplane surrounds items with 70% or more of the variance accounted for by the respective factor. The next isoplane is drawn around items with 59 to 69% of their variance explained by the respective factor. Finally, the outer isoplane comprises items with 16 to 58% of the explained variance. Thus, the figure provides a clear visual.
factor items. The inner isoplane surrounds items with 70% or more of their variance accounted for by the factor. The second isoplane contains items with 59–69%, and the outer isoplane includes items with 16–58% variance.

Figure 7.4: Location of factors on the first two rotated factors' space. Isoplanes are drawn around the points to distinguish loading magnitudes of a factor items. The inner isoplane surrounds items with 70% or more of their variance accounted for by the factor. The second isoplane contains items with 59–69%, and the outer isoplane includes items with 16–58% variance.
configuration of factors, their locations, and the importance of items expressed in terms of percentages of variance explained by their respective factors.

Factor I, in Table 7.4, involves items indicating greater religiosity as a way of dealing with work stressors and also some existential reflexions such as thinking that error is human, etc. Despite the apparent differences, the items seem to converge in that both religious beliefs and existential thoughts are external resources the respondent resorts to, in order to cope with perceived stressful situations. Therefore, Factor I can be termed "externalization" on the ground that this belief system is thought to have an inherent power that transcends the respondent and that aids him to manage, reduce, or control perceived work stressors.

Items composing Factor II, in Table 7.4, reflect frequent interest in non-work activities such as hobbies and entertainment, and activation of social interaction with family members and friends. The means of these items approaching 4, indicating (with regard to the five-point scale metric) fairly high frequencies of coping through non-work activities. Consequently, Factor II can be labelled "Non-work activities".

Factor III comprises items whose means show different magnitudes. That is, Item 25 indicates that respondents rarely manifest their emotions in response to work stressors; it follows that workers tend frequently to inhibit their emotional strains. Item 9 denotes that respondents transfer fairly rarely their emotional strains induced by work stressors to other objects or persons. So, workers tend to retain their tensions, anger or irritation, etc., rather than shifting them to other objects or individuals. The rest of items reflect moderate frequency of withdrawing from the stressful situations by planning to be absent from work (Item 15), and to leave the factory (Item 21), or by doing nothing about the stressful situation (Item 22). Additionally, it is possible, contextually, that Item 27 indicates that the respondents sometimes refrain from acting in order to think of other workers' ways of coping with a similar situation. On the basis of the foregoing analysis of item
contents, it seems that the label, "Withdrawal" applies to Factor III.

Items composing Factor IV denote the evaluation of behaviour capabilities and limitations. In addition, one item indicates the respondents' appraisal of the situation. Considering the item means, coping by evaluating one's conduct and limitations, and by appraising the situation was frequently adopted by respondents. As the process of evaluation is present across the three coping strategies, the labelling of Factor IV as simply "evaluation" is warranted.

Factor V is composed of item suggesting active coping, that is, working harder and harder, perhaps to overcome the difficulties encountered (Item 18), tackling work stressors according to their priorities (Item 19), and, finally, increasing one's control of work difficulties through learning (Item 31). The item means suggest that respondents frequently resort to these strategies. Since the idea underlying the three items is active coping or taking action, the simple term "Action" is, therefore, selected to summarize the items of Factors V.

The items relative to Factor VI indicate that respondents rarely confront other workers concerned with the issue (Item 32), and rarely explain their difficulties to their supervisors (Item 10). Respondents also tend sometimes to discuss problems that come up with workers concerned, and sometimes seek an intermediate solution perhaps to satisfy the opponents and, hence, to reduce their pressures; or perhaps, is a device to protect against or to avoid their pressures.

Central to these items is the idea of avoidance (avoidance of confrontation, avoidance of explaining difficulties, etc.). Therefore Factor VI can be called "avoidance". It should be noted that "avoidance" here differs from "withdrawal" (the label of Factor III) in that "avoidance" does not necessarily take place as a result of the experience of work stressors, but the threat may be anticipated, and therefore avoided. Withdrawal, however, follows the experience of a stressful situation, and often (although not necessarily)
### TABLE 7.4 Factor items, loadings (≥ .45), communalities, explained variances, means and standard deviations.

<table>
<thead>
<tr>
<th>Factor I : EXTERNALIZATION.</th>
<th>Mean</th>
<th>S.D</th>
<th>Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td>C 30. You read or listen to Koran or religious talks.</td>
<td>3.45</td>
<td>1.27</td>
<td>.97</td>
</tr>
<tr>
<td>C 6 - You seek the help of God.</td>
<td>3.36</td>
<td>1.25</td>
<td>.97</td>
</tr>
<tr>
<td>C 12 - You engage in more and more prayer.</td>
<td>3.36</td>
<td>1.25</td>
<td>.96</td>
</tr>
<tr>
<td>C 24 - You think more and more about religion and God, when in difficulties.</td>
<td>3.44</td>
<td>1.19</td>
<td>.95</td>
</tr>
<tr>
<td>C 13 - You tell yourself that for everything bad there is also something good.</td>
<td>3.41</td>
<td>1.11</td>
<td>.89</td>
</tr>
<tr>
<td>C 5 - You remind yourself that error is human.</td>
<td>3.48</td>
<td>1.11</td>
<td>.88</td>
</tr>
</tbody>
</table>

Percentage of explained variance 18%
Communality .55

<table>
<thead>
<tr>
<th>Factor II : NON-WORK ACTIVITIES.</th>
<th>Mean</th>
<th>S.D</th>
<th>Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td>C 8 - You become more engaged in the out-of-work activities like watching T.V, tinkering, etc..</td>
<td>3.63</td>
<td>1.37</td>
<td>.91</td>
</tr>
<tr>
<td>C 11- You get more involved with your children, wife, parents, relatives and friends.</td>
<td>3.75</td>
<td>1.2</td>
<td>.91</td>
</tr>
<tr>
<td>C 34- You set aside a certain time during the evenings and weekends when you do anything that is not related to work.</td>
<td>3.5</td>
<td>1.19</td>
<td>.87</td>
</tr>
</tbody>
</table>

Percentage of explained variance 10%
Communality .59

<table>
<thead>
<tr>
<th>Factor III : WITHDRAWAL.</th>
<th>Mean</th>
<th>S.D</th>
<th>Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td>C 9 - You direct your tension, anger, irritation, caused by work problems, towards other persons or objects.</td>
<td>2.51</td>
<td>1.51</td>
<td>.73</td>
</tr>
<tr>
<td>C 15- Planning not to go to work the day after.</td>
<td>2.93</td>
<td>1.41</td>
<td>.67</td>
</tr>
<tr>
<td>C 25- You try to bring your feelings into the open.</td>
<td>2.25</td>
<td>1.37</td>
<td>.67</td>
</tr>
<tr>
<td>C 27- You try to remember how other workers in a situation like yours, handle the problems.</td>
<td>3.22</td>
<td>1.24</td>
<td>.59</td>
</tr>
<tr>
<td>C 21- When problems accumulate, you think of quitting this factory to another one.</td>
<td>3.13</td>
<td>1.49</td>
<td>.58</td>
</tr>
<tr>
<td>C 22- You do nothing about it.</td>
<td>3.05</td>
<td>1.26</td>
<td>.46</td>
</tr>
</tbody>
</table>

Percentage of explained variance 8%
Communality .45
### Factor IV: EVALUATION

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Mean</th>
<th>S.D</th>
<th>Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>C 16</td>
<td>You look at your conduct, what is wrong with it.</td>
<td>3.99</td>
<td>.82</td>
<td>.89</td>
</tr>
<tr>
<td>C 14</td>
<td>You remind yourself your limitations: What you can do and what you cannot do.</td>
<td>3.85</td>
<td>.86</td>
<td>.87</td>
</tr>
<tr>
<td>C 2</td>
<td>You try to understand what goes wrong.</td>
<td>4.1</td>
<td>.69</td>
<td>.58</td>
</tr>
</tbody>
</table>

Percentage of explained variance: 7%
Communality: .44

### Factor V: ACTION

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Mean</th>
<th>S.D</th>
<th>Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>C 18</td>
<td>You work harder and harder.</td>
<td>3.99</td>
<td>.82</td>
<td>.75</td>
</tr>
<tr>
<td>C 19</td>
<td>You set priorities among problems: which should be tackled first, which second, etc..</td>
<td>3.93</td>
<td>.73</td>
<td>.73</td>
</tr>
<tr>
<td>C 31</td>
<td>You try to learn your work more and more.</td>
<td>4.15</td>
<td>.56</td>
<td>.70</td>
</tr>
</tbody>
</table>

Percentage of explained variance: 6%
Communality: .81

### Factor VI: AVOIDANCE

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Mean</th>
<th>S.D</th>
<th>Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>C 28</td>
<td>You discuss the matter with the individuals concerned with the problem.</td>
<td>2.86</td>
<td>1.46</td>
<td>.74</td>
</tr>
<tr>
<td>C 32</td>
<td>You face or confront the persons with whom you have problems.</td>
<td>1.95</td>
<td>.77</td>
<td>.61</td>
</tr>
<tr>
<td>C 17</td>
<td>You look for an intermediate solution to the problem, with people concerned</td>
<td>3.25</td>
<td>1.3</td>
<td>.61</td>
</tr>
<tr>
<td>C 10</td>
<td>You try to explain your difficulties to your superiors.</td>
<td>2.62</td>
<td>1.41</td>
<td>.49</td>
</tr>
</tbody>
</table>

Percentage of explained variance: 5%
Communality: .95

### Factor VII: TENSION REDUCTION

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Mean</th>
<th>S.D</th>
<th>Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>C 1</td>
<td>You talk about your problems and difficulties of work with your family.</td>
<td>2.15</td>
<td>1.34</td>
<td>.62</td>
</tr>
<tr>
<td>C 33</td>
<td>You reassure yourself that everything will be alright.</td>
<td>3.72</td>
<td>1.22</td>
<td>.60</td>
</tr>
</tbody>
</table>
You put a lot of humour and jokes in your conversation with your workmates.

<table>
<thead>
<tr>
<th>Percentage of explained variance :</th>
<th>5%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communality</td>
<td>.58</td>
</tr>
</tbody>
</table>

Factor VIII : SUPPORT SEEKING.

<table>
<thead>
<tr>
<th>C 29 - You discuss frankly with your supervisor the things that bother you:</th>
<th>3.0</th>
<th>1.38</th>
<th>.72</th>
</tr>
</thead>
<tbody>
<tr>
<td>C 3 - You seek the help of others at work.</td>
<td>3.14</td>
<td>1.42</td>
<td>.52</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Percentage of explained variance :</th>
<th>4%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communality</td>
<td>.86</td>
</tr>
</tbody>
</table>

takes physical form, that is, physical withdraw from a situation.

With reference to factor VII, the mean frequency of Item 1 suggests that workers tend rather not to talk about the work problems with their families, perhaps to insulate family life from work stressors, or to forget and, therefore, to reduce related strain. The two remaining items denote optimistic attitudes towards problem resolution and resort to more sense of humour in the interaction. Therefore, these coping strategies concentrate on the reduction of affective strain induced by perceived work stressors, instead of focusing on the modification of these perceived stressors per se. Factor VII can be named by the underlying process: "tension reduction".

Factor VIII is composed of two items indicating a moderate tendency of respondents to discuss with the supervisor work problems, perhaps to obtain some support from him. The other item suggests a moderate tendency to seek help. Hence, Factor VIII can be labelled "support seeking".

(ii) Coping strategy indices.

It is recalled that items with loadings equal or greater than .45 were
considered important elements in determining the content or structure of a factor. For each factor, items with high loadings were summed for each individual using the unweighted original scores of items. Coping indices constructed maintained their respective factor labels.

Cronbach's alpha coefficient of internal consistency was computed for each composite coping index (coping sub-scale, coping pattern). Table 7.5 shows alpha coefficients of reliability, together with intercorrelation coefficients, means, and standard deviations. It can be seen that the alpha coefficients for "externalization" and "non-work activities" are very high; those for "withdrawal", "evaluation" and "action" are moderate and acceptable. However, the alpha coefficients for "avoidance", "tension reduction", and "support-seeking" are insufficient. Since these last three coping indices fail to reach an acceptable level of reliability, they are ignored.

Item score pertaining to the first five reliable coping indices were summed to constitute an overall index of coping. This overall coping exhibits a moderate and acceptable Cronbach's alpha coefficient of .757 as indicated in Table 7.5.

The intercorrelations among the first five coping indices (or coping sub-scales) suggest that these coping sub-scales are quite independent since the magnitudes of the correlation coefficients are generally weak. The relationships of these five coping indices to overall coping index are all significant at (P < .01) and the magnitudes of these associations range from a fairly low (r = .24) to a moderate (r = .63) coefficient of correlation.

To summarize, principal component procedure and Varimax rotation revealed the existence of eight interpretable factors accounting for 62% variance. These factors were labelled: Externalization, Non-work activities, Withdrawal, Evaluation, Action, Avoidance, Tension reduction, and Support-seeking.

These factors were transformed into coping strategy indices (coping strategy sub-scales or patterns of coping strategies) by adding the original
TABLE 7.5: Intercorrelations of coping indices (sub-scales), Cronbach's alpha coefficient of reliability, mean and standard deviation (n = 110).

<table>
<thead>
<tr>
<th>Coping indices.</th>
<th>Intercorrelation coefficients</th>
<th>Mean</th>
<th>S.D</th>
<th>Alpha (α)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1) (2) (3) (4) (5) (6) (7) (8)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1) Externalization</td>
<td></td>
<td>3.4</td>
<td>1.14</td>
<td>98</td>
</tr>
<tr>
<td>(2) Non-work</td>
<td></td>
<td>3.62</td>
<td>1.17</td>
<td>92</td>
</tr>
<tr>
<td>Activities.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(3) Withdrawal.</td>
<td></td>
<td>2.85</td>
<td>.89</td>
<td>72</td>
</tr>
<tr>
<td>(4) Evaluation.</td>
<td></td>
<td>3.98</td>
<td>.67</td>
<td>79</td>
</tr>
<tr>
<td>(5) Action.</td>
<td></td>
<td>4.02</td>
<td>.55</td>
<td>66</td>
</tr>
<tr>
<td>(6) Avoidance.</td>
<td></td>
<td>2.67</td>
<td>.79</td>
<td>49</td>
</tr>
<tr>
<td>(7) Tension</td>
<td></td>
<td>3.07</td>
<td>.71</td>
<td>31</td>
</tr>
<tr>
<td>reduction</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(8) Support-seeking</td>
<td></td>
<td>3.07</td>
<td>1.1</td>
<td>35</td>
</tr>
<tr>
<td>(9) Overall coping</td>
<td></td>
<td>3.58</td>
<td>.46</td>
<td>75</td>
</tr>
<tr>
<td>Index.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Decimals are omitted for correlations and alpha coefficients. All entries are rounded to two decimal points. The Overall Coping Index was constructed by summing the item scores of the first five reliable sub-scales of coping.

\[ r = 0.19 \quad (P < 0.05, \text{ two tail test }) \]
\[ r = 0.25 \quad (P < 0.01, \text{ two tail test }) \]

scores of items with high loadings (equal or greater than the cut-off point: 0.45). The first five sub-scales exhibited from high to moderate Cronbach's alpha coefficients of internal consistency, and were, therefore, retained for subsequent use. While the rest of coping sub-scales, namely, "avoidance", "tension reduction", and "help seeking" were excluded from further consideration because of their low reliability coefficients.

An overall index of coping was constructed by summing the items relative to the first five reliable sub-scales. Cronbach's alpha coefficient of this overall index was moderate, and the correlations with its component sub-scales were, generally, highly significant, although moderate in size. The five reliable
sub-scales of coping strategies were quite independent to one another, owing to the low magnitudes of their intercorrelations.

7.3.3 STRAIN MEASURES.

Measures that purport to assess psychological and psychosomatic strains, in the present research consist of anxiety, depression, dissatisfaction and psychosomatic complaints. Initial measures of these strain indicators have been constructed and tested in the pilot study, and various alterations and additions have been introduced to the strain sub-scales in the main study.

(i) Anxiety measure

Anxiety is conceived of as an affective state consisting of "unpleasant, consciously-perceived feelings of nervousness and apprehension..." (Spielberger, 1972). The scale used comprised 13 items principally adapted from Taylor's (1953) Scale of Manifest Anxiety and addressed, mainly, worries, nervousness or tension, and fear. 12 items were negatively worded so that an affirmative response indicates greater anxiety; and 2 items were positively worded denoting decreased anxiety. Some illustrative examples are:

"There are, many things you worry about at work".

"You feel fidgety or nervous as a result of your work".

"You have the feeling that you are going to crack up".

"On your way to the factory, you are afraid of things that may happen to you at work".

All items were rated on a five-point response scale ranging from: "never" = 1, to "every time" = 5, so that the higher the score, the greater the anxiety. Scores for positively-worded items were reversed in the direction of increased anxiety.

The 13-item scores were summed for each individual in the sample to yield a composite index of anxiety. The anxiety index (or anxiety sub-scale) has a moderate Cronbach's alpha coefficient of internal consistency ($\alpha = .68$). The mean is $2.99$ (SD = .76), suggesting that approximately two thirds
of the respondents reported moderate frequency of anxiety.

The intercorrelations of Anxiety Index with other strain indices, in Table 7.6, indicate that Anxiety sub-scale is moderately associated with Depression, and Psychosomatic Complaints (r = .53 and .59 respectively), and weakly related to Dissatisfaction (r = .32). However, anxiety sub-scale is highly correlated with the Overall Strain Index (r = .83). It can be concluded that Anxiety sub-scale can be considered as a relatively independent measure of work strain.

(ii) Depression measure.

Depression is conceived of as a mood state characterized by a sense of inadequacy, sadness, hopelessness, passivity, agitation, helplessness, irritation, guilt, indecision and desinterest.

12 items were selected or adapted from Zung's (1965) Self-Rating Depression Scale to the work environment. This scale was chosen because of its shortness, ability to differentiate the depressive reaction from anxiety reaction (Zung, et al. 1965) and the easiness of the item wording.

The set of items used consisted of nine negatively worded items indicating increased feelings of depression, and three positively-worded items denoting decreased depression. Illustrative examples of the former are:

"You feel downhearted and blue at work".

"You feel you have little or no interest in doing things at work".

Illustrative examples of the latter are:

"You feel calm and cannot be easily upset by work problems".

"You enjoy things you used to at work".

All the items were associated with five response categories scored from 1 = "never", to 5 = "Every time". Scores relative to positively-worded items were reversed so that the higher the score, the greater the depression.

As indicated in Table 7.6, Depression sub-scale exhibits a high Cronbach's alpha coefficient (α = .87). The mean: 3.19, and the standard deviation: .87, indicate that most cases report a moderate level of depression. Depression
sub-scale is highly related to Overall Strain Index ($r = .83$) but shows a moderate association with Anxiety Index ($r = .53$) and Psychosomatic Complaints ($r = .48$), and a weak correlation with Dissatisfaction Index ($r = .39$), although these correlation coefficients are highly significant. It seems, therefore, that Depression sub-scale is relatively independent from other strain indices such as dissatisfaction, anxiety, and psychosomatic complaints.

(iii) Dissatisfaction measure.

Job satisfaction refers to "pleasurable emotional state resulting from the appraisal of one's job as achieving or facilitating the achievement of one's job values" (Locke, 1969).

Because job satisfaction was used in the present study as an indicator of work strain among other indices, the construction of a short scale to measure satisfaction is warranted. A satisfaction scale can be designed to measure a general attitude towards work in general, or to measure specific satisfactions vis-à-vis particular work dimensions.

In the pilot study, the last approach was used, that is, satisfaction concerning specific work dimensions. It was observed that the worker encountered only minor difficulties in understanding work dimension satisfaction. Therefore, most items used in the pilot study have been adopted in the main study.

Recurrent work aspects addressed by satisfaction measures in the literature include: organization as a whole, pay, opportunities for promotion, the job itself, immediate superior, and co-workers (Cross, 1973). The scale of work dissatisfaction used incorporates all these dimensions in addition to:

(a) One item concerning satisfaction with workers' representatives.
(b) One item measuring overall job satisfaction.

Of importance is Cook et al's (1981) recommendation to include in many cases measures of both overall job satisfaction and specific satisfactions. Therefore, the scale used operationalizes job satisfaction as a summation of feelings of like or dislike (satisfaction / dissatisfaction) vis-à-vis a
number of work dimensions, namely: organization, supervisor, co-workers, workers' representatives, physical working conditions, task, promotion, participation, communication, and pay. A few illustrative examples are:
"How much do you like the way your workmates get along with each other".
"How satisfied are you with the working conditions such as lighting, temperature, safety, hygiene, etc.?"

The only item that addresses facet-free work satisfaction is:
"Considering the things you like and things you dislike at work, generally speaking, how satisfied are you with your job as a whole?"

Items were scored on a 5-point scale ranging from "Not at all" to "Completely" and ranged from 1 to 5 respectively, so that the higher the score the higher work satisfaction. The item scores were summed to form an index of work satisfaction. It should be noted that the negative label: "dissatisfaction" was preferred to "satisfaction" because it was regarded as an indicator of affective strain among other strain indices such as anxiety, depression, and psychosomatic symptoms. Therefore, the foregoing satisfaction-directed scoring was reversed in the direction of increased dissatisfaction. The item scores were summed to construct an index of work dissatisfaction.

Dissatisfaction Sub-scale has a high Cronbach's alpha coefficient ($\alpha = .87$) with a mean of 3.09 and a standard deviation of .51. Table 7.6 shows that dissatisfaction sub-scale is moderately related to the Overall Strain Index ($r = .58$). With reference to other strain indices, weak correlation magnitudes exist between Dissatisfaction sub-scale and Anxiety ($r = .32$), Depression ($r = .39$), and Psychosomatic Complaints ($r = .23$). Therefore, Dissatisfaction sub-scale is a relatively independent index from other strain indices.

(iv) Psychosomatic complaint measure.

The term "psychosomatic" was used instead of "physical" complaints (as is usually the case with many studies) because these somatic symptoms are correlates of psychological strain. For example, anxiety and depression are
TABLE 7.6: Intercorrelations of strain indices, Cronbach's alpha coefficients of reliability, means, and standard deviations (S.D) n=110

<table>
<thead>
<tr>
<th>Strain indices.</th>
<th>Intercorrelations</th>
<th>Mean</th>
<th>S.D</th>
<th>Cronbach Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
</tr>
<tr>
<td>(1) Anxiety.</td>
<td></td>
<td></td>
<td></td>
<td>2.99</td>
</tr>
<tr>
<td>(2) Depression.</td>
<td>53</td>
<td></td>
<td></td>
<td>3.19</td>
</tr>
<tr>
<td>(3) Dissatisfaction.</td>
<td>32</td>
<td>39</td>
<td></td>
<td>3.09</td>
</tr>
<tr>
<td>(4) Psychosomatic complaints.</td>
<td>59</td>
<td>48</td>
<td>23</td>
<td>2.71</td>
</tr>
<tr>
<td>(5) Overall Strain Index.</td>
<td>82</td>
<td>83</td>
<td>58</td>
<td>77</td>
</tr>
</tbody>
</table>

Note: Decimals for correlation coefficients and alpha coefficients are omitted. All entries are rounded to two decimal points. The Overall Strain Index were formed by summing the item scores of the remaining four strain indices.

\[
\begin{align*}
\text{r} &= .19 \quad (P < .05, \text{ two tail test }) \\
\text{r} &= .25 \quad (P < .01, \text{ two tail test })
\end{align*}
\]

associated with such physical symptoms as insomnia, headaches, poor appetite, weight loss, decreased sexual activity, gastrointestinal troubles (especially constipation), increased heart rate, and physical fatigue.

Items related to psychosomatic complaints were selected from Gurin et al.'s (1980) psychosomatic symptom inventory, and tested during the pilot study. The pilot study revealed that some items offended the respondent. Examples of such items were: "Are there times when you tend to cry easily?", and "Do you ever drink more than you should?". These types of questions were avoided in the main study.

Among psychosomatic items used in the pilot study, a set of ten items was adopted in the main study. These items address such psychosomatic complaints as headaches, loss of appetite, stomach troubles, fatigue, increased heart rate, nightmares, dizziness, mental exhaustion, and general body ailments.

Some illustrative examples of the scale are:

"How often do you have headaches or pains in the head?"
"How often are you bothered by having an upset stomach?"

"How often do you have spells of dizziness?"

The five-response categories and scoring range from "never" = 1, to "Almost always" = 5, so that the higher the score the more frequent the psychosomatic complaints. The scores for each respondent were summed over the 10 items to form an index of psychosomatic complaints.

With reference to reliability, it is worth mentioning that Quinn and Staines (1979), in their National Study of the Quality of Employment in the United States, used an 11-item index of psychosomatic symptoms derived from Gurin et al.'s checklist, and reported an internal consistency reliability of .80 (p. 235). The 10-item version of psychosomatic complaints (drawn from Gurin et al.'s checklist) used in the present study show a Cronbach's alpha coefficient of .78. The mean of the scale is 2.71 with a standard deviation of .68. The two statistical indices indicate that the reported frequency of psychosomatic complaints by the sample is slightly less than moderate.

Psychosomatic Complaints sub-scale as shown in Table 6.6 relates fairly high to Overall Strain Index (r = .77), moderately to Anxiety (r = .59) and Depression (r = .48), and somewhat low to Dissatisfaction (r = .23). Although the intercorrelations are all highly significant (P < .01), the strength of the relationships of strain indices (anxiety, depression, and dissatisfaction) to psychosomatic complaints are generally moderate, indicating that Psychosomatic Complaints sub-scale is a somewhat independent indicator of strain.

(V) OVERALL STRAIN INDEX.

The unweighted scores of the four strain sub-scales, namely, Anxiety, Depression, Dissatisfaction, and Psychosomatic Complaints, were summed to construct an Overall Strain Index (Overall Strain Scale).

The mean of the Overall Strain Index is 3, and the standard deviation is .54 suggesting that approximately two thirds of the respondents report moderate level of strain.
Overall strain scale, as indicated in Table 7.6, have a very high Cronbach's alpha coefficient of internal consistency, ($\alpha = .90$). Intercorrelations among the scale and its components show that Overall Strain Index is highly related to Anxiety ($r = .83$), Depression ($r = .83$), and Psychosomatic Complaints ($r = .77$), and is moderately associated with Dissatisfaction ($r = .58$). In general, the magnitude of these relationships indicates that Overall Strain Index represents its constituent strain sub-scales.

7.3.4 PERSONALITY MEASURES.

Three dimensions of personality have been considered: Type A/B pattern of behaviour, locus of control, and self-esteem. For each of these personality variables, a scale has been designed involving items selected and adapted from some personality measures.

(i) Type A/B pattern of behaviour measure.

Type A behaviour pattern predisposes to coronary heart diseases, increased serum lipids, accelerated blood coagulability, elevated excretion of catecholamines and congeners of coronary heart disease. A review of the relationship of type A behaviour pattern to coronary heart diseases can be found in Chapter II.

According to Rosenman and Chesney (1982), Type A behaviour pattern consists of "such behavioural dispositions as ambitiousness, aggressiveness, competitiveness and impatience. Specific behaviours such as alertness, muscle tenseness, rapid and emphatic speech stylistics; and emotional reactions such as enhanced irritation and expressed signs of anger". The relative absence of these characteristics forms type B behaviour pattern. Rosenman and Chesney (1982) distinguished between "Type A Behaviour Pattern" and "Anxiety State"
in that a person with anxiety state, withdraws or seeks support from others in the presence of overwhelming situational challenges, whereas Type A person confronts these challenges and does not retreat.

A number of measures have been developed to identify Type A Behaviour Pattern. The most widely used measures are: Structured Interview (SI) developed by Rosenman, Friedman and others (Chesney, et al. 1980; Rosenman, et al. 1964); Bortner's rating scale (Bortner, 1969); Jenkins Activity Survey (JAS) (Jenkins, Rosenman and Friedman, 1967; Jenkins, Rosenman and Zyzanski, 1974); Framingham Type A Scale (FTAS) (Haynes, et al. 1978); and Type A scale constructed by Vickers (1973) and refined by Sales (Caplan et al. 1975) for use in the occupational stress research at the Institute for Social Research, University of Michigan.

Bortner's rating scale was principally used in the pilot study. However, as the item formats of Bortner's rating scale looks similar to semantic differential rating scales, the items need further phrasing and clarification, and the response format need to be changed (simplified). Therefore, as the Structured Interview (SI) reflects various characteristics of Type A/B behaviour in a comprehensible and simplified style, the items used in the main study were drawn from the Structured Interview and slightly adapted to the social context of the study.

Among the 15 items used, 5 items were worded so that an affirmative response indicates a characteristic of type B behaviour (this is to reduce possible acquiescence responses), and 10 items were worded in the direction of Type A Behaviour Pattern. Illustrative examples of the former are:

"You usually see yourself a relaxed and easy going person".
"You usually do not mind being kept waiting (e.g. bus, doctor, friends, etc.)"

Illustrative examples of the latter are:

"You usually hurry a speaker to the point or interrupt him".
"You are usually fast in doing things (walking, eating, etc.)".
Type A Behaviour was identified on the basis of the number of "Yes" responses relative to type A Behaviour items in addition to the number of "No" responses relative to type B Behaviour items. The total number so computed was compared with the total number consisting of the frequency of "No" responses concerning Type A Behaviour items, and the frequency of "Yes" responses relative to type B Behaviour items. If the former was greater than the latter, the respondent was categorized as Type A. Surprisingly, 50% of the sample (55 respondents) happened to be Type A's, and the other 50%, type B's.

Having assigned type A and Type B the scores of 2 and 1 respectively, Cronbach's alpha coefficient of internal consistency associated with Type A/B behaviour scale is moderate (\( \alpha = .77 \)). As indicated in Table 7.7, Type A Behaviour Pattern scale is weakly related to Internal Locus of Control (\( r = -.13 \)) and Self-esteem (\( -.09 \)) scales. Therefore, it can be considered as an independent measure of personality characteristics.

(ii) Locus of control measure.

Locus of control refers to enduring cognitive tendency to believe that the outcomes of one's behaviour is due to his experience, abilities, and performance (internal locus of control) as opposed to the tendency to believe that one's behaviour outcomes are not under his control but rather under the influence of significant others, chance, luck, fate, etc. (Rotter, 1966)

Rotter's scale is perhaps the most widely used measure of locus of control. However, many researchers found that Rotter's scale is multidimensional (Gurin, et al. 1969; Mac Donald and Tseng, 1971; Mirels, 1970). According to Mac Donald (1973) two major factors have frequently emerged from different empirical studies: a factor of personal control, and a factor termed control ideology, that is, an individual's beliefs in the extent to which people have control in general.

The scale used in the main study was designed to assess:

(a) Beliefs in personal control over external events.
(b) Beliefs in other's control over the events.
(c) Beliefs in virtual sources of control such as luck, fate, etc.

Item selection was triggered by two main considerations:

First: The item should gauge one of the three aspects of locus of control mentioned earlier.

Second: The item should be understood without difficulties by illiterate workers. Consequently, 11 items were selected from James' scale (published in Robinson and Shaver, 1973, pp. 237-243), Rotter's scale (1966), Nowicki and Strickland's measure (1972), and Bialer-Cromwell's (Bialer, 1961) Scale.

An illustrative item, taken from James' scale is:
"Some people seem born to fail while others seem born for success no matter what they do".

An illustrative item slightly adapted from Rotter's and James' scales is:
"Planning ahead is a waste of time because something always turns up that cause you to change your planes".

An illustrative item drawn with modification from Bialer-Cromwell's scale is:
"Usually, bad things happen to you because of others' mistakes".

An illustrative item selected (with slight modification) from Nowicki and Strickland's measure is:
"If things start out well in the morning, it is going to be a good day no matter what you do".

The scale used contained 4 items indicating internal locus of control, and 7 items representing external locus of control. Respondents were asked to respond by "Yes, I agree" or "No, I disagree" to each item. When the frequency of "Yes" responses for Internal Locus of Control items in addition to the frequency of "No" responses for external locus of control items, exceed the frequency of "No" responses for internal locus of control responses, in addition to the frequency of "Yes" responses for the external locus of control items, a respondent was regarded as internal person. Therefore, there were 45 internals (41%) and 65 externals (59%). Internal respondents were assigned the score of 2, and external respondents the score of 1.
Cronbach's alpha coefficient of internal consistency for Internal Locus of Control Measure is moderate ($\alpha = .76$). Internal Locus of Control Index, as shown in Table 7.7, is weakly related to self-esteem ($r = .14$) and type A Behaviour Pattern ($r = -.13$) scales, indicating that the scale of locus of control is independent from both measures of personality characteristics.

(iii) Self-esteem measure.

Self-esteem refers to "the extent to which the individual believes himself to be capable, significant, successful and worthy" (Coopersmith, 1967; p. 4-5) which has some realistic basis (Crandall, 1973).

The items used were principally derived or adapted from the revised Janis-Field scale (Robinson and Shaver, 1973; pp. 76-80) concerned with self-esteem in social situations. Compared to Rosenberg (1965) self-esteem scale used in the pilot study, Janis-Field measure poses less problems of comprehension and is more geared toward social situations. To adjust for acquiescence response bias, 4 items were positively worded so that an affirmative response indicates higher self-esteem; and the remaining 5 items were worded in the direction of low self-esteem. Illustrative examples of the latter are:

"You usually have the feeling that there is nothing you can do well".
"There are a lot of things about yourself you would like to change if you could".

Illustrative examples of the latter are:

"Considering your work and social life, you think you are a successful person!"
"You usually feel comfortable when you start a conversation with people you do not know before".

Items were rated on a five-point scale running from "Not at all true" to "Completely true" and scored from 1 to 5 respectively in the direction of higher self-esteem. The scores for the negatively-worded items were reversed.

The scores of the scale items were summed to form a self-esteem index for each individual in the sample. Self-esteem scale, as indicated in Table 7.7, shows a moderate Cronbach's alpha coefficient ($\alpha = .71$). The scale mean is 3.5 and the standard deviation is .55, indicating that approximately two thirds of
Table 7.7: Correlation coefficients, Cronbach's alpha coefficients of reliability, percentages, means and standard deviations (SD) for the personality measures used (n = 110).

<table>
<thead>
<tr>
<th>Personality measures</th>
<th>Correlations</th>
<th>%</th>
<th>Mean</th>
<th>S.D</th>
<th>Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Type A behaviour pattern.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(2) Internal locus of control.</td>
<td>-.13</td>
<td>41%</td>
<td></td>
<td></td>
<td>.76</td>
</tr>
<tr>
<td>(3) Increased self-esteem.</td>
<td>-.09</td>
<td>.14</td>
<td>3.48</td>
<td>.55</td>
<td>.71</td>
</tr>
</tbody>
</table>

Note: Figures rounded to two decimal points:
\[ r = .19 \ ( P< .05 \ \text{two tail test}) \]

workers have self-esteem ranging from moderate to very high level.

Self-esteem index is weakly correlated with Type A Behaviour Pattern \( r =-.09 \) and Internal Locus of Control \( r = .14 \) scales (Table 7.7). Hence, self-esteem represents an independent measure from both personality measures.

7.3.5 CONTEXTUAL MEASURES.

Contextual variables are the characteristics of the micro-social environment of the organization as well as the macro-societal environment that are likely to impinge directly and indirectly upon workers' experience and responses to stress. Three aspects were singled out for examination: family-work interface, supportive relationships within the organization, and participation; and three measures were developed to gauge these organizational and extra-organizational processes.

(i) Work-family interface measure.

The scale purports to measure the effect of the interaction of family and work on workers' strain. A few items of the scale were derived from Parry and Warr's (1980) measure of interaction strain and the majority were created
to reflect the specificities of the social context of the study. These items address such aspects as work and family life overlap, work stressors that are likely to increase workers' strains at home; and family life stressors that may exacerbate workers' strains at work.

Among the item used, 5 items were positively-worded, that is, their manifest content indicates a harmonious interaction between family life and work; and 7 items were negatively worded denoting increased strain resulting from disrupted family-work interaction. Illustrative items are: "Work makes you too tired to enjoy family life". "The accommodation you have causes you a lot of worries even at work".

All items were rated on a 5-point response scale ranging from "Never" to "Every time", and scored from 1 to 5, respectively, in the direction of increased disruption of family-work interaction. The scores for positively-worded items were reversed to unify the direction of scoring.

The index of Family-Work Interface scale was constructed by summing scores over the twelve items used, for each individual of the sample. Table 7.8, shows that Cronbach's alpha coefficient of internal consistency is moderate ($\alpha = .77$). The mean is 3.17 (SD = .58) suggesting that most individuals report moderate level of disrupted work-family interaction. Disrupted Family-work Interface scale is negatively related to low participation scale ($r = .22$) and unrelated to supportive relationship measure ($r = -.07$). However, the size of the correlation coefficient between Family Work Interface scale and Participation measure is small. Therefore, Work-Family Interface can be considered as a relatively independent scale, from other contextual measures used.

(ii) Supportive relationship measure.

The scale was composed of items that address the extent to which co-workers, supervisor, and workers' representatives are helpful, friendly, considerate, sympathetic, and encouraging interaction. Most of the items used, were designed to reflect the idiosyncratic social context of the study, and guided by
Among the items that formed Supportive Relationship Scale, 5 were positively worded so that an affirmative response indicates greater supportive relationships, and 5 negatively worded in the direction of decreased supportive relationships.

An example of the former is:

"Your workmates often help you with your work problems".

An example of the latter:

"You cannot rely on your workmates to lend you a hand when you need it".

All items were rated on a 5-point response scale, ranging from "Not at all true" to "Completely true". Positively-worded items were scored from 1="Not at all true" to 5="completely true", so that the higher the score the more supportive reported relationships. However, negatively-worded item scores were reversed, to uniform the scoring in the direction of greater supportive relationships.

Supportive-Relationship Index was constructed by summing the scores over the 10 items used. The scale mean is 3.45 (SD = .53) indicating that most people reported relatively high supportive relationships. Table 7.8 indicates that Cronbach's alpha coefficient of internal consistency of the scale is high (α = .87). Supportive-Relationship scale is moderately correlated with Participation (r = -.56), and negligibly related to Family-Work Interface (r = -.07). Therefore, Supportive Relationship Scale may be considered as a relatively independent measure.

(iii) Participation measure.

The scales that have been examined before the construction of participation scale (Aiken and Hage, 1966; Arvey and Dewhirst, 1976; Barnowe, 1975; Bass, et al., 1975; Leifer and Huber, 1977; Steers, 1973; Vroom, 1963) have in common the following features:

First: Conception of participation as a direct involvement by workers in fragmentary and task-specific decisions.
Second: The degree of participation consists principally of sharing information and communication of opinions or suggestions.

Third: Participation is unilaterally introduced by management or informally initiated by some management members: a supervisor, a head of department, etc.

Fourth: Participation concerns a limited number of workers in the enterprise. Most of these features of participation do not fit the Algerian participatory scheme (for more details, see Chapter II and V), for this reason most items forming the scale used in this research were ad hoc constructed to represent the idiosyncratic features of the participatory system in the Algerian Organizations. Only two items were drawn (and adapted) from the foregoing measures, specifically, Vroom's (1963) measure of psychological participation.

The scale comprised 11 items, 6 items were positively worded denoting greater work participation, and 5 items were negatively worded indicating decreased participation. Two illustrative examples from the former are:

"Your representatives ask your opinion about matters that concern your work".
"You have much say and influence over the things that concern your work".

Two illustrative examples of the latter are:

"Most problems dealt with by representatives remain unsolved".
"Problems dealt with by representatives have nothing to do with your work".

All items were rated on a 5-point response scale ranging from "Never" to "Every time" and scored from 1 to 5 respectively in the direction of decreased participation. Consequently, the scores for positively-worded items were reversed. The scores relative to the 11 items were summed, for each individual in the sample, to construct an index of perceived work participation. Table 7.8 indicates that the scale mean is 2.57 and the standard deviation is .46. The percentage of respondents who reported a level of participation less that 3 (corresponding to the category: "Sometimes" in the original item metric of the scale) is 85%. Therefore, the majority of workers perceived insufficient amount of participation.
TABLE 7.8: Correlation coefficients, Cronbach's alpha coefficients of reliability, means and standard deviations (SD) for the contextual variable measures. (n = 110).

<table>
<thead>
<tr>
<th>Contextual variables measures.</th>
<th>Correlations (1)</th>
<th>Mean</th>
<th>S.D</th>
<th>Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Disrupted family-work interface.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(2) Increased supportive relationships.</td>
<td>-.07</td>
<td>3.44</td>
<td>.53</td>
<td>.87</td>
</tr>
<tr>
<td>(3) Decreased participation.</td>
<td>.22</td>
<td>2.57</td>
<td>.46</td>
<td>.85</td>
</tr>
</tbody>
</table>

Note: Figures rounded to two decimal places.

\[ r = .19 \ (P < .05, \text{two tail test}) \]
\[ r = .25 \ (P < .01, \text{two tail test}) \]

Perceived Participation Scale in Table 7.8 exhibits a high Cronbach's alpha coefficient of internal consistency (\( \alpha = .85 \)). Perceived Participation is moderately related to Supportive Relationships (\( r = -.56 \)) and weakly correlated with Family-Work Interface (\( r = .22 \)). Therefore, the scale of Perceived Participation can be considered as a relatively independent measure from the other contextual scales.

7.6 DATA ANALYSIS PROCEDURES.

There are three main issues related to the data analysis that warrant a brief examination:

(1) The relationship between measures and statistics.

(2) The assumptions underlying statistical techniques used.

(3) Description of statistics used.

7.6.1 MEASUREMENT LEVEL AND TYPE OF STATISTICS.

Since most of the scales used in this research were ordinal and a few
were nominal, the intriguing question to be addressed is: Is the use of parametric statistics permissible when the level of measurement are not (at least) interval?

The relationship between the nature of measurement scale and the type of statistics created a substantial controversy in the 1950's. Stevens (1946, 1951) distinguished four classes of scales: nominal, ordinal, interval and ratio. He, then, prescribed the arithmetic operations that are permissible for each scale, on the ground that measurement scales are models of (or isomorphic to) object relationships. To justify the use of non-parametric statistics, Siegel (1956) pushed this prescription further by presenting Stevens' typology of measurement scales and associated statistics as an article of faith. Senders (1958), also, exhibited a great deal of enthusiasm regarding measurement types and permissible measures as specified by Stevens.

However, the opposite view advocated by Lord (1953), Burke (1953), Anderson (1961), McNemar (1962), Hays (1963), Nunnally (1967) and Labovitz (1972) advances that statistics are not applied to object things, but to numbers; and that the choice of statistics should not be dictated by the properties of the measurement scales.

Nunnally (1967) rejects Stevens' contention of the existence of a real measure on the ground that any measurement scale is a matter of convention among scientists that a particular scaling of a characteristic is a useful scaling.

Additionally, the scale properties can be improved not by the extent to which it reflects the object relationships, but by reconceptualizing the way in which the object relationships are operationalized or measured (Labovitz, 1972).

Another plausible argument in favour of the use of parametric statistics for weak measures is that statistic tests answer the question they are designed to answer, and do not depend on the empirical meaning of the type of the measurement used. Boneau (1961) explains: "Certainly, one cannot ignore the
problems of measurement. It would seem to make a difference to psychology whether or not the numbers we assign by means of an intelligence test are related to the underlying concept. But the problem is a measurement problem not a statistical one. No matter how one assigns the numbers (even at random), however, he can expect to get the same objective impartial and neutral judgement whenever he resorts to the use of the parametric or non-parametric tests of significance”.

Backer, et al. (1966) have tackled empirically the controversy, by examining whether the violation of Stevens' position, applying parametric statistics to weak measurements, affects greatly the distribution of the parametric measures. They conclude that strong statistics such as t test are more than adequate to cope with weak measurements (e.g. nominal or ordinal). Probabilities estimated from the t distribution are little affected by the kind of measurement scale used.

These few examples of arguments cogently support the use of parametric statistics for nominal and ordinal measurements. In the present study, parametric statistics owing to their powerful, more sensitive, better developed and more clearly interpretable indices with known sampling errors (Laboritz, 1970), are used for the analysis of weak measurements (nominal or ordinal scale-derived data) without any feeling of guilt that such use of parametric statistics for nominal or ordinal measurements is not really justified, because, "it is only the guilt, rather than the use of methods of analysis, that is unjustified". (Nunnally, 1967, p. 21).

7.6.2 Examination of the Assumptions of Statistics Used.

As the statistical techniques used in the present study capitalize mainly on Multiple Regression Techniques, the assumptions underlying this statistical procedure are:

First: Regression of a criterion (dependent variable) on a predictor (independent variable) is assumed to be linear.

Second: Errors or residuals have the following characteristics:
(a) The mean of residuals is zero.

(b) Error associated with one value of the criterion is independent from any error at other value of the criterion.

(c) Variance of residuals at all values of the predictor is the same (homoscedasticity).

Third: Residuals are normally distributed (this assumption is necessary for the test of significance associated with multiple regression).

To test whether these assumptions are satisfied or violated, there exist various methods of plotting residuals (Anscombe and Tuckey, 1963; Chatterjee and Price, 1977; Draper and Smith, 1981; Larsen and McCleary, 1972). A useful plotting that is obtainable by SPSSX regression procedure, is the one in which standardized residuals are plotted against predicted (or standardized predicted) criterion's values. According to Pedhazur (1982, pp. 36-37), such a scatterplot can answer three important questions:

First: Do the points appear to scatter randomly about the line originating from the mean of the residuals, describing what appears to be a rectangle?

Second: Are the points scattered evenly about the line originating from the mean of the residuals?

Third: Are these points extreme residuals?

These questions respectively detect the following serious violation of the regression assumptions: non-linearity, heteroscedasticity (that is, the variance of errors differs at different values of the predictor) and outliers (extreme residuals).

In the present research, the residual scatterplot was examined for every regression equation used in the analysis. The regression assumptions mentioned earlier did not appear to be dramatically violated, on the whole.

7.6.3 DESCRIPTION OF STATISTICS USED.

Many research questions in the present study are analysed by means of multiple regression techniques, and to a certain extent by canonical correlation.

(i) MULTIPLE REGRESSION TECHNIQUES.
Multiple Regression is a versatile and flexible data analysis system applied to the prediction or the variability of a dependent variable (continuous, categorical, or combinations of both types of variables) on the basis of the information regarding one or more independent variables. Multiple regression techniques permit:

- The analysis of multiple independent variables (or predictors) at a time.
- Analysing collective or separate effect of two or more independent variables on a dependent variable.
- Identification of predictors (independent variables) contributing to the prediction of the criterion (dependent variable).
- Flexibility in controlling for any set of variables to examine the contribution of a particular variable (or certain variables) to the criterion.
- Multiple Regression Model can be extended to study the interaction of any combination of variable sets.
- It is applicable to any level of measurement: nominal, ordinal, interval or ratio.
- It can be used to define a linear or curvilinear relationship.

These illustrative aspects of multiple regression potentials explain the reasons why it was widely used in the data analysis of this study. Three types of multiple regression techniques were adopted:

ONE: Standard Regression Approach: In this method, each variable is treated as if it had been added to the regression equation in a separate step after all other variables had been included (Kim, and Kohout, 1975b). The multiple regression formula for two variables is:

$$Y = a + b_1S + b_2Z + e.$$  

Where S and Z stand for predictors, $b_1$ and $b_2$ are partial regression coefficients for the predictors, "a" is the intercept and "e" an error term or residual.

TWO: Moderated Multiple Regression: This regression technique, proposed by Saunders (1956), is used for the analysis of interaction. This method yields
two important types of indices: Squared Multiple Correlation ($R^2$) indicating the percentage of variance of the criterion predicted or accounted for by predictors in the regression equation. The second is the partial regression coefficients denoting the effect of each independent variable while controlling or taking into consideration the effects of other variables in the formula.

Researchers adopting this method (Abdel-Halim, 1978; Hunt, et al. 1975) usually compare the significance of incremental change in ($R^2$) after adding a multiplicative term to the individual terms of the multiple regression.

If the restricted model of multiple regression is:

$$Y = a + b_1 S + b_2 Z + e.$$  

Where the terms of the equation are defined as before.

The full multiple regression model for two variables is:

$$Y = a + b_1 S + b_2 Z + b_3 (S.Z) + e.$$  

Where the added multiplicative term $b_3 (SZ)$ indicates that the effect of the individual predictor: $S$ on the criterion $Y$ depends on the level of the other predictor: $Z$; or, symmetrically, the effect of $Z$ on $Y$ depends on the level of $S$.

The two models: restricted model (without interaction term) and full model (with interaction term), are compared in terms of the increment in $R^2$. If the $R^2$ for the full regression model is significantly higher than $R^2$ for the restricted model, it indicates that the interactive term contributes significantly to the prediction of the dependent variable (criterion) beyond that accounted for by the two predictors: $S$ and $Z$ apart.

Three: Hierarchical Multiple Regression. This procedure advocated by Cohen (Cohen, 1978; Cohen and Cohen, 1983) differs from standard multiple regression procedure, in that the order in which the independent variables are entered in the equation causes much difference in the amount of variance incremented by each variable.

Hierarchical multiple regression was used in this study as another alternative for 'moderated multiple regression', to examine the interaction of
the predictor variables. A multiplicative term indicating interaction was created and entered last in the equation. The unique contribution of the multiplicative term is assessed by partialling out its constituent terms.

Multiple regression techniques were performed using the SPSSX available at the computer centre in the University of Surrey.

(ii) Canonical Correlation.

Some research questions have addressed the relationships between various pairs of variable sets. Multiple Correlation cannot cope with this situation as it is concerned only with the relationship of one variable to a set of variables. Therefore, Canonical Correlation is the relevant technique as it addresses the relationship between two sets of variables.

Hotelling (1935, 1936) devises canonical correlation technique to extract a linear combination from each of the two variable sets, so that the correlation between the two linear combinations is maximized. In other words, given two sets of variables, (for example, a set of perceived stressors and a set of strain indices), the canonical correlation functions by forming two linear combinations, one of the stressor set and one of the strain set, by differentially weighting, so that the maximum possible correlation between them is obtained. Therefore, Canonical Variates are the weighted composite of the variables in each set. The correlation between the two linear combinations is termed Canonical Correlation. Canonical Weights are the coefficients or weights of the variables in the linear combination of the two sets. The correlation between the canonical variates and the original variables yields Structure Coefficient or loading.

Canonical correlation was computed through MANOVA procedure using SPSSX. The procedure of canonical correlation analysis in the old SPSS manual (1976) provides a meagre output, that is, the structure coefficient or loading must be computed by hand. Therefore, SPSSX version is used because it provides a rich output regarding canonical correlation through the procedure of MANOVA.
The scientist does not usually think of the writing of books or preparing of lectures as research. Writing seems to him to be a rather tiresome labour that he must do after the fun of laboratory research and discovery is over. I therefore sat down to use the time available more in hope of making a summary than a discovery. But when I began to do this I came to realize the extent to which having to describe the results of one's thoughts to others is a part of the process of discovery itself.

J. Z. Young
The layout of the present chapter is dictated by the logical order of research questions and hypotheses spelt out in Chapter V. Besides the findings emanating from the quantitative analysis of the relationships, qualitative analysis of perceived work stressors, coping and contextual variables is of significance to the purpose of the study. Therefore, two types of result analysis are reported in this chapter:

First: Findings stemming from a descriptive analysis of the data. In this vein, the emphasis is placed on the content of reported work stressors, coping strategies and contextual variables.

Second: Results derived through adoption of analytic statistical techniques. Emphasis is centred on quantitative analysis of the relationships between variables.

8.1 DESCRIPTIVE ANALYSIS OF PERCEIVED WORK STRESSORS, COPING STRATEGIES AND CONTEXTUAL VARIABLES.

8.1.1 Perceived prevalence of work stressors and coping indices.

As indicated in Chapter VII, seven factors of perceived work stressors were derived, using principal component analysis. These factors concern pay, task, career, communications, role overload, role conflict and role ambiguity. Using the mean as an index of the prevalence of perceived work stressors, pay is the most dominant perceived source of stress (Figure 8.1). Ambiguity is the least prevalent perceived stressor as the mean reflects a low level of perceived ambiguity. The remaining factor means, namely, the means of communication, task, career, role overload and role conflict vary from moderate to high level of perceived work stressors.

With reference to coping factors, namely action, evaluation, non-work activities, externalization, and withdrawal; the most frequent coping patterns
Figure 8.1: Scale means and standard deviations of perceived work stressors (ordered according to the percentage of variance accounted for by each factor) n = 110.
Figure 8.2: Scale means and standard deviations of coping factors (ordered according to the percentage of variance accounted for by each factor)

n = 110
are action and evaluation, followed in order by non-work activities, externalization and withdrawal (Figure 8.2).

Further analysis of perceived work stressors, coping patterns and contextual variables is carried out by examining the percentage of response categories associated with items pertaining to a particular work stressor, coping pattern, or a contextual variable. Tables 8.1 through 8.11 provide such information.

8.1.2 Content Analysis of Perceived Work Stressors.

Table 8.1 shows the percentages of response categories associated with each pay stressor item. The item means range from moderate to high perceived level of pay stressors. A substantial proportion of workers reported that the pay is much lower than the experience and efforts invested in work (Item 11); discourages hard work (Items 15 and 22), did not increase as expected (Item 12), is lower than other employees performing equivalent work in other factories (Items 13 and 19), is much below the cost of living (Items 14 and 16), and is accompanied by the absence of some deserved bonuses (Item 20).

With reference to career stressors, although the item means in Table 8.2 generally reflect a moderate level of perceived career stressors, the percentages of the response categories of these items often reveal a different picture. A greater proportion of workers reported the absence or lack of promotions (Items 23 and 28), expected no prospective opportunity for advancement (Item 27), perceived promotion criteria as ambiguous in that there was no clear-cut criteria (hard work, performance, tenure, etc...) for promotion (Items 25 and 30), reported a paucity of skill development through training (Items 24 and 29), and felt that promotion was unfairly granted (Item 26).

Concerning role conflict, the means in Table 8.3, generally, reflect a moderate frequency of perceived role conflict. The item response percentages, however, indicate that a substantial proportion of respondents often reported
Table 8.1 Percentages of response categories for pay stressor items.

<table>
<thead>
<tr>
<th>Perceived pay stressors.</th>
<th>Not at all true</th>
<th>Slightly true</th>
<th>Half true half not</th>
<th>Quite true</th>
<th>Completely true</th>
<th>Mean</th>
<th>S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>S11- The pay is much lower than the amount of effort and experience you put into your work.</td>
<td>2%</td>
<td>5%</td>
<td>17%</td>
<td>35%</td>
<td>42%</td>
<td>4.1</td>
<td>1.0</td>
</tr>
<tr>
<td>S17- The pay looks right for the job you are doing.</td>
<td>30%</td>
<td>49%</td>
<td>9%</td>
<td>10%</td>
<td>2%</td>
<td>4.0</td>
<td>1.0</td>
</tr>
<tr>
<td>S22- The amount of money you earn in this factory encourages you to work harder and harder.</td>
<td>23%</td>
<td>52%</td>
<td>15%</td>
<td>11%</td>
<td>0%</td>
<td>3.9</td>
<td>.9</td>
</tr>
<tr>
<td>S19- Your pay is much lower than that of people you know having similar job.</td>
<td>0%</td>
<td>11%</td>
<td>41%</td>
<td>46%</td>
<td>3%</td>
<td>3.4</td>
<td>.7</td>
</tr>
<tr>
<td>S12- You pay has not increased at the rate you expected it to be.</td>
<td>0%</td>
<td>5%</td>
<td>17%</td>
<td>51%</td>
<td>27%</td>
<td>4.0</td>
<td>.8</td>
</tr>
<tr>
<td>S13- Your pay is higher than the pay of your relatives neighbours and friends working in industry.</td>
<td>5%</td>
<td>44%</td>
<td>39%</td>
<td>12%</td>
<td>0%</td>
<td>3.4</td>
<td>.8</td>
</tr>
<tr>
<td>S15- The way the pay is handled around discourages hard work.</td>
<td>0%</td>
<td>12%</td>
<td>17%</td>
<td>49%</td>
<td>22%</td>
<td>3.9</td>
<td>.9</td>
</tr>
<tr>
<td>S18- Compared with two years ago, you are able to afford a better quality of living.</td>
<td>2%</td>
<td>33%</td>
<td>40%</td>
<td>24%</td>
<td>2%</td>
<td>3.1</td>
<td>.8</td>
</tr>
<tr>
<td>S16- Your pay is much below the normal cost of living in this city.</td>
<td>0%</td>
<td>1%</td>
<td>14%</td>
<td>26%</td>
<td>60%</td>
<td>4.5</td>
<td>.8</td>
</tr>
<tr>
<td>S21- There is sometimes a substantial increase in your pay.</td>
<td>36%</td>
<td>46%</td>
<td>17%</td>
<td>1%</td>
<td>0%</td>
<td>4.2</td>
<td>.7</td>
</tr>
<tr>
<td>S20- Some bonuses that you think you are entitled to are not given to you.</td>
<td>0%</td>
<td>3%</td>
<td>26%</td>
<td>40%</td>
<td>23%</td>
<td>3.9</td>
<td>.8</td>
</tr>
<tr>
<td>S14- Your present pay and bonuses enable you to make some monthly savings.</td>
<td>52%</td>
<td>17%</td>
<td>16%</td>
<td>15%</td>
<td>0%</td>
<td>4.1</td>
<td>1.1</td>
</tr>
</tbody>
</table>

Note: Items are tabulated according to the magnitude of their loadings on the pay stressor factor.
Table 8.2  Percentages of response categories for career stressor items

<table>
<thead>
<tr>
<th>CAREER STRESSORS</th>
<th>Not at all true</th>
<th>Slightly true</th>
<th>Half true half not</th>
<th>Quite true</th>
<th>Completely true</th>
<th>Mean</th>
<th>S.D</th>
</tr>
</thead>
<tbody>
<tr>
<td>S27 - You do not feel you are getting anywhere on your job in the future.</td>
<td>2%</td>
<td>16%</td>
<td>29%</td>
<td>28%</td>
<td>26%</td>
<td>3.6</td>
<td>1.1</td>
</tr>
<tr>
<td>S28 - You feel you are getting ahead in this factory.</td>
<td>25%</td>
<td>29%</td>
<td>31%</td>
<td>15%</td>
<td>0%</td>
<td>3.7</td>
<td>1.0</td>
</tr>
<tr>
<td>S23 - You feel you have stayed at the present rank for too long.</td>
<td>2%</td>
<td>14%</td>
<td>24%</td>
<td>22%</td>
<td>39%</td>
<td>3.8</td>
<td>1.2</td>
</tr>
<tr>
<td>S30 - Working too hard or having a long experience has usually no effect on the way promotions are handled around.</td>
<td>0%</td>
<td>20%</td>
<td>33%</td>
<td>34%</td>
<td>14%</td>
<td>3.4</td>
<td>1.0</td>
</tr>
<tr>
<td>S31 - Good jobs, you think you are entitled to, are usually taken before you hear of them, in this factory.</td>
<td>0%</td>
<td>13%</td>
<td>52%</td>
<td>30%</td>
<td>3%</td>
<td>3.3</td>
<td>.8</td>
</tr>
<tr>
<td>S25 - To be promoted in this factory, one must work hard and have a good behaviour.</td>
<td>10%</td>
<td>32%</td>
<td>28%</td>
<td>20%</td>
<td>0%</td>
<td>3.3</td>
<td>.9</td>
</tr>
<tr>
<td>S29 - You are provided with opportunities for training to improve your skills.</td>
<td>12%</td>
<td>39%</td>
<td>30%</td>
<td>17%</td>
<td>2%</td>
<td>3.4</td>
<td>1.0</td>
</tr>
<tr>
<td>S26 - Most people who get ahead in this factory do not deserve it.</td>
<td>10%</td>
<td>11%</td>
<td>42%</td>
<td>36%</td>
<td>10%</td>
<td>3.4</td>
<td>.8</td>
</tr>
<tr>
<td>S24 - For the kind of job you are doing, there is no chance for training or for progress.</td>
<td>4%</td>
<td>27%</td>
<td>25%</td>
<td>31%</td>
<td>14%</td>
<td>3.3</td>
<td>1.1</td>
</tr>
<tr>
<td>S47 - You get confused of the way promotions are handled in this factory.</td>
<td>0%</td>
<td>12%</td>
<td>32%</td>
<td>44%</td>
<td>6%</td>
<td>3.4</td>
<td>.8</td>
</tr>
</tbody>
</table>

Note: Items are ordered according to the magnitude of their loading on the career stressor factor.
Table 8.3 Percentages of response categories for role conflict items.

<table>
<thead>
<tr>
<th>ROLE CONFLICT</th>
<th>Never.</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Every time</th>
<th>Mean</th>
<th>S.D</th>
</tr>
</thead>
<tbody>
<tr>
<td>S34 - You feel being caught between two opposite demands: demands from your workmates and demands from your supervisors.</td>
<td>3%</td>
<td>28%</td>
<td>33%</td>
<td>15%</td>
<td>22%</td>
<td>3.2</td>
<td>1.2</td>
</tr>
<tr>
<td>S33 - You receive demands, instructions, or requests that are totally different from your superiors.</td>
<td>3%</td>
<td>29%</td>
<td>30%</td>
<td>12%</td>
<td>26%</td>
<td>3.3</td>
<td>1.2</td>
</tr>
<tr>
<td>S35 - The instructions, demands, or requests you are asked to execute complement one another.</td>
<td>6%</td>
<td>25%</td>
<td>37%</td>
<td>32%</td>
<td>0%</td>
<td>3.1</td>
<td>0.9</td>
</tr>
<tr>
<td>S40 - What you are asked to do on your job matches: your own opinion or judgement.</td>
<td>9%</td>
<td>35%</td>
<td>45%</td>
<td>10%</td>
<td>0%</td>
<td>3.4</td>
<td>0.8</td>
</tr>
<tr>
<td>S39 - To satisfy some people on your job you have to upset others.</td>
<td>1%</td>
<td>4%</td>
<td>46%</td>
<td>42%</td>
<td>8%</td>
<td>3.5</td>
<td>0.7</td>
</tr>
<tr>
<td>S36 - Most of the demands and instructions you are asked to do, go against your own opinion or judgement.</td>
<td>0%</td>
<td>14%</td>
<td>40%</td>
<td>36%</td>
<td>10%</td>
<td>3.4</td>
<td>0.9</td>
</tr>
<tr>
<td>S37 - You feel able to satisfy totally different demands from different persons at work.</td>
<td>2%</td>
<td>41%</td>
<td>45%</td>
<td>13%</td>
<td>0%</td>
<td>3.3</td>
<td>0.7</td>
</tr>
<tr>
<td>S32 - Some of your workmates want you to do one thing, and some other workmates want you to do something else, totally different.</td>
<td>10%</td>
<td>13%</td>
<td>23%</td>
<td>47%</td>
<td>7%</td>
<td>3.4</td>
<td>1.1</td>
</tr>
</tbody>
</table>

Note: Items are listed according to the magnitude of their loading on role conflict factor.
the dilemma that satisfying some workers' demands leads to the frustration of others (Item 39); and also reported incompatible demands made by workmates (Item 32) and by different persons at work (Item 37); and finally a mismatch between the task requirements and the respondents' opinions and judgements. However, reported occurrences of role conflict originating from conflicting demands of workmates and those of supervisors (Item 34), and conflicting demands from higher levels (Item 33), are balanced, that is, the total percentage for "Never" and "Rarely" response categories is nearly equivalent to the total percentage for "Often" and "Every time" response categories.

Turning to role overload, Table 8.4 shows that the overwhelming response category is "Sometimes". Thus, 67% reported that the work is sometimes excessive and 30% said it is often or always excessive (Item 1 and Item 3 when reversed). Additionally, a large proportion of workers (45%; Item 2) reported having often or always to perform many things simultaneously.

Moving to communication stressors, the item means in Table 8.4 generally indicate frequently perceived communication stressors. The apparent response percentages associated with each item emphasize this tendency. Therefore, a substantial proportion of workers were often not informed about things that concern their work (Item 53), or things happening in the factory (Items 46 and 50). Also the majority of respondents often perceived regulation and rules difficult to understand (Items 45 and 48).

Unlike the previous work stressors, the means for role ambiguity items, as indicated in Table 8.5, generally indicate low frequency of role ambiguity. Examining the percentages of item response categories, it is apparent that a very high proportion of workers found their tasks clear (Items 42 and 44), that performance feedback is provided (Item 43), and that they can discern co-workers' expectations (Items 51 and 49).

With reference to task stressors, the percentages in Table 8.5 reveal
Table 8.4  Percentages of response categories for role overload and communication stressor items.

<table>
<thead>
<tr>
<th>The first five items relate to role overload.</th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Always</th>
<th>Mean</th>
<th>S.D</th>
</tr>
</thead>
<tbody>
<tr>
<td>The last five items relate to communication stressors.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S1 - Having too much work that cannot be finished in a normal work day.</td>
<td>0%</td>
<td>3%</td>
<td>67%</td>
<td>4%</td>
<td>26%</td>
<td>3.5</td>
<td>.9</td>
</tr>
<tr>
<td>S3 - Having a right amount of work that keep you busy without much pressure.</td>
<td>24%</td>
<td>12%</td>
<td>62%</td>
<td>3%</td>
<td>0%</td>
<td>3.6</td>
<td>.9</td>
</tr>
<tr>
<td>S2 - You are annoyed by having to do many things at the same time.</td>
<td>0%</td>
<td>11%</td>
<td>44%</td>
<td>27%</td>
<td>18%</td>
<td>3.5</td>
<td>.9</td>
</tr>
<tr>
<td>S4 - The high amount of work you have decreases the quality of the work done.</td>
<td>0%</td>
<td>23%</td>
<td>45%</td>
<td>29%</td>
<td>4%</td>
<td>3.1</td>
<td>.8</td>
</tr>
<tr>
<td>S5 - Your job is harmful to your health (x)</td>
<td>0%</td>
<td>29%</td>
<td>23%</td>
<td>19%</td>
<td>29%</td>
<td>3.5</td>
<td>1.2</td>
</tr>
<tr>
<td>S46 - A lot of things happen in this factory without being informed.</td>
<td>0%</td>
<td>4%</td>
<td>19%</td>
<td>51%</td>
<td>26%</td>
<td>4.0</td>
<td>.9</td>
</tr>
<tr>
<td>S50 - You are given enough information about what goes on in this factory.</td>
<td>27%</td>
<td>53%</td>
<td>17%</td>
<td>3%</td>
<td>0%</td>
<td>4.1</td>
<td>.7</td>
</tr>
<tr>
<td>S53 - You have little information of what you need to learn about your work.</td>
<td>0%</td>
<td>10%</td>
<td>36%</td>
<td>47%</td>
<td>6%</td>
<td>3.5</td>
<td>.8</td>
</tr>
<tr>
<td>S48 - It is very hard to understand the purpose of many regulations and rules.</td>
<td>0%</td>
<td>7%</td>
<td>36%</td>
<td>43%</td>
<td>8%</td>
<td>3.6</td>
<td>.7</td>
</tr>
<tr>
<td>S45 - Regulations, rules and instructions that concern your work are clearly explained to you.</td>
<td>4%</td>
<td>36%</td>
<td>46%</td>
<td>15%</td>
<td>0%</td>
<td>3.3</td>
<td>.8</td>
</tr>
</tbody>
</table>

Note: Items are listed following the magnitude of their loading on their respective factor.

(x) Response categories are: Very little, a little, some, a great deal, a very great deal.
Table 8.5 Percentages of response categories for role ambiguity and task stressor items.

<table>
<thead>
<tr>
<th>Item</th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Always</th>
<th>Mean</th>
<th>S.D</th>
</tr>
</thead>
<tbody>
<tr>
<td>S44 - You are not clear about what to be done on your work or why it should be done.</td>
<td>46%</td>
<td>44%</td>
<td>11%</td>
<td>0%</td>
<td>0%</td>
<td>1.7</td>
<td>.7</td>
</tr>
<tr>
<td>S42 - You know what has to be done or why it should be done.</td>
<td>0%</td>
<td>0%</td>
<td>8%</td>
<td>42%</td>
<td>50%</td>
<td>1.6</td>
<td>.6</td>
</tr>
<tr>
<td>S51 - You cannot know (anticipate) what your workmates expect you to do on your work.</td>
<td>1%</td>
<td>49%</td>
<td>46%</td>
<td>6%</td>
<td>0%</td>
<td>2.5</td>
<td>.6</td>
</tr>
<tr>
<td>S43 - You do not know whether you are doing well on your job or not.</td>
<td>30%</td>
<td>46%</td>
<td>21%</td>
<td>3%</td>
<td>0%</td>
<td>2.0</td>
<td>.8</td>
</tr>
<tr>
<td>S49 - You feel you know (or anticipate) what your fellow workers expect you on the job.</td>
<td>0%</td>
<td>5%</td>
<td>37%</td>
<td>56%</td>
<td>3%</td>
<td>2.4</td>
<td>.6</td>
</tr>
<tr>
<td>S9 - You do the same things on your job, over and over.</td>
<td>0%</td>
<td>8%</td>
<td>34%</td>
<td>53%</td>
<td>6%</td>
<td>3.6</td>
<td>.7</td>
</tr>
<tr>
<td>S7 - Your feel your work makes you use your skills and capabilities *</td>
<td>5%</td>
<td>56%</td>
<td>31%</td>
<td>9%</td>
<td>0%</td>
<td>3.6</td>
<td>.7</td>
</tr>
<tr>
<td>S8 - Working conditions (machines, tools, noise, lighting, heat and cold.) make your work hard and tiring.</td>
<td>0%</td>
<td>19%</td>
<td>29%</td>
<td>26%</td>
<td>26%</td>
<td>3.6</td>
<td>1.1</td>
</tr>
<tr>
<td>S10 - Working conditions (tools, machines, noise, lighting, heat and cold.) make you work comfortably.</td>
<td>24%</td>
<td>26%</td>
<td>34%</td>
<td>17%</td>
<td>0%</td>
<td>3.6</td>
<td>1.0</td>
</tr>
</tbody>
</table>

(* ) Item having the following response categories: very little; A little; Some; a great deal, a very great deal.

Note: Items are listed according to the magnitude of their loading on the respective factor.
that a substantial proportion of workers often or always perform monotonous work (Item 9) which can be done with little skill (Item 7). Also, most workers report inadequate physical working conditions which render task performance uncomfortable (Items 8 and 10).

To summarize, qualitative analysis of item means and percentages reveals that the majority of respondents interviewed reported greater stress originating from pay, career, communications, work overload and role conflict. However, a large proportion of workers reported a negligible level of role ambiguity.

8.1.3 CONTENT ANALYSIS OF THE CONTEXTUAL VARIABLES.

Contextual variables include family-work interface, participation and supportive relationships. Table 8.6 exhibits means, standard deviations and response category percentages for family-work interface items. It can be seen that the majority of workers reported that work affects their family life, by feeling too tired to enjoy it (Item 2). Additionally, most workers perceived that shift work (Item 9) often disturbs their family life, and that at work they are often worried about things related to their families (Item 6). Moreover, accommodation (Items 5 and 12) often or persistently constitutes a source of stress for a substantial proportion of workers.

With reference to participation, the item means in Table 8.7 range from 1.3 to 4.0, that is, from the response categories: "Never" to "often". This variation can be highlighted by the examination of the response categories associated with the participation items. Surprisingly, workers' representatives were perceived, not as a source of support, but as a source of stress. 48% of workers never and 37% of them rarely discuss their work problems with representatives (Item 1), 44% of respondents reported that matters examined by representatives have often no bearing on workers' job (Item 2), and 78% of workers reported that representatives never ask workers' opinions about their work problems (Item 4). When respondents were asked whether
Table 8.6 Percentages of response categories for family-work interface items.

<table>
<thead>
<tr>
<th>FAMILY- WORK INTERFACE</th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Every time</th>
<th>Mean</th>
<th>S.D</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - Work hours leave enough time for you to spend with your family.</td>
<td>15%</td>
<td>14%</td>
<td>24%</td>
<td>45%</td>
<td>4%</td>
<td>2.9</td>
<td>1.1</td>
</tr>
<tr>
<td>2 - Work makes you too tired to enjoy family life.</td>
<td>1%</td>
<td>6%</td>
<td>36%</td>
<td>38%</td>
<td>20%</td>
<td>3.7</td>
<td>.9</td>
</tr>
<tr>
<td>3 - You are asked to work overtime when you do not want to.</td>
<td>7%</td>
<td>45%</td>
<td>43%</td>
<td>5%</td>
<td>1%</td>
<td>2.5</td>
<td>.7</td>
</tr>
<tr>
<td>4 - The area where you live makes it difficult for you to have enough rest at home.</td>
<td>5%</td>
<td>35%</td>
<td>13%</td>
<td>16%</td>
<td>33%</td>
<td>3.4</td>
<td>1.4</td>
</tr>
<tr>
<td>5 - The accommodation you have causes you a lot of worries even at work.</td>
<td>5%</td>
<td>27%</td>
<td>7%</td>
<td>19%</td>
<td>42%</td>
<td>3.7</td>
<td>1.4</td>
</tr>
<tr>
<td>6 - At work, you are worried about things to do with your wife and children (for married subjects) or parents, brothers, and sisters (single subjects).</td>
<td>0%</td>
<td>7%</td>
<td>32%</td>
<td>46%</td>
<td>15%</td>
<td>3.7</td>
<td>.8</td>
</tr>
<tr>
<td>7 - Work makes you forget your family problems and worries.</td>
<td>17%</td>
<td>14%</td>
<td>29%</td>
<td>37%</td>
<td>3%</td>
<td>3.1</td>
<td>1.1</td>
</tr>
<tr>
<td>8 - Being with your family, makes you forget work problems.</td>
<td>16%</td>
<td>26%</td>
<td>24%</td>
<td>32%</td>
<td>4%</td>
<td>3.2</td>
<td>1.1</td>
</tr>
<tr>
<td>9 - Shift work prevents you from enjoying your family life.</td>
<td>0%</td>
<td>8%</td>
<td>32%</td>
<td>43%</td>
<td>17%</td>
<td>3.7</td>
<td>.9</td>
</tr>
<tr>
<td>10 - The amount of travel to and from work does not affect your family life.</td>
<td>0%</td>
<td>1%</td>
<td>3%</td>
<td>68%</td>
<td>28%</td>
<td>1.8</td>
<td>.5</td>
</tr>
<tr>
<td>11 - Your wife and children (for married subjects) or parents, sisters and brothers (for singles) suffer from your misconduct every time you have problems at work.</td>
<td>7%</td>
<td>34%</td>
<td>19%</td>
<td>18%</td>
<td>22%</td>
<td>3.1</td>
<td>1.3</td>
</tr>
<tr>
<td>12 - Your accommodation is comfortable (have sufficient number of rooms).</td>
<td>33%</td>
<td>19%</td>
<td>10%</td>
<td>32%</td>
<td>6%</td>
<td>3.4</td>
<td>1.4</td>
</tr>
</tbody>
</table>
**TABLE 8.7: Percentages of response categories for participation items**

<table>
<thead>
<tr>
<th>PARTICIPATION</th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Every time</th>
<th>Mean</th>
<th>S.D</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - You discuss your job matters that come up, with your representatives.</td>
<td>48%</td>
<td>37%</td>
<td>10%</td>
<td>5%</td>
<td>0%</td>
<td>1.7</td>
<td>.8</td>
</tr>
<tr>
<td>2 - Problems dealt with by representatives have nothing to do with your work.</td>
<td>0%</td>
<td>3%</td>
<td>50%</td>
<td>44%</td>
<td>4%</td>
<td>2.5</td>
<td>.6</td>
</tr>
<tr>
<td>3 - Most problems discussed by representatives remain unsolved.</td>
<td>0%</td>
<td>3%</td>
<td>42%</td>
<td>45%</td>
<td>11%</td>
<td>2.4</td>
<td>.7</td>
</tr>
<tr>
<td>4 - Your representatives ask your opinion about matters that concern you.</td>
<td>78%</td>
<td>17%</td>
<td>2%</td>
<td>3%</td>
<td>0%</td>
<td>1.3</td>
<td>.6</td>
</tr>
<tr>
<td>5 - When you have a problem, you avoid to talk with representatives about it.</td>
<td>0%</td>
<td>4%</td>
<td>26%</td>
<td>41%</td>
<td>30%</td>
<td>2.0</td>
<td>.8</td>
</tr>
<tr>
<td>6 - Representatives discuss matters that concern your work.</td>
<td>3%</td>
<td>45%</td>
<td>50%</td>
<td>3%</td>
<td>0%</td>
<td>2.5</td>
<td>.6</td>
</tr>
<tr>
<td>7 - Representatives succeed in solving problems raised by workers.</td>
<td>7%</td>
<td>53%</td>
<td>37%</td>
<td>3%</td>
<td>0%</td>
<td>2.4</td>
<td>.7</td>
</tr>
<tr>
<td>8 - It is almost impossible for you to influence the decisions of your supervisor about things that concern you.</td>
<td>4%</td>
<td>32%</td>
<td>37%</td>
<td>27%</td>
<td>0%</td>
<td>3.1</td>
<td>.9</td>
</tr>
<tr>
<td>9 - You have much say and influence over things that concern your work.</td>
<td>0%</td>
<td>21%</td>
<td>41%</td>
<td>34%</td>
<td>5%</td>
<td>3.2</td>
<td>.8</td>
</tr>
<tr>
<td>10 - It is easy to get your suggestions about your work across to your supervisor.</td>
<td>0%</td>
<td>1%</td>
<td>23%</td>
<td>50%</td>
<td>26%</td>
<td>4.0</td>
<td>.7</td>
</tr>
<tr>
<td>11 - You ignore almost everything about important decisions taken concerning your work.</td>
<td>1%</td>
<td>26%</td>
<td>54%</td>
<td>18%</td>
<td>0%</td>
<td>3.1</td>
<td>.7</td>
</tr>
</tbody>
</table>
representatives have succeeded in solving problems raised by workers (Item 7), 7% of respondents replied: "never"; 53% "rarely"; and only 3% answered with "often"; and none with "every time".

Turning to participation as represented by the relationships of workers with their supervisors. The general picture looks less dramatic. A substantial proportion of workers found it is often (50% of respondents) or always (26% of respondents) easy for them to communicate their propositions and suggestions to their supervisors (Item 10). However, whether they can influence their supervisors' decision regarding their work matters, there is no clear trend of responses suggesting an overwhelming presence or absence of influence: 32% found it is possible; 37% sometime possible and 27% almost impossible, to influence the supervisors' decisions (Item 8).

Similarly, regarding the items related to supportive relationship variable, Table 8.8 indicates that the items means show large differences ranging from 1.9 to 4.1, or in terms of response categories they range from "Slightly true" to "Quite true". However, more informative are the response category percentages associated with each item. Thus, regarding supportive relationships from co-workers, a substantial proportion of respondents exchange ideas and jokes with workmates (Item 7) and that workmates are helpful (Items 1 and 4) and show much interest in the respondents' opinions or ideas (Item 9).

Regarding supervisors, a substantial proportion of workers perceived their supervisors as helpful (Item 2, in Table 8.8), friendly (Item 10) and manifesting a great deal of understanding towards the respondent's problems (Item 6).

With reference to workers' relationships with their representatives, unlike the foregoing supportive relationships with workmates and supervisors, reports of negative relationships dominate. In this vein, when asked whether representatives show much concern when workers raise their work problems, 56% of respondents replied: "Slightly true" and 20%, "Not at all true"
### TABLE 8.8: Percentages of response categories for supportive relationship items.

<table>
<thead>
<tr>
<th>SUPPORTIVE RELATIONSHIPS</th>
<th>Not at all true</th>
<th>Slightly true</th>
<th>Half true half not</th>
<th>Quite true</th>
<th>Completely true</th>
<th>Mean</th>
<th>S.D</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - Your workmates often help you with your work problems.</td>
<td>0%</td>
<td>7%</td>
<td>30%</td>
<td>46%</td>
<td>17%</td>
<td>3.7</td>
<td>.8</td>
</tr>
<tr>
<td>2 - Your supervisor tries to help you when you have some difficulties.</td>
<td>2%</td>
<td>10%</td>
<td>36%</td>
<td>39%</td>
<td>14%</td>
<td>3.5</td>
<td>.9</td>
</tr>
<tr>
<td>3 - Representatives show much concern when you discuss work problems with them.</td>
<td>20%</td>
<td>56%</td>
<td>20%</td>
<td>4%</td>
<td>0%</td>
<td>2.1</td>
<td>.7</td>
</tr>
<tr>
<td>4 - You cannot rely on your workmates to lend you a hand when you need it.</td>
<td>5%</td>
<td>62%</td>
<td>28%</td>
<td>6%</td>
<td>0%</td>
<td>3.7</td>
<td>.7</td>
</tr>
<tr>
<td>5 - Representatives are indifferent about your difficulties and problems at work.</td>
<td>1%</td>
<td>4%</td>
<td>16%</td>
<td>47%</td>
<td>33%</td>
<td>1.9</td>
<td>.8</td>
</tr>
<tr>
<td>6 - Your supervisor lacks a lot of understanding towards you.</td>
<td>7%</td>
<td>51%</td>
<td>28%</td>
<td>14%</td>
<td>0%</td>
<td>3.5</td>
<td>.8</td>
</tr>
<tr>
<td>7 - You often exchange ideas and jokes with your workmates.</td>
<td>0%</td>
<td>4%</td>
<td>14%</td>
<td>56%</td>
<td>27%</td>
<td>4.1</td>
<td>.7</td>
</tr>
<tr>
<td>8 - You do not feel at ease when you talk with your supervisor.</td>
<td>20%</td>
<td>51%</td>
<td>24%</td>
<td>6%</td>
<td>0%</td>
<td>3.9</td>
<td>.8</td>
</tr>
<tr>
<td>9 - People you work with, rarely show interest in your opinions or ideas.</td>
<td>19%</td>
<td>64%</td>
<td>16%</td>
<td>1%</td>
<td>0%</td>
<td>4.0</td>
<td>.6</td>
</tr>
<tr>
<td>10 - Your supervisor is friendly and can be easily approached.</td>
<td>0%</td>
<td>2%</td>
<td>17%</td>
<td>51%</td>
<td>30%</td>
<td>4.0</td>
<td>.7</td>
</tr>
</tbody>
</table>
This trend of answers is confirmed by a similar question worded differently. Here too, 47% of respondents found it is "quite true", and 33% "Completely true", that representatives are indifferent about the respondents' difficulties and problems at work (Item 5).

In summary, the means and percentages of the contextual variable items seem to indicate a high level of perceived stress stemming from the interface between family life and work, and low level of participation through workers' representatives, and lack of supportive relationships from workers' representatives. Unlike representatives, workmates and supervisors constitute a satisfactory source of support.

8.1.4 Content Analysis of Coping Strategies.

The item means for externalization, in Table 8.9, indicate a moderate frequency of use of coping strategies pertaining to externalization. Considering the percentages of response categories, the coping strategy of thinking that "for every thing bad there is also something good" was often employed by 28% of respondents, always adopted by 21%; and rarely used by 28% of respondents. Also, the majority of workers often (32%) and always (21%) resort to reminding themselves that error is human as a way of coping with work stressors. On the other hand, coping through religious beliefs and prayer manifests the following trend of response category percentages: Those who often or every time tend to learn religion when in difficulties (Item C24) represent 49% against 29% of respondents who rarely or never tend to do so. Those often or always engage in more and more prayer (Item C12) listen to Koran or religious talks (Item C30) represent respectively 47% and 46% (adding the percentages of "often" and "Every time") as compared with 36% and 35% of respondents who tend rarely or never to do so in the stressful situations.

With reference to non-work activities, the item means in Table 8.9 indicate
a moderately high frequency of using non-work activities. The percentages reveal that the coping strategies: becoming more engaged in the out-of-work activities (Item C8), busy with children, wife, parents, relatives or friends (Item C11), and setting aside a certain time for entertainment (Item C34), are often used by 26%, 36% and 29% of workers respectively; and always resorted to by 36%, 32% and 25% of respondents respectively.

Regarding coping strategies relative to withdrawal, the item means, in Table 8.10, fluctuate from 2.3 (indicating "rarely") to 3.2 (denoting "sometimes"). The percentages of item response categories indicate that the coping strategy of directing tension, anger or irritation, caused by work problems, towards other persons or objects (Item C9) was rarely or never used by 12% and 41% of workers, respectively. Also, the coping strategy of expressing one's feelings openly (Item C25) was rarely or never adopted by 22% and 43% of respondents, respectively.

Coping items pertaining to the coping strategy: evaluation, exhibit, as indicated in Table 8.10, high item means (ranging from 3.8 to 4.1) denoting high frequency of reporting evaluation coping strategy. Considering only the percentages associated with the response category: "often", the following three coping strategies, namely, examination of self-conduct to find out what is wrong with it (Item C16), recall of one's capabilities and limitations (Item C14), and the examination of the situation (Item C2), were reported by 54%, 46% and 57% of respondents, respectively.

Taking action constitutes another set of coping strategies that were frequently used by a substantial percentage of workers. The item means in Table 8.10 range from 3.9 to 4.2, indicating that the three coping strategies were often used. In considering only the percentages relative to the response category: "often"; 50% of workers often work harder and harder in the presence of work stressors (Item C18); 62% schedule work problems, to be dealt with, in terms of their priorities (Item C19); and finally, 66% try to learn their
TABLE 8.9 : Percentages of response categories for externalization and non-work activity items.

<table>
<thead>
<tr>
<th>EXTERNALIZATION.</th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Every time</th>
<th>Mean</th>
<th>S.D</th>
</tr>
</thead>
<tbody>
<tr>
<td>C30 - You read or listen to Koran or religious talks</td>
<td>4%</td>
<td>31%</td>
<td>19%</td>
<td>19%</td>
<td>27%</td>
<td>3.5</td>
<td>1.3</td>
</tr>
<tr>
<td>C6 - You seek the help of Good.</td>
<td>3%</td>
<td>31%</td>
<td>20%</td>
<td>20%</td>
<td>26%</td>
<td>3.4</td>
<td>1.3</td>
</tr>
<tr>
<td>C12 - You engage in more and more prayer.</td>
<td>2%</td>
<td>34%</td>
<td>17%</td>
<td>21%</td>
<td>26%</td>
<td>3.4</td>
<td>1.3</td>
</tr>
<tr>
<td>C24 - You think more and more about religion and God, when in difficulties.</td>
<td>2%</td>
<td>27%</td>
<td>22%</td>
<td>24%</td>
<td>25%</td>
<td>3.4</td>
<td>1.2</td>
</tr>
<tr>
<td>C13 - You &quot;tell yourself&quot; that for everything bad there is also something good.</td>
<td>0%</td>
<td>28%</td>
<td>23%</td>
<td>28%</td>
<td>21%</td>
<td>3.4</td>
<td>1.1</td>
</tr>
<tr>
<td>C5 - You remind yourself that error is human.</td>
<td>1%</td>
<td>25%</td>
<td>21%</td>
<td>32%</td>
<td>21%</td>
<td>3.5</td>
<td>1.1</td>
</tr>
</tbody>
</table>

| NON-WORK ACTIVITIES. | | | | | |
|----------------------|-------|--------|-----------|-------|------------|------|-----|
| C8 - You become more engaged in the out-of-work activities: watching T.V., tinkering, etc.. | 12%   | 11%    | 16%       | 26%   | 36%        | 3.6  | 1.4 |
| C11- You get more involved with your children, wife, parents, relatives or friends. | 6%    | 14%    | 14%       | 36%   | 32%        | 3.8  | 1.2 |
| C34- You set aside a certain time during the evening and at weekends when you do anything that is not related to work. | 5%    | 19%    | 23%       | 25%   | 25%        | 3.5  | 1.2 |

Note: Items are listed according to the magnitude of their loadings on the respective coping factor.
TABLE 8.10: Percentages of response categories for withdrawal; evaluation and action items.

<table>
<thead>
<tr>
<th>Withdrawal</th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Every time</th>
<th>Mean</th>
<th>S.D</th>
</tr>
</thead>
<tbody>
<tr>
<td>C9: You direct your tension, anger, irritation, caused by work problems, toward other persons or objects.</td>
<td>41%</td>
<td>12%</td>
<td>17%</td>
<td>16%</td>
<td>15%</td>
<td>2.5</td>
<td>1.5</td>
</tr>
<tr>
<td>C15: Planning not to go to work the day after.</td>
<td>22%</td>
<td>19%</td>
<td>22%</td>
<td>19%</td>
<td>18%</td>
<td>2.9</td>
<td>1.4</td>
</tr>
<tr>
<td>C25: You try to bring your feelings into the open.</td>
<td>43%</td>
<td>22%</td>
<td>11%</td>
<td>16%</td>
<td>8%</td>
<td>2.3</td>
<td>1.4</td>
</tr>
<tr>
<td>C27: You try to remember how other workers in a situation like yours handle the problems.</td>
<td>15%</td>
<td>14%</td>
<td>18%</td>
<td>43%</td>
<td>11%</td>
<td>3.2</td>
<td>1.2</td>
</tr>
<tr>
<td>C21: When problems accumulate, you think of quitting this factory to another one.</td>
<td>20%</td>
<td>17%</td>
<td>20%</td>
<td>16%</td>
<td>27%</td>
<td>3.1</td>
<td>1.5</td>
</tr>
<tr>
<td>C22: You do nothing about it.</td>
<td>14%</td>
<td>23%</td>
<td>22%</td>
<td>29%</td>
<td>13%</td>
<td>3.0</td>
<td>1.3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Evaluation</th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Every time</th>
<th>Mean</th>
<th>S.D</th>
</tr>
</thead>
<tbody>
<tr>
<td>C16: You look at your conduct, what is wrong with it.</td>
<td>2%</td>
<td>2%</td>
<td>17%</td>
<td>54%</td>
<td>26%</td>
<td>4.0</td>
<td>.8</td>
</tr>
<tr>
<td>C14: You remind yourself of your limitations: what you can do, and what you cannot do.</td>
<td>1%</td>
<td>5%</td>
<td>26%</td>
<td>46%</td>
<td>23%</td>
<td>3.8</td>
<td>.9</td>
</tr>
<tr>
<td>C2: You try to understand what goes wrong.</td>
<td>0%</td>
<td>2%</td>
<td>14%</td>
<td>57%</td>
<td>27%</td>
<td>4.1</td>
<td>.7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Action</th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Every time</th>
<th>Mean</th>
<th>S.D</th>
</tr>
</thead>
<tbody>
<tr>
<td>C18: You work harder and harder.</td>
<td>0%</td>
<td>6%</td>
<td>17%</td>
<td>50%</td>
<td>27%</td>
<td>4.0</td>
<td>.8</td>
</tr>
<tr>
<td>C19: You set priorities among problems: which should be tackled first; which second etc...</td>
<td>2%</td>
<td>0%</td>
<td>19%</td>
<td>62%</td>
<td>17%</td>
<td>3.9</td>
<td>.7</td>
</tr>
<tr>
<td>C31: You try to learn more and more your work.</td>
<td>0%</td>
<td>0%</td>
<td>9%</td>
<td>66%</td>
<td>25%</td>
<td>4.2</td>
<td>.6</td>
</tr>
</tbody>
</table>

Note: items are listed according to the magnitude of their loading on the respective coping factor.
work further as a way of coping with work difficulties (Item C31).

To summarize, considering the means and percentages associated with coping items, it seems that coping through evaluation of self-coping resources and the situation, coping through religious beliefs and faith (externalization), coping by taking action, and coping by engaging in non-work activities are often resorted to.

8.1.5 Content Analysis of work Satisfaction.

Items assessing work satisfaction shown in table 8.11 have means ranging from 1.9 (indicating "slightly" satisfied) to 3.8 (denoting "Quite" satisfied). When the percentages associated with the two response categories: "Not at all" and "slightly" are added for each item, it appears that 84% of workers were dissatisfied with their representatives' performance (Item 4), 60% with physical working conditions such as lighting, temperature, safety, etc. (Item 6); 47% with the opportunities for training and progress (Item 9); 42% with the opportunities for promotion (Item 10), 57% with the extent and the way they were informed about their work matters (Items 11), and 75% with the pay (Item 12).

On the other hand, adding percentages of responses associated with the response categories "Quite" and "Completely" for each item, Table 8.11 indicates that 68% liked the way workmates get along with one another (Item 1), 53% expressed satisfaction with the manner, supervisors treat their subordinates (Item 2), 74% liked the way the factory is managed (Item 5), and 49% were satisfied with the type of work they do (Item 7).

Therefore, certain dimensions of work constitute a source of satisfaction for a substantial proportion of workers, and other work dimensions are responded to with dissatisfaction by a considerable proportion of respondents.
TABLE 8.11: Percentages of response categories for work satisfaction.

<table>
<thead>
<tr>
<th>WORK SATISFACTIONS ITEMS</th>
<th>Not at all</th>
<th>Slightly</th>
<th>Half half</th>
<th>Quite</th>
<th>Completely</th>
<th>Mean</th>
<th>S.D</th>
</tr>
</thead>
<tbody>
<tr>
<td>1- How much do you like the way your workmates get along with each other?</td>
<td>0%</td>
<td>6%</td>
<td>26%</td>
<td>54%</td>
<td>14%</td>
<td>3.8</td>
<td>.8</td>
</tr>
<tr>
<td>2- How much do you like the way your supervisor treats his workers?</td>
<td>0%</td>
<td>14%</td>
<td>33%</td>
<td>41%</td>
<td>12%</td>
<td>3.5</td>
<td>.9</td>
</tr>
<tr>
<td>3- How satisfied are you with encouragement you get when you do a good work?</td>
<td>2%</td>
<td>20%</td>
<td>35%</td>
<td>43%</td>
<td>1%</td>
<td>3.2</td>
<td>.8</td>
</tr>
<tr>
<td>4- How satisfied are you with the way your representatives handle matters raised by your co-workers?</td>
<td>26%</td>
<td>58%</td>
<td>11%</td>
<td>4%</td>
<td>1%</td>
<td>1.9</td>
<td>.8</td>
</tr>
<tr>
<td>5- How much do you like the way this factory is run?</td>
<td>0%</td>
<td>5%</td>
<td>22%</td>
<td>72%</td>
<td>2%</td>
<td>3.7</td>
<td>.6</td>
</tr>
<tr>
<td>6- How satisfied are you with working conditions: lighting, temperature, safety, hygiene, etc.?</td>
<td>8%</td>
<td>52%</td>
<td>36%</td>
<td>5%</td>
<td>0%</td>
<td>2.4</td>
<td>.7</td>
</tr>
<tr>
<td>7- How much do you like the kind of work you do?</td>
<td>3%</td>
<td>18%</td>
<td>31%</td>
<td>46%</td>
<td>3%</td>
<td>3.3</td>
<td>.9</td>
</tr>
<tr>
<td>8- How satisfied are you with the amount of say and influence you have regarding things that concern you?</td>
<td>4%</td>
<td>27%</td>
<td>37%</td>
<td>30%</td>
<td>2%</td>
<td>3.0</td>
<td>.9</td>
</tr>
<tr>
<td>9- How satisfied are you with the opportunities for learning and training?</td>
<td>8%</td>
<td>39%</td>
<td>36%</td>
<td>16%</td>
<td>1%</td>
<td>2.6</td>
<td>.9</td>
</tr>
<tr>
<td>10- How satisfied are you with chances for getting ahead in this factory in the future?</td>
<td>6%</td>
<td>36%</td>
<td>37%</td>
<td>21%</td>
<td>0%</td>
<td>2.7</td>
<td>.9</td>
</tr>
<tr>
<td>11- How satisfied are you with the extent and the way you are informed about things that concern your work?</td>
<td>3%</td>
<td>54%</td>
<td>28%</td>
<td>16%</td>
<td>0%</td>
<td>2.6</td>
<td>.8</td>
</tr>
<tr>
<td>12- How satisfied are you with the pay and bonuses for the work you do?</td>
<td>35%</td>
<td>40%</td>
<td>16%</td>
<td>10%</td>
<td>0%</td>
<td>2.0</td>
<td>1.0</td>
</tr>
<tr>
<td>13- Considering the things you like and things you dislike at work, generally speaking, how satisfied are you with your job as a whole?</td>
<td>2%</td>
<td>28%</td>
<td>24%</td>
<td>44%</td>
<td>2%</td>
<td>3.2</td>
<td>.9</td>
</tr>
</tbody>
</table>

Note: Work satisfaction items were scored in the direction of increased satisfaction: 'Not at all' = 1; 'Slightly' = 2; 'Half half' = 3; 'Quite' = 4; and 'Completely' = 5.
8.2 QUANTITATIVE ANALYSIS: INTER-SET RELATIONSHIPS THROUGH CANONICAL PROCEDURE.

8.2.1 Relationships Between the Set of Perceived Work Stressors and the Set of Coping Strategies.

The research task as indicated in Chapter V, consists of the examination of the relationship between the set of work stressors and the set of work strain indices, and to identify the subgroups within the set of work stressors that correlate with the subgroups within the set of strain indices.

Canonical analysis, presented in Table 8.12, indicates that the canonical correlation coefficient is .47. This is a significant coefficient using Bartlett's test of Wilks' Lambda. Other non significant canonical correlations are ignored. The canonical correlation coefficient is moderate in magnitude \( R_c = .47 \) and its derived square multiple canonical correlation \( R^2_c = .22 \) indicates that the pair of canonical variates (a canonical variate being the weighted composites or linear combination of variables in a set) share about 22% of the variance. It should be noted that Thorndike (1978, p. 183) recommends that a square canonical correlation \( R^2_c \) as low as 10% can be considered as meaningful.

However, to find out what subsets of variables contribute to the canonical correlations between work stressor set and coping strategy set, one should move further. In this vein, Table 12 provides other important information. It can be observed that the set of work stressors and the set of coping strategies are accompanied with values representing structure coefficients or loadings (they represent the correlation between the original variables and the canonical variate weights). It is worth noting that structure coefficients or loadings are preferred here, to canonical weights, as the latter are prone to redundancy and suppression effects (Cohen and Cohen, 1983, p. 457). Therefore, many methodologists (Meredith, 1964; Thorndike and Weiss, 1973) recommended the use of structure coefficients for the
TABLE 8.12: Canonical Correlation Analysis for the set of perceived work stressors and the set of strain indices (n = 110).

<table>
<thead>
<tr>
<th>Canonical Variate</th>
<th>Canonical Correlation</th>
<th>Redundancy index</th>
<th>Set of stressors</th>
<th>Loading</th>
<th>Set of coping strategies</th>
<th>Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st canonical variate</td>
<td>.47</td>
<td>For stressors (4%)</td>
<td>Task</td>
<td>.14</td>
<td>Action</td>
<td>.01</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Role conflict</td>
<td>.83</td>
<td>Non-work activities</td>
<td>.30</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Pay</td>
<td>-.08</td>
<td>Withdrawal</td>
<td>.93</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Communications</td>
<td>.52</td>
<td>Externalization</td>
<td>-.11</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Role overload</td>
<td>.25</td>
<td>Evaluation</td>
<td>-.30</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Career</td>
<td>.24</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Perceived stressors are scored in the direction of increased task, role conflict, pay, communication, role overload and career stressors. Coping strategies are scored in the direction of increased action, non-work activities, withdrawal, externalization and evaluation.

$R_c^2$ stands for square canonical multiple correlation.

The set of work stressors contains two meaningful loadings (as a rule of thumb, a loading $\geq .30$ can be treated as meaningful. Pedhazur, 1982, p. 732), namely, .83 relative to role conflict and .52 relative to communication stressors. The other coping strategy set show three meaningful loadings: .30, .93, and -.30 for non-work activities, withdrawal and evaluation, respectively. Both groups of meaningful loadings of the two sets indicate that workers who
experience role conflict and communication stressors tend to cope by engaging in non-work activities, withdrawing from the stressful situation and rarely resort to evaluation of their capabilities, limitations and situation difficulties.

Another remaining piece of information in Table 8.12, is the index of redundancy (Steward and Love, 1968). It indicates the proportion of variance of variables in one set that is predictable, accounted for, or explained from the variables of the other set. It should be noted that the redundancy index differs from the afore-mentioned square canonical correlation coefficient \( R_c^2 \) in that the latter is an estimate of the shared variance of two linear combinations of variable sets, not of the variance of the variables themselves as in the former (Pedhazur, 1982, p. 737).

Returning to Table 8.12, the redundancy index for coping set indicates that 21% of the total variance of coping strategies are redundant with or predictable from the linear combination or canonical variate of work stressors.

The redundancy index for work stressor set indicates that the proportion of the total variance of work stressors that is predictable from the linear combination of coping strategies is only 4%.

8.2.2 Relationships Between the Set of Perceived Work Stressors and Coping Strategies, and the set of strain Indices.

The research task is to examine whether work stressors and coping strategies, when mixed together in one set, tend to form unique or distinct dimensions; also, to examine what subsets of coping and work stressor variables relate to what subsets of strain indices.

Table 8.13 shows two pairs of canonical variates: the first pair exhibits a high canonical correlation coefficient of .84, representing 70% of variance shared by the first pair of canonical variables. The second pair of canonical variate has a moderate canonical correlation coefficient \( R_c = .53 \), expressing 28% of shared variance by the second pair of canonical variates.
Examination of loadings reveals that the first canonical variate is generally characterized by high loadings of work stressors; whereas coping strategies are, but withdrawal, weakly loaded on the same canonical variate. Thus, the loading of work stressors on the first variable ranges from .44 for task stressors, to .83 for career stressors.

Moving to the second variate, the reverse takes place. The loadings of coping strategies on the second variate are generally higher and more meaningful than their loadings on the first canonical variate; while work stressors loadings on the second canonical variate are generally lower and less meaningful than their loadings on the first canonical variate. Therefore, work stressors and coping strategies seem to form two distinct configurations or groups of variables.

In answering the question of what subsets in the coping and work stressor set are related to what subsets of strain indices, a further look at the two pairs of canonical variates is warranted.

The first pair of canonical variates in Table 8.13 indicates that all perceived stressors are highly loaded on the first canonical variate while coping strategies are generally low loaded on the same variate. The right-hand side of the table indicates that all strain indices, namely anxiety, depression, dissatisfaction and psychosomatic complaints, load highly on the first canonical variate, ranging from .52 for psychosomatic complaints to .92 for dissatisfaction. But, what does this description indicate? It indicates that workers experiencing work stress originating from task, role conflict, pay, communications, role overload, and career, tend to report greater anxiety, depression, dissatisfaction and psychosomatic complaints.

Following the same style of description, the second pair of canonical variates, in Table 8.13, shows that among coping strategies highly or meaningfully loaded on the second variate, are: non-work activities (.41), withdrawal (.42) and externalization (.37). On the other hand, the strain indices that are highly loaded on the second variate are: anxiety (.74),
TABLE 8.13 Canonical Correlation of a set involving the types of perceived work stressors and coping strategies, with a set containing strain indices (n = 110).

<table>
<thead>
<tr>
<th>Canonical Correlation</th>
<th>Redundancy index</th>
<th>Set of stressors (1\textsuperscript{st} box) and coping (2\textsuperscript{nd} box)</th>
<th>Loading</th>
<th>Set of strain indices</th>
<th>Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>First pair of canonical variates</td>
<td>.84</td>
<td>For strain</td>
<td>.44</td>
<td>. Anxiety</td>
<td>.54</td>
</tr>
<tr>
<td>(.R^2 = .70)</td>
<td>33%</td>
<td>Role conflict</td>
<td>.54</td>
<td>. Depression</td>
<td>.68</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pay</td>
<td>.65</td>
<td>. Dissatisfaction</td>
<td>.92</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Communication</td>
<td>.65</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Role overload</td>
<td>.54</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Career</td>
<td>.83</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Action</td>
<td>-.04</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Non-work activities</td>
<td>.03</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Withdrawal</td>
<td>.44</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Externalization</td>
<td>.06</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Evaluation</td>
<td>-.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Second pair of canonical variates</td>
<td>.53</td>
<td>For strain</td>
<td>.28</td>
<td>. Anxiety</td>
<td>.74</td>
</tr>
<tr>
<td>(.R^2 = .28)</td>
<td>8%</td>
<td>Role conflict</td>
<td>.05</td>
<td>. Depression</td>
<td>.21</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pay</td>
<td>-.15</td>
<td>. Dissatisfaction</td>
<td>.30</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Communication</td>
<td>-.32</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Role overload</td>
<td>.53</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Career</td>
<td>-.22</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Action</td>
<td>-.15</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Non-work activities</td>
<td>.41</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Withdrawal</td>
<td>.42</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Externalization</td>
<td>.37</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Evaluation</td>
<td>.22</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Strain indices are scored in the direction of increased anxiety, depression, dissatisfaction and psychosomatic complaints. The direction of scoring stressors and coping strategies are indicated in the note of Table 8.12.
psychosomatic complaints (.68) and dissatisfaction (.30). Therefore, the conclusion of which is that workers who tend to cope by engaging in non-work activities, and through withdrawal and externalization, report greater anxiety, psychosomatic complaints and dissatisfaction.

The redundancy index for the set of strain indices in the first pair of canonical variates indicates that about 33% of the total variance of strain variables is predictable from the linear combination of work stressors and coping strategies. However, this percentage is mainly predicted by work stressors since they load higher than coping strategies on the first canonical variate.

The redundancy index for the strain set regarding the second pair of variates reveals that about 8% of the total variance in strain variables is predictable from the second variate of work stressors and coping strategy set.

The three coping strategies highly loaded on the second pair of canonical variate, namely, non-work activities, withdrawal and externalization, contribute to this redundancy index. Therefore, it seems that the contribution of work stressors to the prediction of strain indices is much greater than that of coping strategies.

8.2.3 Relationships of the Set of Overall Work Stressors and Overall Coping Strategies to the Set of Strain Indices.

The only difference between the present research question and that mentioned earlier is the analysis of coping and work stressors as a set of two composite indices and not as a set of different coping strategy indices and work stressor indices.

Table 8.14 reveals that the relationships between the set involving overall coping and overall work stressors, and the set of strain indices bear two significant pairs of canonical variates. The canonical correlation for the set of overall work stressors and overall coping, with the set of strain indices regarding the first pair of canonical variates, is as high as .80.
TABLE 8. 14: Canonical correlation of a set involving overall perceived work stressors and overall coping strategies, with a set containing strain indices (n = 110).

<table>
<thead>
<tr>
<th></th>
<th>Canonical correlation</th>
<th>Redundancy index for strain</th>
<th>Set of overall stressor and overall coping</th>
<th>Loadings</th>
<th>Set of strain indicators</th>
<th>Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Canonical Variate</td>
<td>.80</td>
<td>26%</td>
<td>Overall stressor</td>
<td>.99</td>
<td>Anxiety</td>
<td>.52</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Overall coping</td>
<td>.23</td>
<td>Depression</td>
<td>.60</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Dissatisfaction</td>
<td>.94</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Psychosomatic complaints</td>
<td>.50</td>
</tr>
<tr>
<td>2nd Canonical Variate</td>
<td>.39</td>
<td>5%</td>
<td>Overall stressor</td>
<td>.01</td>
<td>Anxiety</td>
<td>.75</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Overall coping</td>
<td>.97</td>
<td>Depression</td>
<td>.57</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Dissatisfaction</td>
<td>.28</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Psychosomatic complaints</td>
<td>.50</td>
</tr>
</tbody>
</table>

Note: Overall stressors and overall coping indices were constructed by summing the scores of perceived work stressors and coping strategies respectively. Strain indicators were scored in the direction of increased anxiety, depression, dissatisfaction and psychosomatic complaints.

This canonical correlation represents about .63 of shared variance by the first pair of canonical variates. The canonical correlation for the second pair of canonical variates is .39, representing 15% of shared variance accounted for by the second pair of canonical variates.

Considering the structure coefficients or loadings in Table 8. 14, it can be seen that overall work stressors load highly on the first canonical variate but load very low on the second canonical variate. Conversely, coping loads low on the first canonical variate and high on the second canonical variate.

On the other hand, the set of strain indices indicates that all strain indices load highly on the first canonical variate. Therefore, it can be concluded that overall work stressors are related to anxiety, depression,
dissatisfaction and psychosomatic complaints.

Regarding the strain set in the second canonical variate, it appears that anxiety, depression and psychosomatic complaints are highly loaded on the second canonical variate. It can be concluded that overall coping is related to anxiety, depression and psychosomatic complaints.

The index of redundancy indicates that 26% of the total variance of strain indices are predictable from the linear combination of overall work stressors and overall coping. Since overall work stressors load much higher than overall coping on the first canonical variate, it follows that their contribution to the predicted variance percentage is greater.

Similarly, the redundancy index for the strain set regarding the second canonical variate indicates that 5% of the total variance of strain indices are predictable from the linear combination of overall work stressors and overall coping. As the loadings of overall coping dominate in the second variate, it follows that the predicted variance is mostly accounted for by overall coping. It can be concluded that the contribution of overall work stressors to the prediction of strain is more important than the contribution of overall coping strategies.

8.2.4 Summary of the Canonical Correlation Analysis.

The findings regarding the relationships addressed so far, using canonical correlation are:

(1) Perception of role conflict and communication stressors are associated with coping by engaging in non-work activities, withdrawal and decreased evaluation of one's resources (capabilities and limitations) and the situation difficulties. The redundancy indices indicate that the linear combination of perceived work stressors predicts about 21% of the total variance of coping strategies. But, the linear combination of coping strategies predicts only 4% of the total variance of perceived work stressors.
(2) - Experience of work stressors originating from role conflict, task, pay, communications, career, and role overload is related to greater anxiety, depression, dissatisfaction and psychosomatic complaints.

(3) - The coping strategies: non-work activities, withdrawal and externalization, are associated with greater anxiety, psychosomatic complaints and dissatisfaction.

(4) - Overall work stressor index is related to anxiety, depression, dissatisfaction and psychosomatic complaints, whereas overall coping strategy index was particularly related to anxiety, depression and psychosomatic complaints.

(5) - The redundancy indices for overall work stressors and overall coping strategies suggest that the contribution to the predicted variance of strain indices made by the former is more important than the contribution of the latter.

8.3 PREDICTORS OF STRAIN MANIFESTATIONS.

8.3.1 Predicting Strain Indices: the Contribution of Perceived Work Stressors.

The research questions and hypotheses which will be addressed require the assessment of the effect of each independent variable on strain indices, or the identification of significant contributors among the independent variables to the prediction of each strain indicator, while controlling or adjusting for other independent variables in the equation. Canonical correlation cannot satisfy these objectives. The most appropriate analytic procedure is multiple regression.

More specifically, the questions to be addressed are:

(1) - What perceived work stressors significantly contribute to the prediction of strain indices?
(2) - What is the direction of relationships of significant predictors to strain indices?

(3) - Are strain indices selectively responsive to perceived work stressors? That is, whether each strain indicator is specifically affected by some particular work stressors and not affected by others?

(4) - What is the level of prediction of strain indices, collectively contributed to by perceived work stressors?

Table 8.15 shows that the relationship between work stressors and anxiety is highly significant, although of moderate magnitude ($R = .53, P < .001$). The square multiple correlation ($R^2 = .28$) indicates that 28% of the total variance of anxiety is predictable from perceived work stressors. Adjusted square multiple correlation (Adjusted $R^2$) is also shown. It aims at correcting for the bias of overestimating multiple correlation due to the unrealistic treatment of the bivariate correlation coefficient as being error-free, in the calculation of the weights to obtain a maximum multiple correlation coefficient. The degree of overestimation of $R$ is affected, among other things, by the ratio of the number of independent variables to the size of the sample. The larger the ratio, the greater the $R$ overestimation (Pedhazur, 1982; p. 148). Since the present sample is of medium size, a certain inflation in $R$ may take place. Therefore, the provision of adjusted $R$'s in Table 8.15 is justifiable. The adjusted $R^2$ indicates that work stressors account for 24% instead of 28% of variance in anxiety.

But, what perceived work stressors independently contribute to this meaningful percentage of predicted variance in anxiety? It can be observed in Table 8.15 that role overload (Beta = .37, $P < .001$) contributes substantially to the prediction of anxiety; followed next by role conflict (Beta = .18, $P < .05$). The partial coefficients of multiple regression (Beta weights) for career, task, communication and pay are not significant. Therefore, role overload and role conflict are the significant contributors to the prediction of anxiety.

Regarding the regression of depression on work stressors, the multiple
Table 8.15: Contribution of perceived work stressors to the prediction of strain indices: Regression of strain indices on perceived work stressors (n = 110).

<table>
<thead>
<tr>
<th>Predictors</th>
<th>Anxiety</th>
<th>Depression</th>
<th>dissatisfaction</th>
<th>Psychosomatic complaints</th>
<th>Overall strain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work stressors</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Career</td>
<td>.17</td>
<td>.22*</td>
<td>.35***</td>
<td>-.01</td>
<td>.23*</td>
</tr>
<tr>
<td>Task</td>
<td>.13</td>
<td>.09</td>
<td>.05</td>
<td>.15*</td>
<td>.14+</td>
</tr>
<tr>
<td>Role conflict</td>
<td>.18*</td>
<td>.22**</td>
<td>.18**</td>
<td>.20*</td>
<td>.26***</td>
</tr>
<tr>
<td>Role overload</td>
<td>.37***</td>
<td>.12</td>
<td>.11</td>
<td>.37***</td>
<td>.32***</td>
</tr>
<tr>
<td>Communication</td>
<td>-.02</td>
<td>.22*</td>
<td>.21**</td>
<td>.02</td>
<td>.14+</td>
</tr>
<tr>
<td>Pay</td>
<td>-.09</td>
<td>-.06</td>
<td>.19*</td>
<td>.03</td>
<td>.00</td>
</tr>
<tr>
<td>Multiple R²</td>
<td>.53***</td>
<td>.55***</td>
<td>.77***</td>
<td>.52***</td>
<td>.70***</td>
</tr>
<tr>
<td>Multiple R²</td>
<td>.28</td>
<td>.30</td>
<td>.59</td>
<td>.27</td>
<td>.49</td>
</tr>
<tr>
<td>Adjusted R²</td>
<td>.24</td>
<td>.26</td>
<td>.56</td>
<td>.23</td>
<td>.46</td>
</tr>
</tbody>
</table>

Note: Entries in work stressor rows are standardized partial regression coefficients (Beta weights). Work stressors are scored in the direction of increased career, task, role conflict, role overload, communication and pay stressors. Strain indicators are scored in the direction of increased anxiety, depression, dissatisfaction and psychosomatic complaints. Overall strain index consists of the summation of the strain indices' scores.

+ P < .10  
* P < .05  
** P < .01 
*** P < .001

correlation is highly significant despite its moderate size (R = .55, P < .001). Thus, 30% of depression variance is accounted for by work stressors. Considering the regression coefficients for work stressors, it appears that role conflict (Beta = .22, P < .01), communication stressors (Beta = .22, P < .05) and career stressors (Beta = .22, P < .05) contribute significantly to the prediction of depression.

Concerning the regression of work dissatisfaction on work stressors, it can be observed in Table 8.15, that the substantially meaningful and highly
significant multiple correlation ( $R = .77, P < .001$ ) represents 59% of the variance of work dissatisfaction that is predicted from work stressors. The significant predictors among work stressors are career stressors ( Beta = .35, P < .001 ), communication stressors ( Beta = .21, P < .01 ), role conflict ( Beta = .18, P < .01 ), and pay stressors ( Beta = .19, P < .05 ).

The relationships of psychosomatic complaints to work stressors represent a highly significant multiple correlation ( $R = .52, P < .001$ ), work stressors, therefore, predict 27% of the psychosomatic complaints variance. Those work stressors that independently play an important role in this amount of predicted variance are role overload ( Beta = .37, P < .001 ), role conflict ( Beta = .20, P < .05 ) and task stressors ( Beta = .15, P < .10 ).

Considering the relationships between the overall index of strain and work stressors, the multiple correlation as high as .70 is obtained, representing 49% variance of overall strain that is predicted by work stressors. Those work stressors that have significantly contributed to the prediction of overall strain consist of role overload ( Beta = .32, P < .001 ), role conflict ( Beta = .26, P < .001 ), career ( Beta = .23, P < .05 ), task ( Beta = .14, P < .10 ) and communications ( Beta = .14, P < .10 ).

So far, the identification of significant contributors among work stressors to each indicator of strain and to overall strain is dealt with. It remains however, to address the hypotheses formulated in Chapter V.

Hypothesis 1 stipulates that role conflict positively predicts anxiety, depression, dissatisfaction, and psychosomatic complaints. Indeed, the findings showed that role conflict predicts increased report of anxiety, depression, dissatisfaction and psychosomatic complaints.

Hypothesis 2 suggests that role overload positively predicts anxiety, depression and psychosomatic complaints. The findings ( Table 8.15 ) indicated that role overload positively and significantly contributes to the prediction of anxiety and psychosomatic complaints but did not significantly predict depression and dissatisfaction.
Hypothesis 3 stipulates that career stressors predict anxiety, depression and dissatisfaction. This is partly supported by the findings shown in Table 8.15. Career stressors are positively significant predictors of dissatisfaction and depression. However, they are not significant predictors of anxiety and psychosomatic complaints.

Hypothesis 4 proposes that task stressors positively predict psychosomatic complaints. This hypothesis is somewhat supported, since the prediction of psychosomatic complaints by task stressors was marginally significant (Beta = .15, P < .10). Other work stressors were not significant predictors.

The hypothesis that communication stressors positively predict anxiety, depression, and work dissatisfaction (Hypothesis 5), is partly supported. Communication stressors, as shown in Table 8.15, predicted increased dissatisfaction and depression, but were not a significant predictor of anxiety and psychosomatic complaints.

Hypothesis 6 suggests that pay stressors positively predict anxiety, depression, and dissatisfaction. This hypothesis is weakly supported by the findings. The only significant prediction by pay stressors concerns work dissatisfaction. That is, increased pay stressors predict higher dissatisfaction. Other strain indices such as anxiety, depression and psychosomatic complaints were not significantly predicted by pay stressors.

The first corollary that follows from the foregoing six hypotheses suggests that work strain indices are more responsive to role conflict than to any other work stressors. That is, role conflict affects more strain indices than any other work stressors. The findings support this inference in that role conflict, unlike other perceived work stressors, predicts all strain indices: anxiety, depression, dissatisfaction and psychosomatic complaints.

The second corollary inferred from the foregoing hypotheses suggests that strain indices are less responsive to task stressors than to role conflict, role overload, career, communication and pay stressors. This is a somewhat valid
inference since task stressors affect only psychosomatic complaints
(Beta = .15, P < .10) and overall strain (Beta = .14, P < .10) at marginally
significant partial regression coefficients. But another work stressor, namely
pay stressors can also be considered as weakly affecting strain indices: the
only significant relationship of pay stressors is to work dissatisfaction
(Beta = .19, P < .05).

To summarize:

1. Role conflict predicts increased anxiety, depression, dissatisfaction,
   psychosomatic complaints and overall strain.
2. Perceived role overload positively predicts anxiety, psychosomatic complaints
   and overall strain.
3. Perceived career stressors positively predict depression, dissatisfaction
   and overall strain.
4. Perceived communication stressors predict increased depression,
   dissatisfaction and overall strain.
5. Perceived pay stressors positively predict dissatisfaction.
6. Perceived task stressors positively and marginally predict psychosomatic
   complaints and overall strain.

8.3.2 Predicting Strain Indices: the Contribution of Contextual Variables.

The research issue consists of studying what type of contextual variables
predict what sort of strain indices and to what extent. Therefore, the research
tasks involve:

(a) - Determining the magnitude of prediction contributed by all contextual
   variables to each strain indicator.
(b) - Identifying significant predictors among contextual variables, namely
   work-family interaction, supportive relationships and participation.
(c) - The direction of the relationships of contextual variables to strain
   indices.
(d) - Considering whether strain indices respond selectively to the contextual variables.

To tackle these issues, Table 8.16 offers the summary statistics needed. It can be observed that the respective regressions of the criteria: anxiety, depression, dissatisfaction, psychosomatic complaints and overall strain on contextual variables produce very highly significant multiple correlation coefficients ( $R_s = .49, .54, .81, .50$ and $.68$, respectively, all significant at $P<.001$). Some coefficients are even substantively meaningful as for the relationships of work dissatisfaction to contextual variables ( $R = .81$). Thus, the respective percentages of variance for anxiety, depression, dissatisfaction, psychosomatic complaints and overall strain that are predicted by contextual variables amount to $24\%$, $29\%$, $67\%$, $25\%$ and $46\%$. Therefore, the proportions of strain variance that contextual variables can predict range from $24\%$ (of anxiety variance) to $67\%$ (of dissatisfaction variance).

To identify the significant predictors among the contextual variables, Table 8.16 reveals that, regarding the three strain indices, namely anxiety, depression, and psychosomatic complaints, the only significant predictor is family-work interface. Greater disruption in the interaction of family life with work is highly predictive of increased report of anxiety (Beta = .49, $P<.001$), depression (Beta = .53, $P<.001$), and psychosomatic complaints (Beta = .49, $P<.001$). Moving to work dissatisfaction relationships to contextual variables, it can be seen that supportive relationships (Beta = -.40, $P<.001$), disrupted family-work interface (Beta = .32, $P<.001$) and lack of participation (Beta = .40, $P<.001$) are significant predictors of work dissatisfaction. Therefore, increased feelings of work dissatisfaction are significantly predicted by disrupted family-work interface and low participation, while decreased dissatisfaction is highly predicted by the existence of supportive relationships.

With reference to overall strain, two contextual variables contribute to its prediction: supportive relationships and disrupted family-work interface.
TABLE 8.16 Contributions of contextual variables to the prediction of strain indices: Regression of strain indices on contextual variables (n = 110)

<table>
<thead>
<tr>
<th>Predictors</th>
<th>Anxiety</th>
<th>Depression</th>
<th>Dissatisfaction</th>
<th>Psychosomatic complaints</th>
<th>Overall strain</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Contextual Variables</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supportive relationships.</td>
<td>-.10</td>
<td>-.10</td>
<td>-.40***</td>
<td>-.08</td>
<td>-.20*</td>
</tr>
<tr>
<td>Family-work Interface</td>
<td>.49***</td>
<td>.53***</td>
<td>.32***</td>
<td>.49***</td>
<td>.61***</td>
</tr>
<tr>
<td>Low Participation</td>
<td>-.07</td>
<td>-.02</td>
<td>.40***</td>
<td>-.01</td>
<td>-.06</td>
</tr>
<tr>
<td>Multiple R</td>
<td>.49***</td>
<td>.54***</td>
<td>.81***</td>
<td>.50***</td>
<td>.68***</td>
</tr>
<tr>
<td>Multiple R²</td>
<td>.24</td>
<td>.29</td>
<td>.67</td>
<td>.25</td>
<td>.46</td>
</tr>
<tr>
<td>Adjusted R²</td>
<td>.22</td>
<td>.27</td>
<td>.66</td>
<td>.23</td>
<td>.45</td>
</tr>
</tbody>
</table>

Note: Entries for contextual variables are standardized partial regression coefficients (Beta weights). Contextual variables are scored in the direction of greater supportive relationships, increased stressors from family-work interface, and decreased participation.

* P < .05
** P < .01
*** P < .001

The former predicts decreased overall strain (Beta = -.20, P < .05), and the latter substantially predicts increased overall strain (Beta = .61, P < .001).

In chapter V, five hypotheses have been formulated regarding the relationships of contextual variables to strain indices. The pressing question is: To what extent are these hypotheses supported by the foregoing findings?

The hypothesis that disrupted family-work interface contributes positively to the prediction of anxiety, depression, dissatisfaction and psychosomatic complaints (Hypothesis 7), is supported by the findings reported in Table 8.16.
Indeed disrupted family-work interface substantially predicts increased anxiety (Beta = .49, P < .001), increased depression (Beta = .53, P < .001), higher dissatisfaction (Beta = .32, P < .001) and more frequent psychosomatic complaints (Beta = .49, P < .001).

Hypothesis 8 stipulates that supportive relationships contribute significantly to the prediction of decreased anxiety, depression, dissatisfaction and psychosomatic complaints. The findings lend little support to this hypothesis. The prediction of decreased dissatisfaction by supportive relationships is significant and meaningful (Beta = -.40, P < .001). However, the partial regression coefficients for anxiety (Beta = -.10), depression (Beta = -.10) and psychosomatic complaints (Beta = -.08) in relation to supportive relationships, fail to reach the level of significance.

Hypothesis 9 suggests that "lack of participation" predicts increased dissatisfaction, anxiety and depression. These hypothesized relationships are only partly corroborated by the results. Report of low participation is associated with higher prediction of increased dissatisfaction (or low satisfaction). However, participation fails to predict anxiety, depression and psychosomatic complaints.

The hypothesis that disrupted family-work interface, compared with supportive relationships and participation, is the major contributor to the prediction of reported strain indicators (Hypothesis 10 in Chapter V), is valid as far as the findings of this research are concerned. A quick look at the Beta weights in Table 8.16 is sufficient enough to reveal that disrupted family-work interface is by far the dominant predictor of anxiety (Beta = .49, P < .001), depression (Beta = .53, P < .001), psychosomatic complaints (Beta = .49, P < .001) and overall strain (Beta = .61, P < .001). The only exception is the prediction of dissatisfaction where all the three contextual variables are highly significant predictors of dissatisfaction.

Hypothesis 11 suggests that greater overall strain is positively predicted by disrupted family-work interface and low participation, and negatively
predicted by supportive relationships. The findings shown in Table 8. 16 support the idea that disrupted family-work interface predicts increased overall strain (Beta = .61, P<.001), and that higher supportive relationships predicts decreased overall strain (Beta = -.20, P<.05). The results, however, lend no support to the idea that lack of participation predicts a significant increase in overall strain.

To summarize:

(1) - Disrupted family-work interface is highly predictive of increased anxiety, depression, dissatisfaction, psychosomatic complaints and overall strain.

(2) - Supportive relationships are highly predictive of decreased dissatisfaction and overall strain.

(3) - Low participation is a highly significant predictor of dissatisfaction.

8.3.3 Predicting Strain Indices: the Contribution of Personality Variables.

In addition to the hypotheses that will be addressed later, the research tasks consist of:

(a) - Determining the level of prediction contributed by personality variables to each strain index.

(b) - Identifying what personality variables predict what kind of strains.

(c) - Examining the direction of relationships between personality variables and strain indices.

(d) - Considering whether strain indices are selectively predicted by personality variables.

Table 8. 17 shows that the multiple correlation coefficients for personality variables with anxiety (R = .31, P<.01), depression (R = .36, P<.001), psychosomatic complaints (R = .28, P<.05) and overall strain (R = .38, P<.001) are sometimes highly significant despite their modest magnitudes. However, the multiple correlation of personality variables with
Table 8.17: Contribution of personality variables to the prediction of strain indices: Regression of strain indices on personality variables (n = 110).

<table>
<thead>
<tr>
<th>Predictors</th>
<th>Criteria (Strain indices)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Anxiety</td>
</tr>
<tr>
<td>Personality Variables</td>
<td></td>
</tr>
<tr>
<td>. Self-Esteem.</td>
<td>-.10</td>
</tr>
<tr>
<td>. Type A Behaviour pattern.</td>
<td>.20*</td>
</tr>
<tr>
<td>. Internal Locus of control.</td>
<td>-.18+</td>
</tr>
<tr>
<td>Multiple R</td>
<td>.31**</td>
</tr>
<tr>
<td>Multiple R²</td>
<td>.10</td>
</tr>
<tr>
<td>Adjusted R²</td>
<td>.07</td>
</tr>
</tbody>
</table>

Note: Entries for personality variables are standardized partial regression coefficients (Beta weights). Personality variables are scored in the direction of type A behaviour, internal locus of control and higher self-esteem.

+ P ≤ .10
* P ≤ .05
** P ≤ .01
*** P ≤ .001

dissatisfaction is not significant. Therefore, no further analysis of the relationships of individual variables of personality to work dissatisfaction is performed. Examination of the percentages of predicted variance (R²) reveals that all R² are low, ranging from 4% (predicted variance in dissatisfaction) to 14% (predicted variance in overall strain). Therefore, although these percentages of explained variance are statistically significant (except the percentage of predicted variance in dissatisfaction being not significant), they are, however, of little substantive meaningfulness.
Returning to the examination of partial regression coefficients shown in Table 8.17, it can be seen that anxiety is positively predicted by Type A behaviour pattern (Beta = .20, P< .05), and negatively predicted by internal locus of control (Beta = -.18, P< .10). Decreased depression is predicted by higher self-esteem (Beta = -.29, P< .01). Low frequency of psychosomatic complaints is predicted by higher self-esteem (Beta = -.20, P< .05), but frequent psychosomatic complaints is predicted by Type A behaviour (Beta = .17, P< .10). Finally, reduction in overall strain is significantly predicted by high self-esteem (Beta = -.25, P< .01) and somewhat predicted by internal locus of control (Beta = -.15, P< .10). But, increased overall strain is predicted by Type A behaviour pattern (Beta = .18, P< .05).

Turning now to the hypotheses formulated in Chapter V regarding the relationships of personality variables to strain indices.

Hypothesis 12 suggests that Type A behaviour pattern predicts increased anxiety, depression, dissatisfaction and psychosomatic complaints. The findings partly support this hypothesis. As it can be seen in Table 8.17, workers with Type A behaviour pattern, report greater anxiety (Beta = .20, P< .05) and psychosomatic complaints (Beta = .17, P< .10). However, Type A behaviour bears no relationship to depression.

Hypothesis 13 stipulates that high self-esteem contributes to the prediction of reduced anxiety, depression, dissatisfaction and psychosomatic complaints. The findings shown in Table 8.17 indicate that self-esteem is a predictor of low depression (Beta = -.29, P< .01) and low frequency of psychosomatic complaints (Beta = -.20, P< .05). However, anxiety is not significantly predicted by self-esteem.

The hypothesis that beliefs in internal control over events predict decreased anxiety, depression, dissatisfaction and psychosomatic complaints (Hypothesis 14) is weakly supported by evidence. Among strain indices, only low anxiety is significantly predicted by internal locus of control (Beta = -.18, P< .10).
Hypothesis 15 stipulates that overall strain is positively affected by Type A behaviour pattern, and negatively affected by self-esteem and internal locus of control. Indeed, the findings shown in Table 8.17 suggest similar pattern of relationships: low level of overall strain is predicted by high self-esteem (Beta = -.25, P<.01) and internal locus of control (Beta = -.15, P<.10). On the other hand, high overall strain is significantly predicted by Type A behaviour pattern (Beta = .18, P<.05).

To summarize, the findings indicate that:

1 - Type A behaviour pattern predicts increased anxiety, psychosomatic complaints and overall strain.

2 - Self-esteem predicts decreased depression, psychosomatic complaints and overall strain.

3 - Internal locus of control predicts (although marginally) decreased anxiety and low overall strain.

8.3.4 Predicting Strain Indices: the Contribution of Socio-Demographic Variables

The research tasks regarding the relationships of socio-demographic variables to each strain indicator consist of examining what types of socio-demographic variables predict what kinds of strain indicators; and assessing the proportions of variance accounted for by socio-demographic variables concerning each strain indicator.

Examination of R and $R^2$ in Table 8.18 reveals that socio-demographic variables are weakly correlated with strain indices: there are only two multiple correlation coefficients which are significant beyond (P<.05), two at (P<.10), and one non-significant. Also, it can be observed that $R^2$'s range from 6% to 12% of predicted variance in depression and dissatisfaction respectively. Therefore, these coefficients account for only small percentages of strain variance.

Partial regression coefficients in Table 8.18 indicate that only
TABLE 8.18: Contribution of socio-demographic variables to the prediction of strain indices: Regression of strain indices on socio-demographic variables (n = 110).

<table>
<thead>
<tr>
<th>Predictors.</th>
<th>Anxiety</th>
<th>Depression</th>
<th>Dissatisfaction</th>
<th>Psychosomatic complaints</th>
<th>Overall strain.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Socio-demographic Variables.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income.</td>
<td>.14</td>
<td>-.03</td>
<td>-.21&lt;sup&gt;+&lt;/sup&gt;</td>
<td>.17</td>
<td>.04</td>
</tr>
<tr>
<td>Education.</td>
<td>-.03</td>
<td>-.09</td>
<td>-.18</td>
<td>.06</td>
<td>-.07</td>
</tr>
<tr>
<td>Tenure.</td>
<td>.10</td>
<td>-.15</td>
<td>-.29</td>
<td>.02</td>
<td>-.09</td>
</tr>
<tr>
<td>Married.</td>
<td>-.17</td>
<td>.11</td>
<td>.22&lt;sup&gt;+&lt;/sup&gt;</td>
<td>.09</td>
<td>.07</td>
</tr>
<tr>
<td>Age.</td>
<td>.20</td>
<td>.18</td>
<td>.20</td>
<td>.09</td>
<td>.22</td>
</tr>
<tr>
<td>Multiple R</td>
<td>.32*</td>
<td>.24 (NS)</td>
<td>.35**</td>
<td>.29&lt;sup&gt;+&lt;/sup&gt;</td>
<td>.29&lt;sup&gt;+&lt;/sup&gt;</td>
</tr>
<tr>
<td>Multiple R&lt;sup&gt;2&lt;/sup&gt;</td>
<td>.10</td>
<td>.06</td>
<td>.12</td>
<td>.08</td>
<td>.08</td>
</tr>
<tr>
<td>Adjusted R&lt;sup&gt;2&lt;/sup&gt;</td>
<td>.06</td>
<td>.01</td>
<td>.08</td>
<td>.04</td>
<td>.04</td>
</tr>
</tbody>
</table>

Note: Entries for socio-demographic variables are standardized partial regression coefficients (Beta weights). The socio-demographic variables are scored in the direction of increased higher income, education, tenure and age; and in the direction of being married.

+ P < .10  
* P < .05  
** P < .01  
*** P < .001

dissatisfaction among strain indices is predicted by income (Beta = -.21, P < .10) and the marital status of being married (Beta = .22, P < .10).

Both relationships are, however, marginally significant.

It can be concluded that socio-demographic variables are of negligible predictive value of strain indices. Therefore, the hypotheses (Hypothesis 16A through Hypothesis 20A) formulated in Chapter V are not supported.
TABLE 8.19: Summary table of adjusted squared multiple correlation coefficients of the variable sets considered.

<table>
<thead>
<tr>
<th>R² for each set of variables.</th>
<th>Anxiety</th>
<th>Depression</th>
<th>Dissatisfaction</th>
<th>Psychosomatic symptoms</th>
<th>Overall strain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work stressor set.</td>
<td>.24</td>
<td>.26</td>
<td>.56</td>
<td>.23</td>
<td>.46</td>
</tr>
<tr>
<td>Coping strategy set.</td>
<td>.17</td>
<td>.18</td>
<td>.04</td>
<td>.09</td>
<td>.20</td>
</tr>
<tr>
<td>Contextual variable set.</td>
<td>.22</td>
<td>.27</td>
<td>.66</td>
<td>.23</td>
<td>.45</td>
</tr>
<tr>
<td>Personality variable set.</td>
<td>.07</td>
<td>.11</td>
<td>.02</td>
<td>.05</td>
<td>.12</td>
</tr>
<tr>
<td>Socio-demographic variable set.</td>
<td>.06</td>
<td>.01</td>
<td>.08</td>
<td>.04</td>
<td>.04</td>
</tr>
</tbody>
</table>

8.3.4 Summary of predicted variance levels accounted for by each set of variables

Table 8.19 recapitulates the percentages of strain indicator variance predicted by each of the following set of variables: work stressor, coping strategies, contextual variables, personality attributes and socio-demographic characteristics. The summary table permits the following inferences:

First: The most important variable sets that considerably contribute to the prediction of strain indices are perceived work stressors and contextual variables.

Second: The least important sets which contribute little to the prediction of strain indices are socio-demographic characteristics and personality attributes.

Third: Anxiety, depression, psychosomatic symptoms and overall strain are generally responsive to the sets of perceived work stressors, coping strategies and contextual variables; but they are less responsive to personality attributes and demographic characteristics.

Fourth: Dissatisfaction is highly responsive to situational variables such as
work stressors and contextual variables, and less sensitive to individual variables such as coping strategies, personality attributes and socio-demographic characteristics.

8.4 MEDIATING EFFECTS OF COPING STRATEGIES; CONTEXTUAL VARIABLES, PERSONALITY, AND SOCIO-DEMOGRAPHIC VARIABLES ON PERCEIVED WORK STRESSOR-STRAIN RELATIONSHIPS.

8.4.1 Mediating effects of coping strategies on the work stressor-strain relationships:

The research questions to be addressed are:

1. Do coping strategies mediate the effect of overall perceived work stressor on strain indices (i.e. anxiety, depression, dissatisfaction, psychosomatic complaints and overall strain)?

2. What types of coping strategies actively mediate the effect of overall work stressors on strain indices?

3. Does the potential mediating role of certain coping strategies buffer the effect of overall work stressors on strain indices or exacerbate it?

In Table 8.20, each strain index (Dissatisfaction is omitted due to the absence of a relationship between dissatisfaction and coping strategies) is regressed on overall work stressors without taking account of coping strategies. The resulting standardized partial regression coefficients (Beta weights) and square multiple correlation coefficients ($R^2$) are shown in the first row of each box in the table. Then, each strain index is regressed on overall stressors and on coping strategies. The resulting summary statistics (Beta weights and $R^2$) are shown in the bottom line in each box of the table. To read Table 8.20, attention should first be directed to the left-hand column in each box. Thus, the regression coefficient (Beta = .42) represents the increase in anxiety due to overall work stressors in the absence of coping
strategies. The regression coefficient (Beta = .33) reflects the direct effect of overall work stressors on anxiety after taking into account coping strategies, that is, when coping strategies are controlled for. But what do the two regression coefficients suggest? The first regression coefficient (Beta = .42) reflects the positive effects of overall work stressors on anxiety when coping strategies are not controlled for. In other words, it carries the direct as well as the indirect effects of overall work stressor on anxiety. When coping strategies are controlled for as shown in the bottom row of each box in Table 8.20, the regression coefficient for overall work stressors drops from (Beta = .42) to (Beta = .33). So, the direct effect of overall stressors on anxiety is: Beta = .33, P<.001; but the decrease in the original regression produced by the control for coping strategies represents the existence of an indirect effect of overall stressor mediated by coping strategies.

As far as anxiety is concerned, the first question is answered. The next two questions still await examination: What types of coping strategies actively mediate the overall work stressor-anxiety relationship? Do coping strategies that potentially mediate that relationship, buffer or exacerbate the effects of overall stressors on strain?

The bottom row in Table 8.20 representing the regression of anxiety on overall stressors and on coping strategies, reveals that the coping strategy; withdrawal is the only coping strategy that induces a significant increase in anxiety (Beta = .27, P<.001) and adds more power of prediction of anxiety (13%) beyond that accounted for by overall work stressors. Therefore, overall work stressors stimulate the use of withdrawal. Withdrawal in turn exacerbates the transmitted effect, and induces greater anxiety.

Moving to the strain indicator: depression, Table 8.20 indicates that the regression coefficient (Beta = .48, reflecting the regression of depression on overall stressors) decreases to (Beta = .44) when coping strategies are also considered. This drop is indicative of the indirect relationship of overall
TABLE 8.20: Mediating effect of coping strategies on overall work-strain relationships:
Regression of anxiety, depression, psychosomatic complaints and overall strain on:
(1) overall work stressors (2) overall work stressors and coping strategies (n = 110).

<table>
<thead>
<tr>
<th></th>
<th>Overall work stressors</th>
<th>COPING STRATEGIES.</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th>R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coping strategies.</td>
<td></td>
<td>.42***</td>
<td>.27***</td>
<td>.14</td>
<td>.05</td>
<td>-.12</td>
<td>.30</td>
</tr>
<tr>
<td></td>
<td></td>
<td>.33***</td>
<td>.27***</td>
<td>.14</td>
<td>.05</td>
<td>-.12</td>
<td>.30</td>
</tr>
<tr>
<td>Depression</td>
<td></td>
<td>.43***</td>
<td>.31***</td>
<td>.22**</td>
<td>-.10</td>
<td>-.04</td>
<td>.23</td>
</tr>
<tr>
<td>Coping strategies.</td>
<td></td>
<td>.44***</td>
<td>.31***</td>
<td>.22**</td>
<td>-.10</td>
<td>-.04</td>
<td>.39</td>
</tr>
<tr>
<td>Psychosomatic complaints</td>
<td></td>
<td>.40***</td>
<td>.22***</td>
<td>.18</td>
<td>-.05</td>
<td>-.06</td>
<td>.16</td>
</tr>
<tr>
<td>Coping strategies.</td>
<td></td>
<td>.36***</td>
<td>.22***</td>
<td>.18</td>
<td>-.05</td>
<td>-.06</td>
<td>.25</td>
</tr>
<tr>
<td>Overall strain</td>
<td></td>
<td>.68***</td>
<td>.28***</td>
<td>.18**</td>
<td>-.07</td>
<td>-.04</td>
<td>.46</td>
</tr>
<tr>
<td>Coping strategies.</td>
<td></td>
<td>.61***</td>
<td>.28***</td>
<td>.18**</td>
<td>-.07</td>
<td>-.04</td>
<td>.56</td>
</tr>
</tbody>
</table>

* P < .05
** P < .01
*** P < .001
stressors to depression mediated by coping strategies. Whereas, the value (Beta = .44, P < .001) represents the direct effect of overall work stressors on depression.

But are all coping strategies significant mediators of the overall stressor-depression relationships? Table 8.20 reveals that two coping strategies produce significant increases in depression: withdrawal (Beta = .31, P < .001) and evaluation (Beta = .22, P < .01). As a result, an increment in the prediction of depression is gained, (ΔR² = 16%), therefore, the significant mediators among coping strategies are: withdrawal and evaluation. That is, overall work stressors induce withdrawal and evaluation (as suggested by the indirect relationship of overall work stressors to depression), and the two coping strategies produce greater depression (as indicated by their respective partial regression coefficients).

Regressing psychosomatic complaints on overall work stressors yields, as indicated in Table 8.20, a regression coefficient of .40 (P < .001). However, in the presence of coping strategies, the former coefficient declines from (Beta = .40) to (Beta = .36). This decrease represents that part of the effect of overall work stressors that is mediated by coping strategies. Among coping strategies adjusted for, only withdrawal positively exerts a direct effect on psychosomatic complaints (Beta = .22, P < .01). So, withdrawal is the only eligible mediator of the indirect relationship of overall work stressors to strain. Overall work stressors lead to an increase in withdrawal coping, withdrawal in turn produces more frequent psychosomatic complaints.

Table 8.20 also shows the regression of overall strain on overall work stressors. The simple regression coefficient (Beta = .68) is reduced to (Beta = .61) following the introduction of coping strategies into the regression equation. This decrease is the part of the indirect effect exerted by overall work stressors on overall strain, whereas the coefficient of multiple regression (Beta = .61, P < .001) reflects the direct effect of overall work
stressors. Among the coping strategies that produce an increase in overall strain are withdrawal (Beta = .28, P < .001) and evaluation (Beta = .18, P < .01). Therefore, withdrawal and evaluation mediate the part of the indirect relationship of overall work stressors to overall strain, so that overall work stressors mobilize coping through withdrawal and evaluation, and these coping strategies lead to further increase in overall strain. The predictive power added to the prediction of overall strain beyond that accounted for by overall work stressors is 10%.

The findings mentioned so far can be summarized as follows:

(1) Coping strategies mediate the effect of overall work stressors on strain indices such as anxiety, depression, psychosomatic symptoms and overall strain.

(2) Withdrawal (a coping strategy) mediates the effects of overall strain on anxiety, depression, psychosomatic symptoms and overall strain. The coping strategy: evaluation, plays a mediating role in the relationships of overall work stressors to depression and overall strain.

(3) Both withdrawal and evaluation exacerbate the effect of overall work stressors on strain indices, so that overall work stressors stimulate coping through withdrawal and evaluation, and these coping strategies lead to higher level of strain indices.

(4) Coping strategies in general, and withdrawal and evaluation in particular, provide additional power to the prediction of strain indices.

8.4.2 Mediating effects of coping strategies on the relationship of each type of work stressor to strain indices.

The research tasks to be addressed consist of:

(1) Examining what coping strategies mediate the effect of what perceived work stressors on what strain indices?

(2) Considering whether this mediation consists of buffering or exacerbating the effects generated by different perceived work stressors on different strain indices.
The extreme left-hand column for Table 8.21 shows that regressing strain indices, namely anxiety, depression, psychosomatic complaints and overall strain, on role conflict only, produces the following simple regression coefficients .26, .36, .26, and .41. These simple regression coefficients contain the direct as well as the indirect effects. To test for the existence of the direct as well as indirect effects of role conflict, coping strategies are adjusted for by entering them into the same regression equation that contains the variable: role conflict. The presence of coping strategies in the relationships of role conflict to anxiety, depression, psychosomatic complaints and overall strain, decreases the foregoing simple regression coefficients to .14, .26, .17, and .29 respectively. Such decreases represent those indirect parts of the effect of role conflict on strain indices, that is, the parts of the effect consumed to bring into play some coping strategies? Table 8.21 reveals that withdrawal is the dominant operational coping strategy, exerting direct effects on all strain indices, ranging from (Beta = .24, P < .001) on psychosomatic complaints to (Beta = .34, P < .001; on overall strain). Additionally, the coping strategy: evaluation, leads to an increase in depression (Beta = .22, P < .01), overall strain (Beta = .18, P < .05) and psychosomatic complaints (Beta = .18, P < .10). Therefore, the indirect effect of role conflict represents the effect exerted by role conflict to mobilize the coping strategies: "withdrawal", and to a less extent "evaluation". "Withdrawal" and "evaluation", being partly activated by the presence of role conflict, induce greater anxiety, depression, psychosomatic symptoms and overall strain.

The operational coping strategies generate a gain in the prediction of strain indices that sometimes exceeds the percentage of variance accounted for by role conflict.

Similarly, the regression of anxiety, depression, psychosomatic complaints and overall strain on role overload (Table 8.22), career stressors (Table 8.23), task stressors (Table 8.24), communication stressors (Table 8.25), and pay
Table 8.21: Mediating effect of coping strategies on role conflict-strain relationships:

Regression of anxiety, depression, psychosomatic complaints and overall strain on:
(1) role conflict, (2) role conflict and coping strategies (n = 110).

<table>
<thead>
<tr>
<th></th>
<th>Role conflict.</th>
<th>COPING STRATEGIES.</th>
<th></th>
<th></th>
<th></th>
<th>R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxiety</td>
<td>.26***</td>
<td></td>
<td>.30***</td>
<td>.13</td>
<td>.12</td>
<td>-.12</td>
</tr>
<tr>
<td>Coping strategies.</td>
<td>.14</td>
<td>.30***</td>
<td>.13</td>
<td>.12</td>
<td>-.12</td>
<td>.11</td>
</tr>
<tr>
<td>Depression</td>
<td>.36***</td>
<td></td>
<td></td>
<td>.22**</td>
<td>.00</td>
<td>.04</td>
</tr>
<tr>
<td>Coping strategies.</td>
<td>.25**</td>
<td>.32***</td>
<td>.22**</td>
<td>.00</td>
<td>.04</td>
<td>.05</td>
</tr>
<tr>
<td>Psychosomatic Complaints</td>
<td>.26**</td>
<td></td>
<td></td>
<td>.18</td>
<td>.03</td>
<td>-.06</td>
</tr>
<tr>
<td>Coping strategies.</td>
<td>.17+</td>
<td>.24***</td>
<td>.18+</td>
<td>.03</td>
<td>-.06</td>
<td>.09</td>
</tr>
<tr>
<td>Overall strain</td>
<td>.41***</td>
<td></td>
<td></td>
<td></td>
<td>.04</td>
<td>-.05</td>
</tr>
<tr>
<td>Coping strategies.</td>
<td>.29***</td>
<td>.34***</td>
<td>.18*</td>
<td>.04</td>
<td>-.05</td>
<td>.05</td>
</tr>
</tbody>
</table>

+ P < .10
* P < .05
** P < .01
*** P < .001
Table 8.22: Mediating effect of coping strategies on role overload-strain relationships:
Regression of anxiety, depression, psychosomatic complaints and overall strain on:
(1) Role overload, (2) Role overload and coping strategies (n = 110).

<table>
<thead>
<tr>
<th></th>
<th>Role Overload.</th>
<th>COPING STRATEGIES.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxiety</td>
<td>.44***</td>
<td></td>
</tr>
<tr>
<td>Coping strategies.</td>
<td>.38</td>
<td>.29***</td>
</tr>
<tr>
<td>Depression</td>
<td>.25***</td>
<td></td>
</tr>
<tr>
<td>Coping strategies.</td>
<td>.18*</td>
<td>.38***</td>
</tr>
<tr>
<td>Psychosomatic complaints</td>
<td>.44***</td>
<td></td>
</tr>
<tr>
<td>Coping strategies.</td>
<td>.40***</td>
<td>.24**</td>
</tr>
<tr>
<td>Overall strain</td>
<td>.48***</td>
<td></td>
</tr>
<tr>
<td>Coping strategies.</td>
<td>.41***</td>
<td>.38***</td>
</tr>
</tbody>
</table>

+ P < .10
* P < .05
* * P < .01
* * * P < .001
Table 8.23: Mediating effect of coping strategies on career stressor-strain relationships:
Regression of anxiety, depression, psychosomatic complaints and overall strain on:
(1) Career stressors, (2) Career stressors and coping strategies (n = 110).

<table>
<thead>
<tr>
<th></th>
<th>Career stressors</th>
<th>COPING STRATEGIES.</th>
<th>COPING STRATEGIES.</th>
<th>COPING STRATEGIES.</th>
<th>COPING STRATEGIES.</th>
<th>COPING STRATEGIES.</th>
<th>COPING STRATEGIES.</th>
<th>COPING STRATEGIES.</th>
<th>COPING STRATEGIES.</th>
<th>COPING STRATEGIES.</th>
<th>CO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxiety</td>
<td>.32***</td>
<td>.31***</td>
<td>.12</td>
<td>.07</td>
<td>-.10</td>
<td>.13</td>
<td>.10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coping strategies.</td>
<td>.24**</td>
<td>.35***</td>
<td>.19*</td>
<td>-.09</td>
<td>.07</td>
<td>.09</td>
<td>.25</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depression</td>
<td>.43***</td>
<td>.35***</td>
<td>.16+</td>
<td>-.01</td>
<td>-.04</td>
<td>.11</td>
<td>.19</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coping strategies.</td>
<td>.24**</td>
<td>.27**</td>
<td>.16+</td>
<td>-.05</td>
<td>-.01</td>
<td>.10</td>
<td>.06</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Psychosomatic complaints</td>
<td>.19*</td>
<td>.27**</td>
<td>.16+</td>
<td>-.01</td>
<td>-.04</td>
<td>.11</td>
<td>.17</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall strain</td>
<td>.53***</td>
<td>.37***</td>
<td>.15+</td>
<td>-.05</td>
<td>-.01</td>
<td>.10</td>
<td>.27</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coping strategies.</td>
<td>.46***</td>
<td>.37***</td>
<td>.15+</td>
<td>-.05</td>
<td>-.01</td>
<td>.10</td>
<td>.44</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

+ P < .10
* P < .05
* * P < .01
* * * P < .001
stressors (Table 8.26), when coping strategies are taken into consideration, produces reduction in the partial regression coefficients. The only notable exceptions are the regression coefficients resulting from the regression of psychosomatic complaints and overall strain on pay stressors and coping strategies, which are not apparently reduced (Table 8.26). Therefore, these reductions in the simple regression coefficients of work stressor-strain relationships as a result of the introduction of coping strategies represent the indirect effects of role overload, career, task, communication and pay, on strain indices. Table 8.22 through Table 8.26 reveal that the indirect effects of the foregoing work stressors on strain indices are mainly mediated by withdrawal and occasionally by evaluation. Withdrawal generally induces increases in anxiety, depression, psychosomatic complaints and overall strain under all types of work stressor conditions; while evaluation often produces increase in depression, psychosomatic complaints and overall strain under some work stressor conditions, particularly, communication, role overload, career and pay stressors. It can be concluded that the indirect effects of these work stressors on strain indices serve to activate the coping strategies: withdrawal and evaluation which in turn lead to the exacerbation of strain indices as indicated by their respective partial regression coefficients.

Adoption of coping strategies where withdrawal and evaluation are the most operational coping strategies contribute to the prediction of strain indices beyond the level of prediction accounted for by each work stressor.

Moving to the examination of hypotheses, Hypothesis 26 formulated in Chapter V suggests that the coping strategy: withdrawal, exacerbates the independent impacts of different work stressors on each strain index, is generally supported. On the other hand, Hypothesis 22 through Hypothesis 25 (see Chapter V) stipulate that the coping strategies, namely, externalization, evaluation, action and non-work activities, attenuate the independent effect of each work stressor on each strain indicator. These hypotheses are not supported, except the hypothesized mediating role of the coping strategy:
TABLE 8.24: Mediating effect of coping strategies on task stressor-strain relationships:

Regression of anxiety, depression, psychosomatic complaints and overall strain on:
(1) Task stressors, (2) Task stressors and coping strategies (n=110).

<table>
<thead>
<tr>
<th></th>
<th>Task stressors</th>
<th>COPING STRATEGIES.</th>
<th></th>
<th></th>
<th></th>
<th>Non-work activities</th>
<th>R²</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>Withdrawal</td>
<td>Evaluation</td>
<td>Externalization</td>
<td>Action</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anxiety</td>
<td>.29***</td>
<td>.33***</td>
<td>.11</td>
<td>.08</td>
<td>-.09</td>
<td>.11</td>
<td>.09</td>
</tr>
<tr>
<td>Coping strategies</td>
<td>.22***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.25</td>
</tr>
<tr>
<td>Depression</td>
<td>.25**</td>
<td>.33***</td>
<td>.19*</td>
<td>-.05</td>
<td>.06</td>
<td>.07</td>
<td>.06</td>
</tr>
<tr>
<td>Coping strategies</td>
<td>.21**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.26</td>
</tr>
<tr>
<td>Psychosomatic complaints</td>
<td>.31***</td>
<td>.28**</td>
<td>.15</td>
<td>-.02</td>
<td>-.03</td>
<td>.09</td>
<td>.09</td>
</tr>
<tr>
<td>Coping strategies</td>
<td>.27**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.20</td>
</tr>
<tr>
<td>Overall strain</td>
<td>.37***</td>
<td>.41***</td>
<td>.13</td>
<td>-.01</td>
<td>-.02</td>
<td>.07</td>
<td>.14</td>
</tr>
<tr>
<td>Coping strategies</td>
<td>.32***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.33</td>
</tr>
</tbody>
</table>

* P < .05
** P < .01
*** P < .001
### TABLE 8.25: Mediating effect of coping strategies on communication stressor-strain relationships:

Regression of anxiety, depression, psychosomatic complaints and overall strain on:
(1) Pay stressors, (2) Pay stressors and coping strategies (n = 110).

<table>
<thead>
<tr>
<th></th>
<th>Communication stressors</th>
<th>COPING STRATEGIES.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxiety</td>
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<td></td>
</tr>
<tr>
<td>Coping strategies</td>
<td>.11</td>
<td>.32***</td>
</tr>
<tr>
<td>Depression</td>
<td>.40***</td>
<td></td>
</tr>
<tr>
<td>Coping strategies</td>
<td>.36***</td>
<td>.32***</td>
</tr>
<tr>
<td>Psychosomatic complaints</td>
<td>.16†</td>
<td></td>
</tr>
<tr>
<td>Coping strategies</td>
<td>.12</td>
<td>.27**</td>
</tr>
<tr>
<td>Overall strain</td>
<td>.40***</td>
<td></td>
</tr>
<tr>
<td>Coping strategies</td>
<td>.33***</td>
<td>.36***</td>
</tr>
</tbody>
</table>

+ P < .10
*P < .05
**P < .01
***P < .001


Table 8.26: Mediating effect of coping strategies on pay stressor-strain relationships:
Regression of anxiety, depression, psychosomatic complaints and overall strain on:
(1) Pay stressors, (2) Pay stressors and coping strategies (n = 110).

<table>
<thead>
<tr>
<th></th>
<th>Pay stressors.</th>
<th>COPING STRATEGIES.</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th>R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxiety</td>
<td>.22**</td>
<td>.35***</td>
<td>.13</td>
<td>.06</td>
<td>-.13</td>
<td>.15+</td>
<td>.05</td>
</tr>
<tr>
<td>Coping strategies.</td>
<td>.22**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.25</td>
</tr>
<tr>
<td>Depression</td>
<td>.24**</td>
<td>.41***</td>
<td>.22</td>
<td>-.09</td>
<td>.02</td>
<td>.11</td>
<td>.06</td>
</tr>
<tr>
<td>Coping strategies.</td>
<td>.26**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.29</td>
</tr>
<tr>
<td>Psychosomatic complaints</td>
<td>.25**</td>
<td>.30***</td>
<td>.18*</td>
<td>-.05</td>
<td>-.08</td>
<td>.14</td>
<td>.06</td>
</tr>
<tr>
<td>Coping strategies.</td>
<td>.27**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.20</td>
</tr>
<tr>
<td>Overall strain</td>
<td>.39***</td>
<td>.44***</td>
<td>.18*</td>
<td>-.06</td>
<td>-.08</td>
<td>-.13</td>
<td>.15</td>
</tr>
<tr>
<td>Coping strategies.</td>
<td>.40***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.39</td>
</tr>
</tbody>
</table>

* P < .05
** P < .01
*** P < .001
"evaluation", which has partly been supported. The findings indicate that evaluation mediates the relationships of most work stressors on most strain indices; but the form of mediation consists of exacerbating instead of buffering the indirect impacts of the majority of work stressors on strain indices.

At this stage of analysis, a summary is needed.

1. Among coping strategies, only withdrawal, and to a less extent evaluation, mediate the relationships of perceived work stressors stemming from task, communications, career, role conflict, role overload and pay, to strain indices, namely anxiety, depression, psychosomatic complaints and overall strain.

2. The form of the mediation operated by withdrawal and occasionally by evaluation, is that every perceived work stressor stimulates the adoption of the coping strategies: withdrawal and evaluation; and these coping strategies exacerbate the level of strain indices.

3. The coping strategy: withdrawal, mediates the independent effects of all perceived work stressors on all strain indices. The mediating role of the coping strategy: evaluation, is less pervasive than withdrawal, since it mediates the relationship of work stressors (i.e. communication, role overload, career and pay stressors) to some strain indices (i.e. depression, psychosomatic complaints and overall strain).

4. Coping strategies, among which withdrawal and evaluation are the most operational, add more power to the prediction of strain indices, that sometimes exceeds the size of prediction accounted for solely by some perceived work stressors.

8.4.3 Mediating effects of contextual variables on the relationships of overall work stressors to strain indices.

The research questions to be dealt with are:

1. Do contextual variables, namely disrupted family-work interface, supportive relationships and low participation, operate as mediator of the effect of
overall work stressors on different strain indices?

(2) Does this potential mediating role of contextual variables buffer or exacerbate the effect of overall work stressor on each strain index?

To answer these questions, Table (8.27) should be examined. They are organized in a similar manner to the previous tables. As before, attention should first be directed to the extreme left-hand column which shows the changes in the relationships of overall work stressors to anxiety, depression, dissatisfaction, psychosomatic complaints and overall strain, before and after controlling for the contextual variables. Thus, the value (Beta = .45) represents the simple regression coefficient resulting from regressing anxiety on overall work stressors without taking account of the contextual variables. The value (Beta = .29) represents the partial regression coefficient produced by regressing anxiety on overall stressors and on contextual variables after controlling for the three contextual variables (i.e., disrupted family-work interface, supportive relationships and participation). It can be observed that the simple regression coefficient drops from .45 to .29 when the contextual variables are taken into consideration. The value (Beta = .29, P < .05) represents the direct effect of overall work stressors, whereas the decrease in the simple regression coefficient denotes the indirect effect of overall work stressors on anxiety. Among the contextual variables, only disrupted work-family interface (Beta = .31, P < .001) mediates the indirect effect of overall work stressors on anxiety. Therefore, overall work stressors contribute to the disruption of the family-work interface, and the latter exacerbates further the level of anxiety.

It should be noted that the consideration of contextual variables raises the percentage of explained variance from $R^2 = .20$ to $R^2 = .27$.

Likewise, regressing separately: depression, dissatisfaction, psychosomatic complaints and overall strain on overall work stressors in the absence of contextual variables yields the following simple regression coefficients: .51, .74, .44 and .68, respectively. However, following the consideration of
contextual variables, the effects of overall work stressors (as indicated by the foregoing simple regression coefficients) on depression, dissatisfaction, psychosomatic complaints, and overall strain are reduced to .30, .53, .20, and .41, respectively. These partial regression coefficients are indicative of the direct effect of overall work stressors; whereas the observed reductions in the effects of overall work stressors after adjusting for contextual variables, indicate the indirect effects of overall work stressors on the respective strain indices.

Also, it can be observed in the bottom rows in the last four boxes in Table (8.27), that disrupted family-work interface mediates the relationships of overall work stressors to depression (Beta = .34, P < .01), psychosomatic complaints (Beta = .36, P < .01) and overall strain (Beta = .36, P < .001), in such a way that overall work stressors add to the disruption of work-family interaction, and that the disrupted work-family interface produces greater depression, psychosomatic complaints and overall level of strain.

On the other hand, supportive relationships mediate the relationships of overall work stressors to dissatisfaction (Beta = -.37, P < .001) and overall strain (Beta = -.17, P < .05). More specifically, the presence of overall work stressors creates a need for supportive relationships that effectively buffer the coper from the feeling of dissatisfaction and the general level of strain.

Finally, "low participation" mediates the relationships of overall work stressors to dissatisfaction (Beta = .23, P < .001), that is the indirect aversive effect of overall perceived work stressors on reported work dissatisfaction is exacerbated by the mediating effect of lack of participation.

It should be noted that the presence of the contextual variables adds more power to the overall work stressor-strain relationships, to predict anxiety, depression, dissatisfaction, psychosomatic complaints, and overall strain.

Having answered the foregoing research questions, it remains to address
TABLE 8.27: Mediating effect of contextual variables on overall work stressor-strain relationships: Regression of each strain index on overall work stressors with gradual inclusion of contextual variables (n = 110).

<table>
<thead>
<tr>
<th></th>
<th>Overall work stressors</th>
<th>Contextual variables (1)</th>
<th>Contextual variables (2)</th>
<th>Contextual variables (3)</th>
<th>$R^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Anxiety</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1) Work-family interface.</td>
<td>.45***</td>
<td>.23*</td>
<td>.35**</td>
<td>.20</td>
<td></td>
</tr>
<tr>
<td>(2) Supportive relationships.</td>
<td>.22*</td>
<td>.32**</td>
<td>.26</td>
<td>.26</td>
<td></td>
</tr>
<tr>
<td>(3) Low participation.</td>
<td>.29*</td>
<td>.31**</td>
<td>-.07</td>
<td>.16</td>
<td>.27</td>
</tr>
<tr>
<td><strong>Depression</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1) Work-family interface.</td>
<td>.51***</td>
<td>.27*</td>
<td>.34**</td>
<td>.32</td>
<td>.32</td>
</tr>
<tr>
<td>(2) Supportive relationships.</td>
<td>.25*</td>
<td>.35**</td>
<td>-.03</td>
<td>.32</td>
<td>.32</td>
</tr>
<tr>
<td>(3) Low participation.</td>
<td>.30**</td>
<td>.34**</td>
<td>-.08</td>
<td>.12</td>
<td>.33</td>
</tr>
<tr>
<td><strong>Dissatisfaction</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1) Work-family interface.</td>
<td>.74***</td>
<td>.84***</td>
<td>-.15*</td>
<td>.54</td>
<td>.56</td>
</tr>
<tr>
<td>(2) Supportive relationships.</td>
<td>.62***</td>
<td>-.03</td>
<td>-.47***</td>
<td>.75</td>
<td>.75</td>
</tr>
<tr>
<td>(3) Low participation.</td>
<td>.53***</td>
<td>-.00</td>
<td>-.37***</td>
<td>.23***</td>
<td>.78</td>
</tr>
<tr>
<td><strong>Psychosomatic complaints</strong></td>
<td>.44***</td>
<td>.19*</td>
<td>.36**</td>
<td>.19</td>
<td>.19</td>
</tr>
<tr>
<td>(1) Work-family interface.</td>
<td>.19*</td>
<td>.36**</td>
<td>.26</td>
<td>.26</td>
<td>.26</td>
</tr>
<tr>
<td>(2) Supportive relationships.</td>
<td>.18</td>
<td>.37**</td>
<td>-.06</td>
<td>.06</td>
<td>.26</td>
</tr>
<tr>
<td>(3) Low participation.</td>
<td>.20</td>
<td>.36**</td>
<td>-.06</td>
<td>.06</td>
<td>.26</td>
</tr>
<tr>
<td><strong>Overall strain</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1) Work-family interface.</td>
<td>.68***</td>
<td>.45***</td>
<td>.33***</td>
<td>.51</td>
<td>.51</td>
</tr>
<tr>
<td>(2) Supportive relationships.</td>
<td>.38***</td>
<td>.37***</td>
<td>-.14*</td>
<td>.53</td>
<td>.53</td>
</tr>
<tr>
<td>(3) Low participation.</td>
<td>.41***</td>
<td>.36***</td>
<td>-.17*</td>
<td>-.07</td>
<td>.53</td>
</tr>
</tbody>
</table>

$+ P < .10 \quad **P < .01$

$* P < .05 \quad ***P < .001$
the hypotheses mentioned in chapter V.

Hypothesis 28 suggests that disrupted family-work interface mediates the effect of perceived work stressors on strain indices, so that it exacerbates the transmitted effect of work stressors on strain indices. The findings generally support this hypothesis. Disrupted family-work interface exerts a mediating effect on the relationships of overall work stressors to all strain indices, except to dissatisfaction. Perceived work stressors affect family-work interaction and the latter generates greater anxiety, depression, psychosomatic complaints and overall strain.

Hypothesis 29 predicts that supportive relationships mediate perceived work stressor-strain link, leading to the attenuation of the aversive effect of each perceived stressor on each strain indicator. The findings, however, indicate that supportive relationships mitigate the effect of perceived work stressors on dissatisfaction and overall strain.

Finally, Hypothesis 30 suggests that lack of participation exerts a mediating effect upon perceived work stressor-strain relationships, by exacerbating the aversive effect of perceived work stressors, on anxiety, depression, dissatisfaction, psychosomatic complaints and overall strain. These hypothesized relationships are weakly supported by the present findings. Low participation significantly mediates the relationship of overall perceived stressors to dissatisfaction only, by inflating the aversive effect of overall perceived stressors on satisfaction.

To conclude, the patterns of findings that have emerged from the foregoing analysis are:

1. Disrupted family-work interface mediates the effects of overall work stressors on anxiety, depression, psychosomatic complaints and overall strain, so that overall work stressors contribute to the disruption of family-work interface, and the disrupted family-work interaction, in turn, exacerbates further the level of anxiety, depression, psychosomatic complaints and overall strain.
(2) Supportive relationships function as a mediator of the effects of overall work stressors on dissatisfaction and overall strain. In other words, the indirect effect of overall work stressors on dissatisfaction and overall strain is buffered by the presence of supportive relationships, so that the level of dissatisfaction and general strain is attenuated.

(3) Low participation operates as a mediator; specifically, of the overall stressor relationships to dissatisfaction. This means that the aversive effect of overall work stressors on satisfaction is exacerbated by the mediation of lack of participation.

(4) These contextual variables, when considered, provide additional predictive power of strain indices above that accounted for by overall work stressors.

8.4.4 Mediating effects of personality variables on the relationships of work stressors to strain indices.

The research questions to examine are:

(1) Does type A behaviour mediate the relationships of overall work stressors to depression, psychosomatic complaints and overall strain, so that overall work stressor effects on strain are exacerbated by Type A behaviour pattern.

(2) Are the relationships of overall work stressors to strain indices mediated by self-esteem and internal locus of control, so that these personality variables attenuate the increase in strain induced by overall work stressors.

The organization of information in Table 8.28 is similar to Table 8.27 described earlier.

The values .45, .51, .44, and .68 in the left-hand column, represent the regression of anxiety, depression, psychosomatic complaints and overall strain on overall work stressors, without considering the three personality characteristics. However, the foregoing simple regression coefficients drop to .42, .46, .42 and .63 when personality characteristics (i.e. Type A
behaviour, self-esteem and internal locus of control) are included in the regression of strain indices on overall work stressors. These decreases in overall work stressor-strain relationships represent the indirect effect of overall work stressors on anxiety, depression, psychosomatic complaints and overall strain.

Examination of the bottom rows in the four boxes in Table 8.28, reveals that Type A behaviour patterns mediate the relationships of overall work strain to anxiety (Beta = .20, P<.05), depression (Beta = .13, P<.10), psychosomatic complaints (Beta = .17, P<.05) and overall strain (Beta = .18, P<.01), and that, in all these relationships, Type A behaviour pattern functions as an exacerbator of the effects of overall work stressors on all strain indices.

On the other hand, self-esteem specifically mediates overall work stressor relationships to depression (Beta = -.23, P<.01) and overall strain (Beta = -.16, P<.01), so that higher self-esteem buffers the individual from depression and overall strain, induced by overall work stressors.

However, internal locus of control exerts no mediating effect on the relationships of overall work stressors to strain indices.

Consideration of the three personality attributes in the analysis of work stressor-strain relationships, creates some gain in the prediction of strain indices above that accounted for by overall work stressors.

If the research questions have been answered, the relevant hypotheses formulated in Chapter V deserve a brief examination:

It was hypothesized that type A behaviour pattern mediates the overall work stressor-strain relationships, by exacerbating the effect of overall work stressor on anxiety, depression, psychosomatic complaints and overall strain (Hypothesis 32). Indeed, this hypothesis concords with the form of the mediating role of type A behaviour described above. That is, Type A behaviour increases the effect of overall work stressor on anxiety, depression, psychosomatic complaints and overall strain.

The two other hypotheses (Hypotheses 33 and 34) suggest that internal
TABLE 8. 28 : Mediating effect of personality variables on overall work stressor-strain relationships: Regression of each strain index on overall work stressor with gradual inclusion of personality variables ( n = 110 ).

<table>
<thead>
<tr>
<th>Overall work stressors</th>
<th>Contextual variables</th>
<th>R²</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
</tr>
</tbody>
</table>

| Anxiety               | .45*** | .44*** | .43*** | .42*** |
|                       | .20   | .25   | .25   | .26    |
| (1) Type A behaviour patterns. | .44*** | .21* | .20** | -.05  | .25 |
| (2) Self-esteem.       | .20   | -.04  | -.10  | .26    |
| (3) Internal locus of control |       |       |       |       |

| Depression            | .51*** | .50*** | .46*** | .46*** |
|                       | .26   | .28   | .33   | .33    |
| (1) Type A behaviour patterns. | .50*** | .16* | .14+  | -.23** | .33 |
| (2) Self-esteem.       | .14+  | -.04  | -.23**|- .02   | .33 |
| (3) Internal locus of control |       |       |       |       |

| Psychosomatic complaints | .44*** | .43*** | .41*** | .42*** |
|                          | .19   | .23   | .24   | .25    |
| (1) Type A behaviour patterns. | .43*** | .17* | .17*  | -.14  | .25 |
| (2) Self-esteem.         | .17*  | -.14  | .04   | .25    |
| (3) Internal locus of control |       |       |       |       |

| Overall strain          | .68*** | .66*** | .64*** | .63*** |
|                        | .46   | .49   | .52   | .52    |
| (1) Type A behaviour patterns. | .66*** | .19** | .18** | -.17** | .52 |
| (2) Self-esteem.        | .18** | -.17**| -.02  | .52    |
| (3) Internal locus of control |       |       |       |       |

+ P < .10
* P < .05
** P < .01
*** P < .001
locus of control and self-esteem mediate the effects of overall work stressors on strain indices, and that both attenuate the increase in anxiety, depression, psychosomatic complaints and overall strain induced by overall stressors. The findings described below partly corroborate the mediating role of self-esteem and negligibly support the hypothesized mediating effects of internal locus of control on the overall work stressor-strain relationships. The findings indicated that greater self-esteem mitigates the effects of overall work stressors on depression and overall strain, but the hypothesized buffering effect of self-esteem on the relationships of overall work stressors to anxiety and psychosomatic complaints are not supported.

From the foregoing analysis it can be concluded that:

1. The relationships of overall work stressors to strain indices are mediated by Type A behaviour pattern, producing an exacerbation of the effects of overall work stressors on anxiety, depression, psychosomatic complaints and overall strain.

2. Self-esteem functions as a mediator of the effects of overall work stressors on depression and overall strain, leading to the attenuation of depression and overall strain levels induced by overall work stressors.

3. Internal locus of control exerts no significant mediating effects on overall work stressor-strain relationships.

4. Inclusion of personality resources, especially, Type A behaviour pattern and self-esteem in the relationships of overall work stressors to strain, contributes to the prediction of strain indices.

8.4.5 Mediating effects of socio-demographic variables on the relationships of work stressors to strain indices.

The research question whether socio-demographic variables including age, marital status, education, tenure and income mediate overall work stressor-strain relationships, and whether they exacerbate or attenuate the impingements of work stressors on strain indices will be examined.
Table 8.29 represents the regression coefficients resulting from regressing separately anxiety, depression, dissatisfaction, psychosomatic complaints and overall strain, on overall work stressors, prior to and following the inclusion of socio-demographic variables. A general look at these regression coefficients reveals that overall work stressors seem to be the only outstanding variable that greatly affect strain indices, after controlling for socio-demographic variables. Also, overall stressor variables seem to be the only contributor to meaningful levels of predicted variance.

Regarding the inclusion of socio-demographic variables, however, out of 25 partial regression coefficients for socio-demographic variables, only one partial regression coefficient is significant (Beta for "being married" relationship to anxiety is -.28, P < .05 ) and two others are marginally significant (Beta = .19, P < .10, and Beta = .22, P < .10; for income relationships to anxiety and psychosomatic complaints, respectively). Therefore, it can be concluded that socio-demographic variables exert no mediating effects on the relationships of overall work stressors to strain relationships.

8.5 MODERATING (INTERACTIVE) ROLE OF COPING STRATEGIES, CONTEXTUAL, PERSONALITY AND SOCIO-DEMOGRAPHIC CHARACTERISTICS IN THE WORK STRESSOR-STRAIN RELATIONSHIPS.

In the previous sections, the mediating effects of coping, personality, contextual and socio-demographic variables have been addressed. The present section focuses on the moderating role of these variables on the relationships of perceived work stressors to strain indices. It should be noted, beforehand, that the terms "moderation", "interaction", "conditioning", "contingency" are used interchangeably. However, before reporting the findings, the issue regarding the distinction between "mediation" and "moderation" should be addressed to justify the "raison d'être" of the present section.

Finey, et al. (1984, note 12) distinguished between mediating and moderating effects in that, conceptually, the term "moderator variable" implies
TABLE 8.29: Mediating effect of socio-demographic variables on overall stressor-strain relationships:

Regressing anxiety, depression, dissatisfaction, psychosomatic complaints and overall strain on:
(1) Overall stressors; (2) Overall stressors and socio-demographic variables. (n = 110;).

<table>
<thead>
<tr>
<th></th>
<th>Overall</th>
<th>Age</th>
<th>Being Married</th>
<th>Education</th>
<th>Tenure</th>
<th>Income</th>
<th>R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxiety</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Socio-demographic variables</td>
<td>.45***</td>
<td>- .03</td>
<td>- .28*</td>
<td>.07</td>
<td>.26</td>
<td>.19†</td>
<td>.20</td>
</tr>
<tr>
<td>Depression</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Socio-demographic variables</td>
<td>.51***</td>
<td>- .05</td>
<td>.00</td>
<td>.01</td>
<td>.01</td>
<td>.02</td>
<td>.26</td>
</tr>
<tr>
<td>Dissatisfaction</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Socio-demographic variables</td>
<td>.74***</td>
<td>- .16</td>
<td>.05</td>
<td>-.02</td>
<td>-.03</td>
<td>-.12</td>
<td>.54</td>
</tr>
<tr>
<td>Psychosomatic complaints</td>
<td>.44***</td>
<td>- .13</td>
<td>-.01</td>
<td>.16</td>
<td>.18</td>
<td>.22†</td>
<td>.19</td>
</tr>
<tr>
<td>Socio-demographic variables</td>
<td>.49***</td>
<td>- .13</td>
<td>-.01</td>
<td>.16</td>
<td>.18</td>
<td>.22†</td>
<td>.26</td>
</tr>
<tr>
<td>Overall strain</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Socio-demographic variables</td>
<td>.68***</td>
<td>- .11</td>
<td>.09</td>
<td>.08</td>
<td>.15</td>
<td>.11</td>
<td>.46</td>
</tr>
</tbody>
</table>

+ P < .10
* P < .05
** P < .01
*** P < .001
a relatively static personal or environmental condition that makes individual to be more or less vulnerable to the effects of stress. However, a mediating effect has a more dynamic connotation: a prior condition affects the mediating variable, which in turn diminishes or exacerbates those effects on the outcome variable.

To elaborate upon this essential distinction, a substantive example is needed. Suppose that supportive relationships have mediating as well as moderating effects on the relationships of work stressors to strain. In the case of supportive relationships as a mediator variable, supportive relationships should be activated and mobilized by work stressors. This condition of being activated by work stressors is necessary for supportive relationships to exert, in turn, its attenuating effect on strain. On the other hand, in the case of supportive relationships acting as a moderator, the level of supportive relationships does not need to be changed in order to moderate the stressor-strain relationships. That is, the current level of relationship supportiveness can be associated with a decrease in the effect of work stressors on strain; whereas in the case of mediating effect, the mediator should undergo some change (e.g., stimulation or activation) from an antecedent condition (e.g., work stressors) to become operational (e.g., attenuating the strain level).

Additionally, regarding the moderator role, the effects of work stressors on strain is contingent on the level of the moderator variable. For example, the effect of work stressors on strain is significantly reduced in high as opposed to low level of supportive relationships. On the other hand, in the case of the mediating effect, the effect of work stressors on strain is not contingent on the level of the mediator variable. For example, the attenuated effect of work stressors on strain applies equally across the levels of supportive relationships.

Having differentiated between moderator and mediator variables, it is necessary to mention the questions to be researched.

(1) Do coping strategies have an interactive effect on the relationships of
to strain indices, so that the overall work stressor effect on strain indices differs depending on the levels of overall coping strategies.

(2) Are the contextual variables moderators of the work stressor-strain relationship? Is the effect of work stressors on strain indices not similar across different levels of the contextual variables?

(3) Does the interaction of personality variables with overall work stressors enhance the prediction of strain indices?

(4) Do socio-demographic variables function as moderators, producing a change in the effect of overall work stressor on strain indices as the degree of the presence of socio-demographic variable changes.

To address these issues, two statistical procedures were used: Moderated Multiple Regression and Hierarchical Multiple Regression (see Chapter VII for a description of the two procedures). In both techniques, the presence of interaction is represented by the significant increment in the squared multiple correlation due to the multiplicative term, beyond the level of variance accounted for independently by its constituents.

The findings generally indicate that the interaction of overall work stressors with coping strategies, contextual variables, personality, and socio-demographic variables, to predict strain indices, is not significant.
We are tempted to think that new applications (of a theory or a concept) only add to our knowledge of truth but leave meaning unchanged. But this view is doubtful.... As evidence accumulates in support of a theory, we simultaneously come to a better understanding both of the world and of our own ideas about the world.

A. Kaplan.
9.1 INTRODUCTION.

The objectives of the present chapter consist of:

(a) - Confronting the present research findings with relevant evidence suggested by literature, and discussion of similarities and divergences.
(b) - Interpretation of findings.

The present chapter evolves according to the section sequence of the chapter of results. This includes discussion of some qualitatively-derived findings, relationships among sets of variables, predictors of strain indices, and the mediating effects and moderating role of coping strategies, personality, contextual and socio-demographic variables, regarding the perceived work stressor-strain relationships.

9.2 PERCEIVED WORK STRESSORS AND CONTEXTUAL VARIABLES.

Seven factors derived from principal component analysis were used for further analysis in this study. These factors were labelled: pay, task, communication, career, role overload, role conflict and role ambiguity. Pay was the most frequently reported work stressor; role ambiguity being the least reported source of stress; and the remaining factors, namely communication, task, career, role overload, and role conflict variably exceeded moderate levels of perceived work stressors.

Of particular significance to the present discussion is Kechroud's (1986) findings, following a research of occupational stress conducted in some Algerian industrial organizations. Using a version of Ivancevich and Matteson's (1980) Stress Diagnostic Survey, Kechroud ended up with 6 derived factors labelled: Quantitative work overload, qualitative work overload, career goal discrepancy, role ambiguity, role conflict and responsibility for people. There are similarities between the Kechroud's investigation and the present study factors, particularly, concerning work overload, role conflict, role ambiguity, and career stressors; but
more important is the comparison of perceived work stressor factors in terms of their mean scores. In Kechroud's study, responsibility for people was the most frequent source of stress and quantitative work overload was the least reported stressor, whereas in the present study pay was the most frequent source but role ambiguity was the least frequently reported source of stress. Such differences are due mainly to the nature of the two samples. Kechroud used a more heterogeneous sample covering a larger spectrum of hierarchical levels in the organization (e.g. shop-floor workers, supervisors, administrators etc.). Another reason that may justify the dominance of "responsibility for people" and the paucity of reported "quantitative work overload" is that the shortened version of Stress Diagnostic Survey used by Kechroud, is more managerial and supervisory job-oriented a measure than one designed for shop-floor workers. For example, Item 5: "I get caught in the middle between my subordinates" (Underline added) presupposes the existence of subordinates supervised by the respondent. It follows that workers at the bottom of the organizational hierarchy with no supervisory responsibility are excluded. Also, it can be noted the absence of items addressing physical working conditions - a salient feature of production workers' jobs - in the Stress Diagnostic Survey questionnaire used. On the other hand, the sample, in the present study, was limited to production workers, excluding clerical, supervisory and managerial work. The nature of the sample used may, perhaps, justify the fact that role ambiguity did not constitute a frequent source of stress since production workers' tasks were generally viewed as simple.

Examination of percentages of response categories for every work stressor items provides important details about workers' perception of stress sources. With regard to role conflict, 42% of workers in this study often reported the dilemma that satisfying demands of some workers frustrates others, and 46% of employees often experience conflict between work requirements and their opinions and judgements. In Kechroud's study, 67%
of respondents never receive conflicting requests from two or more people, and 36% who never (as opposed to 36% who always) got caught in the middle between their supervisors and their subordinates. In another significant study reported by House (1980) involving a large scale sample of "blue collar" workers, only 6% of workers always or often (compared with 73% who never or rarely) thought they were unable to meet the conflicting demands of various people they work with; and 19% of workers who often or always (as opposed to 55% of workers who rarely or never) had to deal with or satisfy too many different people.

It becomes evident that respondents in the present study experienced much more role conflict than the samples of the two studies cited. The problem that arises regarding these two studies, is whether role conflict can be considered as a source of stress where the mean of the scale scores as well as the response category percentages, indicate an overall low level of perceived role conflict. Logically, to use a variable such as role conflict in further analysis, there should be at least a moderate level of that characteristic (i.e. of perceived conflict) to deserve the label "role-conflict"; otherwise, it means that role conflict is not salient enough to be perceived as a source of stress.

A similar difficulty emerged with regard to the variable: "role ambiguity" in the present study. As the scale-item mean was low suggesting rare instances of reported ambiguity, the variable indicated more perceived clarity than perceived ambiguity. Therefore, it was not considered as a perceived work stressor, and consequently was dropped from further analysis.

The foregoing discussion is also valid for other perceived work stressors. The remaining perceived work stressors were more frequently reported by the sample of the present study than the sample of the two afore-mentioned studies.

Turning to contextual variables, Kechroud (1986) reported that housing
was foremost among reported stressors, and financial difficulties were the second most frequently claimed source of stress. Irrespective of the rank order of the foregoing perceived stressors, housing problems constitute a major source of concern for the majority of the present study sample. 42% of workers (against only 5%) reported that the accommodation they have always causes them a lot of worries even at work. With regard to financial rewards which constitute one of the most frequently cited work stressor, 46% of workers (as opposed to 11%) reported that the pay is often much lower than that of other people doing equivalent job, and that 86% of employees reported that the pay was "often" or always much below the normal cost of living in the city where they live. Both studies, therefore, reflect the discrepancy between the wages and the cost of living, as well as the crisis of housing affecting a substantial proportion of workers.

With reference to participation as another dimension of contextual variables, House (1980) asked a large number of workers about the extent to which they have influence over things that affect them in their jobs, 30% of respondents answered "Not at all true"; 28%: "Not too true", 30%: "Somewhat true", and 12%: "Very true". Also, when asked whether they have some influence over plant or company policy, the majority, that is, 63% reported the absence of such influence. These responses suggest a low level of perceived participation, a picture that also emerges from the present study. However, the present research approached participation from a direct and indirect (through workers' representatives) standpoints. As participation was systematically institutionalized by the Algerian government in various public enterprises, and become an integral part of organizational structure and functioning, it was necessary to construct items that reflect these specificities, which are not confined to the assessment of workers informal participation in some limited matters.
of work, as many participation scales tend to measure. In this context, 85% of workers refrained from discussing their job matters with representatives, 56% of respondents reported that, often, problems discussed by workers' representatives remained unsolved, and 78% of workers claimed that representatives never asked their opinion about matters that concern their work. The situation looks even more dramatic when the research shifted to the assessment of supportive relationships between workers and their representatives. For example, 47% said it is quite true, and 33% claimed it is completely true, that representatives are indifferent about their difficulties and problems. Such a general malaise is due to many reasons.

First: Conceptually, the formal documents of workers' participation: The Charter and Code (see chapter 4) involve various sources of ambiguity, examples of which are:

* The Charter and Code did not provide a definition of participation and of related terms such as "association", "consultation", "recommendation" etc..

* The importance accorded to different workers' participatory bodies were not balanced. For example, unlike the broad coverage by the legislature of the objectives, structure and functioning of the Workers' Assembly, Managing Council and Standing Committees, little was said about "Workers' Collective" that includes all represented workers.

* In the Charter and Code, Workers' Collective was reduced to the role of electing representatives once every three years. Therefore, the legislature statically schematized the dynamic link that should exist between workers and their representatives, and rendered the role of Workers' Collective very mechanical in exercising and realizing participation democracy.

* The relationships of Workers' Collective to other bodies such as Workers' Assembly, Union, Party and Managing Council need further clarification.
The Charter and Code did not clarify the relationships among Workers' Assembly, Union Council and Party.

Second: Managements tactics to freeze the functioning of participation system. Some forms of which are:

* Tendency of management to create parallel bodies to workers' participatory bodies, that take over the role prescribed by the Charter and Code for the Managing Council. The creation of these informal bodies in some organizations serves to buffer and attenuate the decision-making power of workers' representatives.

* Management polarizes the key figures among workers' representatives by providing them with facilities and privileges. Attraction of some representatives to the management side freezes the functioning of the Union Bureau within the Workers' Assembly, creates discord among the Assembly members, and worsens workers' opinions and attitudes toward their representatives.

* Managers tend to retain for themselves some information of strategic importance and steer discussions during the Managing Council meetings toward details and fragmentary issues, without provision of a general framework for the debate (source: "Deuxième et troisième Conférences Nationales de la Gestion Socialist des Entreprises" held in 1975 and 1979, respectively).

* It was reported that managers in order to dilute prerogatives vested by law in workers' representatives, unilaterally make some decisions prior to the meeting of the Managing Council, on the ground of time urgency and efficiency (source: Deuxième et Troisième Conférences Nationales de la Gestion Socialist des Entreprises, 1975, 1979).

Third: Lack of training programmes of workers for future participatory responsibility, and also of representatives in social, technical and managing processes. The concentration of power in management has left little to be
learnt through practice by workers' representatives. The technical activities in which Workers' Assembly is mainly consultative suffer most from the lack of enthusiasm, compared with social activities that polarize the attention of workers' representatives.

Fourth: Insufficient level of education which handicaps most workers' representatives and a large proportion of workers, and prevents them from a better grasp of the written patrimony of the organization, from adequate understanding of the Charter and Code, and from communicating adequately using proper expression, technical terms and concepts in a standard language.

Fifth: Tendency of certain workers' representatives to promote self-interest from their new position.

Sixth: Lack of communication and feedback between Workers' Assembly and the collective of workers. This results in separating representatives from workers instead of integrating them.

Eight: The nature of an organization social climate affects workers' perception of their representatives. Dissatisfactions and negative attitudes that workers hold vis-à-vis the management or some of its services affect or contaminate also their attitudes toward their representatives. The logic behind this is that since the raison d'être of representatives is to communicate, discuss and solve workers' problems with management, problems that come up or that remain unsolved (even if they are beyond the decision-making power of representatives), are perceived by workers as partly or completely caused by their representatives.

To summarize, the analysis shows that perceived stressors stemming from pay, task, communication, career, role overload and role conflict are more frequently reported by workers in the present study than in the two investigations noted here.

The discussion also indicates that contextual variables, particularly, housing and participation constitute other salient sources of perceived
stress in the present and other studies examined. Finally, the experience of stressors due to participation are ascribed to the way participation is formulated by legislature in the formal documents, management tactics, inadequacy of training, illiteracy of workers' representatives and the social climate of the organization.

9.3 RELATIONSHIPS OF PERCEIVED WORK STRESSORS TO STRAIN INDICES.

The results showed that perceived work stressors stemming from role conflict; task, pay, communication, career and role overload were associated with increased anxiety, depression, dissatisfaction and psychosomatic complaints.

In the literature, the most frequently studied types of perceived stressors are role conflict and role ambiguity. However, although researchers expect positive relationships between perceived role stressors and strain indices, the findings, in a number of cases, fail to fulfill researcher's predictions. Examination of the stress literature highlights the problem side of the issue. There are researchers who succeeded in finding significant relationships between perceived role stressors and strain (Breaugh, 1980; Brief et al. 1979; Gavin and Axelrod, 1977; LaRocco and Jones, 1978; Miles, 1975; Schuler, 1975). But other studies report inconsistent patterns of results despite the tendency of researchers to publish positive rather than negative results (Fletcher and Payne, 1980). To illustrate, while role conflict was related to anxiety, depression, threat and dissatisfaction, in some studies (Miles, 1976; Orpen, 1982; Tosi 1971); other investigations reported no significant relationships of role conflict to anxiety and threat (Parker and DeCotiès, 1983; Rizzo, et al. 1970; Tosi and Tosi, 1970) or to dissatisfaction (Hamner and Tosi 1974; Rizzo, et al. 1970). Furthermore, totally opposite results were reported by Tosi and co-workers. In one study, Tosi and Tosi (1970) found that role conflict was significantly
related to job dissatisfaction, but unrelated to perceived threat and anxiety. In another study, on the contrary, Hamner and Tosi (1974) found that role conflict was significantly related to perceived threat and anxiety, but was unrelated to job dissatisfaction.

These divergences across studies emerge not only with regard to role conflict but also, regarding other perceived work stressors.

When comparing the findings of the present research that perceived work stressors (role conflict, role overload, communication, task, career and pay stressors) were related to strain indices such as anxiety, depression, dissatisfaction and psychosomatic complaints, with the literature reporting positive as well as negative results; some distinguishing features of the present research as compared with various work stress studies warrant mention:

First: Those studies that concentrate on the correlates of role stressors were almost exclusively concerned with managerial work. Few investigations, however, were carried out on shop-floor workers. It can be argued that some sources of stress are more salient in shop-floor tasks than in managerial, and supervisory work. For instance, physical working conditions, the nature of the tasks (routinization and repetitiveness), and quantitative work overload, may constitute a matter of concern to the worker; whereas role responsibility, role conflict and role ambiguity may represent salient sources of stress to supervisors, managers and engineers. Awareness of lack of research, and the potential existence of sources of stress specific to shop-floor workers stimulated the orientation of the present research toward production workers' roles.

Second: the present research also differs from prior studies of stress, in the socio-cultural context. Most studies were carried out in industrialized societies, particularly, in the United States and to a lesser extent in Great Britain and other European countries. However, in developing countries, problems such as lack of managerial skills, workers' low level of education,
low wages, inadequate medical and social welfare, housing crises, shortage of transportation, large families, rural exodus, etc., constitute other sources of stress that prevail specifically in developing countries.

Third: A number of studies use only one or two types of perceived work stressors and strain indicators. Those few studies that used wider range of perceived work stressors and strain indices provide more insight into the stressor-strain relationships (Caplan et al. 1980, House 1980, Gavin and Axelrod 1977). In the present study, multiple indicators of perceived work stressors and strain have been adopted.

Fourth: In the main, correlational studies tend to relate one dependent variable with another dependent variable or a group of variables using simple or multiple correlation. Studies that attempt to analyze perceived work stressors and strain indices as two sets of variables, using canonical correlation, and not as two groups of independent variables, are rare. This study opted for "set analysis" of correlational relationships between groups of variables, using canonical correlation procedure. Actually, the superiority of canonical correlation over multiple correlation is that the former treats the dependent variables as a group, and uses the information provided by the inter-relationships within this dependent variable set, whereas multiple correlation tends to relate one dependent variable at a time, to the set of independent variables, therefore, losing the information that emerges from the consideration of the inter-relationships of the dependent variable set.

To conclude, it is argued that the divergences between the present research findings and other study results, regarding the relationships of perceived work stressors to reported strains, are due to the nature of the organizational work level, socio-cultural context, limited range of stressor and strain indices and statistical analytic techniques.
9.4 CONTRIBUTION OF PERCEIVED WORK STRESSORS TO THE PREDICTION OF STRAIN INDICES.

To address the question: what types of perceived work stressors predict what kind of strain indices and to what extent? The findings reported in chapter VIII (section 8.3.1) indicate that:

1. Role conflict positively predicts anxiety, depression, dissatisfaction, psychosomatic complaints and overall strain.
2. Perceived role overload positively predicts anxiety, psychosomatic complaints and overall strain.
3. Perceived career stressors positively predict depression, dissatisfaction and overall strain.
4. Perceived communication stressors positively predict depression, dissatisfaction, and overall strain.
5. Perceived pay stressors positively predict dissatisfaction.
6. Perceived task stressors positively and marginally predict psychosomatic complaints and overall strain.

With regard to the first predictor: role conflict, it is of importance to mention that Kechroud (1986) reported that role conflict was the most predictive factor of job dissatisfaction (second study), although in the first study role conflict was more predictive of perceived illness than dissatisfaction. On the other hand, role conflict seems not to represent an important predictor of strain indices in Caplan et al's (1975) study. Among the following strain indices: job satisfaction, depression, anxiety, irritation and somatic complaints, only irritation was positively predicted by role conflict (using product moment correlation). However, when partial correlation coefficients were used to identify predictors, role conflict disappeared completely from the list of the predictor variables (French, et al. 1982; Table 4.1, p.66).

Despite the divergences between the present research and the foregoing
study findings regarding the predictability of role conflict, it is more viable conceptually to view role conflict as a potent predictor of dissatisfaction, anxiety, depression, and psychosomatic symptoms. The reasons are threefold:

First: Role conflict usually involves one's relationships and interactions with people more than with things (task, physical conditions, etc.). A role incumbent does not deal with conflicting demands as such, that is as a set of incompatible expectations that are independent from the characteristics of their sources. But, these conflicting demands imply all the social connotations of the persons who emit them: their status in the organization, the extent of their coercive and reward power, their prestige, their significance to the well-being of the recipient. The perception of these characteristics of people originating the conflicting demands upon a role incumbent and the interpretation of the significance of these characteristics to the well-being of the recipient, determine the level of affective strain. Therefore, role conflict, because it is primarily based on interpersonal relationships, greatly affects strain.

Second: Role conflict is more pervasive than any other perceived work stressor. It can be argued that every type of perceived work stressor involves some degree of conflict. Perceived career stressor for instance, can be viewed as the presence of incompatibility between actual and desired or expected upward mobility. Some types of role overload may give rise to some form of conflict between the excessive quantity of work and the required quality of the work to be performed.

Third: The problematic nature of pronounced role conflict situations stretches the coping resources of the individual, perhaps more than other perceived work stressors. A situation where conflicting demands are made by significant persons on the recipient, and where meeting demands of an individual creates frustration for another; such a situation hinges deeply on the cognitive and emotional processes of the coper, and
exhausts his coping resources, since he has to work out an alternative that can attenuate the anticipated negative consequences. The experience of role conflict as well as the construction of coping strategy may also incur a great deal of cognitive, affective and physical cost.

Before moving to the examination of role overload, two remarks concerning Caplan et al.'s (1975) findings are noteworthy:

1. It is surprising to view the simple correlation between role conflict and irritation as indicating that role conflict is a predictor of irritation. Caplan et al. (1975), in their report titled: "Job demands and workers health", used the term: "predictor" of psychological and behavioural strains to describe - among other things - those perceived job stressors that correlated with some strain indices using bivariate correlation coefficients. It can be argued that the use of the term "predictor" is justified only when an independent variable (or a predictor) is related to a dependent variable (or a criterion) whilst controlling for other variables of interest.

2. Role conflict was associated with irritation, but was unrelated to job dissatisfaction, depression, anxiety and psychosomatic complaints. The interpretation provided by the researchers is: "Unlike depression and anxiety, however, irritation correlates well with role conflict (r = .33). This effect of conflicting demand from one's role senders is predictable since interpersonal difficulties may be expected to produce irritation" (Caplan et al. 1975, p. 74; underline added). As was mentioned earlier, it is conceptually tenable that role conflict exacerbates work dissatisfaction, anxiety and depression; and these relationships are as predictable as is role conflict-irritation link. Moreover, the problem is not only to interpret role conflict-irritation relationships, but also (and perhaps more importantly) to explain why role conflict was unrelated to job dissatisfaction, anxiety, depression and somatic symptoms.

Moving to the second predictor, namely role overload, it was found
that work overload predicted some strain indices particularly anxiety, psychosomatic complaints and overall strain, but weakly predicted depression and dissatisfaction. Some evidence provided by stress studies supports this pattern of relationships. In this vein, Orpen (1982) found that role overload was related to psychological strain such as anxiety, resentment and depression; and to psychosomatic complaints such as headaches, dizziness, shortage of breath, nausea and fatigue. Caplan and Jones (1975) reported that the changes in subjective quantitative workload were positively correlated with changes in anxiety-tension, but were unrelated to depression and resentment. Keenan and McBain's (1979) as well as Abdel-Halim's (1978) investigations suggested that perceived work overload was positively associated with work tension or anxiety, but not with job satisfaction.

Yet there is evidence which diverges from the present research findings. In this connection, French et al. (1982) reported that workload excess predicted increased irritation and depression, but failed to predict anxiety and somatic complaints. Kechroud's (1986) findings complicate the situation further: In one factory, he found that quantitative work overload was the major predictor of job dissatisfaction, but was not predictive of reported illness. On the contrary, in another factory, quantitative workload was the most predictor of reported illness but was not predictive of job satisfaction. Moreover, completely negative results were reported by Gavin and Axelrod (1977). Using two indices of perceived role overload, namely quantitative workload (amount of work) and job pressure (time constraint of work), the researchers found that neither quantitative workload nor job pressure, was related to anxiety-depression-irritation, work dissatisfaction and psychosomatic symptoms.

At the interpretational level, the relationships of work overload to some strain indices are more tenable than the absence of such relationships. The present research findings that psychosomatic symptoms, anxiety and overall strain are significantly predicted by work overload, can be explained
On the ground that:

(a) - Work overload is characterized by perceived physical demands of the work. It should be noted that the sample is composed of production workers performing tasks that entail physical demands more than excessive information load. Therefore, work overload, imposing excessive physical demands over time upon the worker, increases somatic strain.

(b) - The scale items of work overload consist of perceiving having a lot of work that cannot be completed during a normal working day, having to do many things simultaneously, and perceiving potential harm to health from work overload. Therefore, frustrations accumulating from being unable to finish the work, pressure from performing simultaneous demands, and worries about health likely to be affected by work overload, lead to the increase of anxiety.

(c) - Work overload usually consists of the interface between a task and a worker. It is more a task-centred perceived stressor than interpersonal relationships-focused source of stress. That is, work overload involves more interface of workers with their tasks than interaction with people. It follows that the scope of the effect of perceived work overload is less spread than the effects of other interpersonal relationships-centred work stressors such as role conflict, communication and career stressors.

Turning to other perceived work stressors, the findings indicate that career stressors predict dissatisfaction, depression and overall strain. This is somewhat consonant with Parker and DeCotús' (1983) finding that promotion and training quality predict two factors of strain: Job-related feelings of anxiety and time pressure-related strain. Coburn (1978) found that opportunity for promotion (a dimension of career stressors) predicted higher level of satisfaction, and declined work alienation.

Yet, there are other research findings that do not accord with the
foregoing pattern of relationships. The first study of Kechroud (1986) revealed that career-goal discrepancy (a perceived work stressor somewhat equivalent to perceived career stressors) was predictive of reported illness. Yet, it was not a significant predictor of decreased job satisfaction in the second study, nor of reported illness and decreased satisfaction in the first study. Marshall and Cooper (1981) reported a list of significant predictors of anxiety and poor physical health (psychosomatic complaints). However, perceived career pressures did not appear as a predictor of the two strain indices for the research function, production, marketing, engineering, service departments, and the total sample.

Conceptually, the lack of promotion and absence training are likely to develop negative attitudes of a worker toward the organization, since these needs or personal objectives perceived by workers as legitimate are not satisfied. Furthermore, perceiving a given work level as a stand-still position, perceiving a career as having reached a dead-end, and perception of inequity and ambiguity in granting promotion by management, produce workers' anger, irritation and despair. Therefore, increased feelings of depression develop from such experiences.

In addition to the perceived work stressors discussed, perceived communication stressors were found to predict dissatisfaction, depression and overall strain. Communication stressors concern perceived lack of information circulation, and the extent to which the existing information (e.g., regulations, rules and instructions) are unambiguously presented to, and assimilated by shop-floor workers. Therefore, the need of workers for information is not satisfied, and a proportion of information cannot be exploited because of its complexity and ambiguity. Workers' experience and awareness of these informational difficulties deepen their isolation, and accentuate negative affects and attitudes toward the organization, management and workers' representatives.
Moreover, affective strains - particularly dissatisfaction - are highly responsive to communication stressors, not only because the paucity of information does not satisfy workers' curiosity and need to understand, but also because of the perceived social significance of sharing information. Being inadequately informed about important things in the organization, is likely to be associated with the feeling of being ignored or marginalized by the organization members, hence, the feelings of frustration and dissatisfaction.

The last two perceived stressors to discuss are pay and task stressors. Perceived pay stressors were found to predict increased dissatisfaction, whereas perceived task stressors marginally predict psychosomatic complaints. It is intriguing that pay stressors, the most frequently reported source of stress, did not predict other strain indices such as anxiety, depression, psychosomatic complaints and overall strain. Also, it is puzzling that some studies reported no relationships of perceived pay stressor to some strain indices. For example Coburn (1978) found that pay was not a significant predictor of satisfaction. Parker and DeCotus (1983) reported that pay predicted neither anxiety nor time pressure strains. A justification, however, was provided by Coburn in that this negative pattern of relationships "confirm other studies in indicating that, in general, population moneys makes a relatively slight independent contribution to feelings of satisfaction". But such an interpretation adds little to the explanation of the absence of perceived pay stressor-dissatisfaction relationships.

On the other hand, as the present study suggests, perception of pay inequity, its insufficiency compared with the cost of living, absence of some bonuses, misfit between effort or experience invested in work and the pay level; these perceptions are likely to contribute to the decline of workers' satisfaction towards their work and the organization.

Perceived task stressors was found, in the present study, to predict
It is surprising, however, that the overall strain was not responsive to perceived task and physical working condition stressors. Conceptually, the existence of a relationship between task stressors and anxiety is plausible, on the ground that poor working conditions surrounding the task arouse -- in the long run -- workers' worries and fear of their aversive effects upon health. Therefore, it is very likely that perception or anticipation of harm resulting from these perceived work stressors to health, entails affective cost in terms of increased worries, apprehension and anxiety.

This possible link of task and physical working condition stressors, not only to psychosomatic complaints but also to anxiety, regresses the discussion to the starting point: Why the relationships of perceived task and physical working condition to anxiety and overall strain were not significant? Why did role overload, another dimension of work, predict anxiety, psychosomatic complaints and overall strain, whereas task stressors show no such relationships?

An answer to these crucial questions is provided by the examination of the changes in the magnitude of the partial regression coefficients for perceived task stressors, when role overload is removed from the set of perceived work stressors. Therefore, in the presence of role overload, the partial regression of perceived task stressors was (Beta = .13, P = .17) in relation to anxiety, and (Beta = .15, P = .10) in connection with psychosomatic complaints, and (Beta = .14, P = .07) in relation to strain. When perceived role overload was not controlled for, that is, was not considered among perceived work stressors, the partial regression coefficients for perceived task stressors increased to (Beta = .21, P < .03) in relation to anxiety, Beta = .31 (P < .01) in connection with psychosomatic symptoms and Beta = .21 (P < .009) in relation to overall strain. Therefore, owing to the presence of multicollinearity, the relationships of perceived task stressors to anxiety, psychosomatic complaints and overall strain,
were overshadowed by the presence of perceived role overload, that is, represented by the impact of perceived role overload on these strain indices.

In summary, three reasons are advanced to explain the role conflict prediction of a wider strain indicators compared with other perceived work stressor prediction: (1) the nature and size of interaction involved, (2) Pervasiveness of the conflict process to other work stressors, and (3) heavy demands made upon coping resources.

Additionally, significant (and sometimes non-significant) relationships of the remaining perceived work stressors (i.e., role overload, career, communications, pay and task stressors) are discussed and interpreted.

9.5 CONTRIBUTION OF CONTEXTUAL VARIABLES TO THE PREDICTION OF STRAIN INDICES.

The findings of the present research (see chapter VIII, section 8.3) showed that:

(1) - Disrupted family-work interface was highly predictive of increased anxiety, depression, dissatisfaction, psychosomatic symptoms and overall strain.

(2) - Supportive relationships were highly predictive of decreased dissatisfaction and overall strain.

(3) - Low participation was a highly significant predictor of dissatisfaction.

With regard to the first contextual variable, namely family-work interface, it was found, in a study reported by House (1980), that work-family conflict reduced job satisfaction, lowered self-esteem, diminished life-satisfaction and exacerbated psychosomatic symptoms. Cooke and Rousseau (1983) reported that family life events were a highly significant predictor of increased nervousness, depression and psychosomatic ailments. Coburn (1978) found that work-family overlap predicted work tension, although it was not a significant predictor of satisfaction and feeling.
Therefore, if these studies conducted in industrialized societies showed the influence of family-work interaction upon the worker, there are grounds to believe that disrupted family-work interface produces further strain for Algerian workers (as indicated by the findings of the present study):

First: Algerian family is generally of large size. The average number of children born by wives reaching the age of fifty, is 6.07 in 1984 (Source: Office National des statistiques, 1985b). This figure may suggest that, irrespective of the age of wives, the average number of children for an Algerian family is roughly 5 children.

Second: Another characteristic consists of the strong bonds between a worker and his family which may include, besides the wife and children, his parents, brothers and sisters. This strong family bonds constitute an important source of support as well as of stress. In case of a dysfunction in the family, these tight relationships are likely to inflate the effect of the family stressors on the worker.

Third: Workers' salary is mostly the unique source of income for the family as the majority of spouses do not work.

Fourth: Housing crisis, prevailing in Algerian society, affects a great proportion of workers. 80% of Algerian families live in accommodation with 3 rooms or less.

The other contextual variable is supportive relationships. The present study showed that supportive relationships are highly predictive of decreased dissatisfaction and overall strain. Prior research findings are suggestive of the importance of supportive relationships upon strain indices. To illustrate, Pinneau (1976) found that depression, anxiety and irritation, were related to poor social support from home and work. These relationships remained significant across 16 occupational groups, even when the confounding effects of some work stressors were controlled for. French
et al.'s (1982) study demonstrated that high "support from others" at work predicted decreased anxiety, irritation and depression. Billings and Moos (1982) reported that employees who experienced more stressors and received less social support (from supervisors and co-workers), tended to experience higher level of depression, anxiety and psychosomatic symptoms.

Yet, Seers et al. (1983) found a weak relationship of social support to overall and facet satisfaction. Parker and DeCotis' (1983) study showed that supervisor support and cohesiveness predicted decreased time pressure strain. But, none of these sources of support was predictive of decreased anxiety.

Therefore, the general trend of findings indicates that greater supportive relationships or social support at work, in general, predict low strain indices such as anxiety, depression, dissatisfaction and psychosomatic symptoms. If certain similarities between the present research' findings and the results of other studies are encouraging, it is, however, intriguing that in the present study supportive relationships were predictive of lowered overall strain, but were not a significant predictor of anxiety, depression and psychosomatic complaints.

The reason, perhaps, resides in the set of items purporting the assessment of supportive relationships. Unlike most of the afore-mentioned studies, the scale used was more indicative of overall support. It is conceptually plausible to conceive of different sources of support such as co-worker support, supervisor support, spouse support, etc. This source-based typology of social support may have differential effects on workers' strains for two main reasons:

(a) - The sources of support do not necessarily function in parallel. That is, the availability of these sources may not be balanced: a worker, at a particular circumstance, may receive support from co-workers but not from his supervisor.
(b) - The way a source of support is perceived, that is, a worker may find little support from his supervisor more significant and efficient than the great deal of support provided by co-workers.

Therefore, the use of different sources of support acknowledges the differential impacts of the support sources. For example, French et al. (1982) found that support from supervisors was not predictive of strain indices, whereas support from others at work was predictive of less anxiety, irritation and depression. However, in the present study, only one index of support was derived from respondents' relationships with: (1) co-workers, (2) supervisors, and (3) workers' representatives. This may have the weakness of adopting a unique indicator of supportive relationships despite their heterogeneous sources. Yet, the use of an overall index of supportive relationships is warranted for three reasons:

(1) - Various variables relative to worker, work, organization and family life were used. To keep the width of coverage of variables under manageable proportion, a summary measure of supportive relationships was used.

(2) - The thrust of the study did not principally consist of the relationship of social support to strain. Major emphasis was placed on the relationships among perceived work stressors, strain indices and coping strategies. Consideration of other variables such as participation, type A behaviour pattern, locus of control, self-esteem, socio-demographic variables and supportive relationships, serves to enhance understanding of stressor-coping-strain relationships. Therefore, it was thought that an overall measure for each of these variables is sufficient to meet this objective.

(3) - More gain in the amount of prediction of strain indices can be realized when many types of supportive relationships are captured by a single overall index, instead of treating them independently.
Turning to the last contextual variable: participation, one must admit that the present study findings were frustrating since the only significant relationship of low participation was to work dissatisfaction. It was hypothesized that low participation predicts also higher level of overall strain. This situation has prompted a search for an explanation. It was found that "supportive relationship" highly correlated with "low participation" (\( r = -0.56, P < 0.001 \)) creating a situation of multicollinearity. When supportive relationship variable was removed from the regression equation, by regressing each strain index on work-family interface and low participation, low participation variable becomes a significant predictor of overall strain (Beta = 0.17, P < 0.03). Thus the effect of low participation on overall strain was represented or channelled by supportive relationship variable owing to their high bivariate correlation.

The connection of supportive relationship with participation is not tenable only at the statistical level, but also at the conceptual level. It is recalled that the items pertaining to participation index tapped indirect participation through workers' representatives, as well as direct participation involving workers' perceived influence on job matters and supervisors' decisions. The items adopted for assessing supportive relationships included the relationships of workers' representatives and supervisors. It can be argued that the nature of a worker's relationships with representatives affects his perception of representatives' performance of their duties, and his judgement of their impacts upon decision-making. Conversely, perception of representatives' performance affects the relationships of a worker with his representatives. Such an interpretation attests to the interplay or link between supportive relationships and participation.

The question worthy of examination is the extent to which some literature findings support participation prediction of strain indices as the present study partly did.
In this vein, Margolis et al. (1974) reported that low participation was associated with depressed mood, job dissatisfaction, low self-esteem, overall poor physical health, to cite but a few. They concluded that lack of participation, compared with other perceived work stressors, is the most important stressor that affects workers' physical and mental health. Another correlational study carried out by Gavin and Axelrod (1977) showed that increased participation was associated with decreased anxiety-irritation-depression and enhanced job satisfaction. Similarly, Tosi's (1971) findings suggested that participation was negatively related to job threat and anxiety, and positively associated with job satisfaction. Ivancevich (1979) found that decision-deprived participants reported higher job-related tensions, more frequent psychosomatic strain, and lower work and supervision satisfaction, than decision-equilibrium counterparts.

Yet, in Parker and DeCotüs' (1983) study, lack of decision-making was a predictor to neither anxiety, nor time pressure strain. French et al's (1982) study revealed that participation was not a significant predictor of anxiety, irritation and depression.

Despite the divergences due mainly to the differences in operationalization of constructs used (e.g. participation and strain), data collection techniques, samples, and the level of control and sophistication in the statistical analysis of data; the findings seem more suggestive of low participation-strain relationship than of the absence of this relationship.

However, comparing the literature findings with the present research results raises the question of whether this study addresses a participatory system similar to that commonly examined by the foregoing studies. Consideration of these important conceptual and methodological issues reveals various notable differences (such differences were spelt out in Chapter II, Section 2.3), a summary of which is:

First: Research concentrated on direct participation, and rarely addressed
indirect participation performed through workers' representatives as is the case with the present study.

Second: Participation in decision-making addressed by most stress studies was task-centred, rather than organization-oriented. In other words, participation was limited to specific activities directly related to the tasks and was rarely concerned with higher level of decision-making regarding organizational programmes, regulations and policies.

Third: The degree of participation examined by stress research was mostly limited to sharing information, communicating opinion and consultation. But higher degree of participation, consisting of influencing or changing decision-making process by workers' representatives, was seldom studied.

Fourth: Frequently addressed, is participation introduced informally following the initiative of some organization members such as a supervisor, a head of department, or introduced unilaterally by management. However, participatory systems institutionalized by means of explicit legislation and statutes were rarely examined.

Fifth: Because participation addressed by most stress studies was informally or unilaterally introduced by management, the range of employees covered by participatory scheme was mainly limited to a factory, a department, a service or a small group and it rarely concerned all employees of the organization.

These are some distinguishing characteristics between participation addressed by most stress studies and the participatory system examined in the present research. Therefore, the present research findings that low participation predicts increased dissatisfaction and overall strain, remain suggestive unless other studies are carried out in the context of the Algerian system of participation in industrial organizations.

To summarize, it is argued that disrupted family-work interface produces further strain for Algerian workers compared with family life stressor effects
in industrialized societies, because of the nature of the relationships within the Algerian family, large size, unique income and housing crises.

Additionally, the significant relationships of supportive relationships to overall strain and its negligible relationships to anxiety, depression and psychosomatic complaints are justified on the ground of the nature of the measure used, i.e. overall index of supportive relationships instead of specific measures of the types of social support.

The divergences between the present investigation and other research findings are ascribed to some distinguishing features of the Algerian participatory system addressed, and to some methodological differences, such as the nature of the sample, measures and analytic techniques.

9.6 CONTRIBUTION OF PERSONALITY AND SOCIO- DEMOGRAPHIC VARIABLES TO THE PREDICTION OF STRAIN.

The present research findings (Chapter VIII, section 8.3) indicate that:

(1) - Type A behaviour pattern is predictive of increased anxiety psychosomatic complaints and overall strain.

(2) - Self-esteem significantly contributes to the prediction of decreased depression, less psychosomatic complaints and low overall strain.

(3) - Internal locus of control predicts (although marginally) decreased anxiety and low overall strain.

(4) - Socio-demographic variables contribute little to the prediction of strain indices.

With reference to type A behaviour pattern, Rosenman and Chesney (1982) summarized behaviour and emotional reactions of Type A individuals as indicated by various studies, in that Type A individuals are well organized, self-confident, preferring to work alone when challenged, not easily distracted from task performance, outgoing, hyperalert, fast paced,
competitive, tense and unrelaxed, impatient, aggressive, time conscious, deeply involved in vocation and unable to relax away from work, and excessively striving with enhanced desire to control their environment. If these are the behavioural and affective characteristics of Type A individuals, does Type A behaviour pattern predict strain indices such as anxiety, depression, dissatisfaction, psychosomatic complaints and overall strain, and in what direction?

A suggestive answer is provided by the present research findings that Type A individuals tend to report greater anxiety, frequent psychosomatic complaints and high level of overall strain. Studies addressing the same issue provide conflicting evidence. To illustrate, while some studies reported significant relationships of Type A behaviour pattern to psychological strain, such as: anxiety (Davidson and Cooper, 1980), depression (Burke and Weir, 1980a; Howard et al. 1976), restlessness, feeling of fatigue and lack of concentration (Howard et al. 1976); other studies reported no relationship of Type A behaviour pattern to strain such as anxiety (Cooper et al. 1978), work tension, job satisfaction (Burke and Weir 1980a; Keenan and McBain, 1979) and psychosomatic complaints (Burke and Weir, 1980a).

It is instructive to end this sample of research findings by a summary made by two major contributors to Type A behaviour research. Following an examination of Type A studies in occupational domain, Chesney and Rosenman (1980) wrote:

"... Type A's tend to describe their jobs as having more responsibility, longer hours, and heavier workloads than Type B's. Despite these job pressures, Type A's in general do not report more job dissatisfaction, anxiety, and depression than Type B's." (Underlines added)

Therefore, adopting Chesney and Rosenman's conclusion entails a partial rejection of the findings of the present research, that Type A behaviour is predictive of anxiety, psychosomatic symptoms and overall strain; and
the findings of some other studies suggesting that Type A behaviour relates to strain. However, Chesney and Rosenman's conclusion should be regarded with caution for various reasons:

First: Referring to the description of Type A behaviour pattern, Rosenman and Chesney stated that it includes "such behavioural dispositions as ambitiousness, aggressiveness, competitiveness and impatience; specific behaviours such as alertness, muscle tenseness, rapid and emphatic speech stylistics; and emotional reactions such as enhanced irritation and expressed sign of anger" (underlines added). Conceptually, it is very likely that these emotional characteristics of Type A individuals (as opposed to Type B's) predispose them, when facing challenge, threat or pressure in the environment, to affective strains. Logically, if a Type A person has, by definition, such behavioural dispositions as ambitiousness, aggressiveness, competitiveness and impatience, and is emotionally reactive through pronounced irritation and anger; he tends to be more emotionally aroused than Type B person, when his expectancies and needs for ambition, achievement, etc. are challenged or threatened by perceived work stressors.

Second: Some categories of workers are under-represented by the existing research addressing the relationships of Type A behaviour and strain indices. Production workers or employees occupying low levels in the organization, compared with managerial or supervisory levels, attracted little attention of researchers. Researchers expect that Type A behaviour characteristics are likely to prevail in "white collar" employees especially managers, more than "blue collar" workers. Cox and Mackay (1979b) warn that Type A pattern of behaviour "seems to many people to describe the stereotype of the American manager. Thus, the argument developed that managers tend to be Type A individuals, and Type A individuals tend to have C.H.D (Coronary Heart Diseases). However, there is little evidence even if the
original hypothesis does stand up...that managers are necessarily Type A individuals. (between brackets and underline added). Therefore, the need for Type A studies concerned with low level of employees was expressed by Chesney and Rosenman (1980) themselves. They believe "it is also important that such research studies examine the dynamics between job stress and Type A behaviour in groups other than male managers, including women and blue-collar workers." (Underline added).

Third: Sparacino (1979) noticed that Type A behaviour is somewhat culture-bound. He remarks that "regrettably, few studies have thus far focused on women and virtually none has examined the extent to which Type A behaviour constitutes a substantial risk factor among black and other minority populations." Addressing the influence of culture on Type A behaviour, Cohen et al. (1975) examined Type A behaviour and coronary heart diseases among a large number of Japanese-Americans living in Hawaii. They identified only 15% as Type A individuals. When the total score of the foregoing sample was standardized on white men in the United States, they found a modest but nonsignificant association between Type A scores and CHD among Japanese-Americans. It is important to mention that when the factors or dimensions composing the scale used (JAS: the Jenkins Activity Survey) were separately studied, coronary heart disease was related to only one factor, namely "hard-driving and competitive", but the frequency of this factor is rare in this group because this aspect of behaviour was not compatible with Japanese culture. Another important finding was that Japanese men who were both more culturally Westernized and Type A, had two to three times the risk of developing CHD as men who either remain more traditionally Japanese in their culture, or have Type A personality. Cohen (1978) explains: "When the Japanese-Americans were classified according to the most Western set of characteristics possible, in both individual behaviour pattern and cultural environment, their CHD risk was similar to that of Caucasians. However, neither behaviour nor
environment alone put them at the same level of risk as would be expected from prior research on these characteristics. This example underlines the importance of sub-culture in minority groups in relationship to Type A behaviour and CHD risks. The importance of culture becomes more outstanding when Type A behaviour relationships to CHD and strain are examined in other societies that culturally differ from American or Western cultural values.

Returning to the starting point of this discussion, it can be concluded that Rosenman and Chesney's inference that Type A individuals do not manifest greater anxiety, depression and job dissatisfaction than Type B individuals can be challenged on conceptual and methodological grounds as demonstrated.

With regard to other personality variables, the present study indicates that self-esteem is a significant predictor of attenuated depression, psychosomatic complaints and overall strain. The findings of other research lend support to these relationships. For example, Werbel (1983) reported that self-esteem was negatively associated with negative emotional arousal, such as feeling tired, depressed, pressured, lonely, restless, nervous, upset, afraid and having insomnia and headaches.

Conceptually, an individual who believes he is worthy, successful and capable, is likely to approach situational demands, constraints and pressures with more confidence in his qualities to overcome work stressors and therefore to attenuate the resulting strains. Opinion on one's abilities and characteristics believed to gain other's respects and approval, helps also to redefine the level of stressfulness in the situational demands as being less aversive, hence, it lowers their impacts on emotional strain.

Moving to internal locus of control, the present research indicates that individuals internal in their generalized beliefs, tend to report less anxiety and low overall strain (although these relationships are marginally significant). Prior research findings somewhat support these
relationships. Kyriacou and Sutcliffe (1979) reported that belief in internal control was positively correlated with strain as assessed by a general statement. Szilagyi et al. (1976), relating external locus of control to five dimensions of job satisfaction, found that external persons reported higher dissatisfaction with work, pay, supervision, promotion and co-workers. Similarly, in Organ and Green's (1974) study, external locus of control was related to increased work dissatisfaction.

The differences that emerged between these research findings and the present study consist of the existence of positive relationships between external locus of control and work dissatisfaction reported by the former; and the absence of such relationships reported by the latter. However, the findings that locus of control weakly predicts work dissatisfaction is justifiable on two grounds:

First: Examination of the literature reveals that the findings relative to locus of control-dissatisfaction relationships are not unequivocal. If the afore-mentioned studies reported significant relationships between external locus of control and dissatisfaction, some other studies reported a different pattern of results. For example, Keenan and McBain's (1979) study indicates that neither psychological strains, namely tension at work (e.g. anxiety and worries), nor job dissatisfaction; were significantly related to locus of control.

Second: Work satisfaction measure, unlike anxiety and depression scales, were constructed to tap specific dimensions of work and organization, and not only job in general. It follows that the effect of work, organizational and support factors in determining perceived work satisfaction are more potent than locus of control beliefs as a personality characteristic.

Turning to socio-demographic variables, the present study showed that their role in the prediction of strain indices is negligible. Stress literature offers a confusing picture of the relationships of socio-demographic
variables to strains. Regarding age, for example, Marshall and Cooper (1981) found that age was a significant predictor of anxiety and poor physical health. Parker and DeCotüs (1983) reported that age was negatively related to one type of affective strain (time-pressure strain) but was not related to the other indicator of strain (anxiety). House's (1980) study reveals that age predicts job satisfaction, but is not predictive of health outcomes such as neurotic symptoms, angina pectoris and peptic ulcers. Furthermore, Cooke and Rousseau (1983) found that age was unrelated to an overall index of strain composed of nervousness, depression, headaches, high blood pressure, coronary heart disease, overweight and ulcers.

Lack of relationships between socio-demographic variables and strain variables, as indicated by the findings of the present research, has two implications:

**Firstly:** It disconfirms the hypotheses formulated in Chapter V, predicting the existence of relationships between socio-demographic variables and strain indices.

**Secondly:** It provides assurance that socio-demographic variables are less likely to exert a confounding effect, when the relationships of perceived stressors, contextual variables and personality, to strain are addressed.

**SUMMARY:** Contribution of variable sets (among the sets of perceived stressors, contextual variables, coping and personality and socio-demographic characteristics) to the prediction of strain.

The results showed that the most important variable set that considerably contributes to the prediction of strain indices are perceived work stressors and contextual variables, whereas personality and socio-demographic variables are the least important predictors of strain. This seems in agreement with Menaghan and Merves' (1984) study, where reported initial stressors (occupational problems) were more important in predicting overall work
strain than coping strategy set and personal characteristic set. Marshall and Cooper (1981) found that, regarding managers in production, high anxiety was predicted by job and organizational characteristics and not by their demographic or personality predispositions.

Despite the differences between the present study and other research, in the nature of samples (i.e. the latter being manager-focused samples) and in the cultural environment; the findings, nevertheless, seem to suggest that what makes more difference in strain reporting, in occupational environment is not what people are (i.e. personality and socio-demographic characteristics), but what they experience (i.e. perceived stressors and contextual variables) and what they do (i.e. coping strategies).

9.7 MEDIATING AND MODERATING ROLE OF COPING STRATEGIES IN THE PERCEIVED WORK STRESSOR-STRAIN RELATIONSHIP.

The findings of the present study indicate that coping strategy set mediates the perceived work stressor-strain relationships. On the contrary, coping strategies manifested a negligible interactive or moderative role in the relationships of perceived work stressors to strain indices. But, to what extent do prior studies support the present study findings?

Consonant with this pattern of relationships are Billings and Moos' (1981) study findings that coping strategies moderate the impact of undesirable life events on depression; anxiety and psychosomatic symptoms. Pearlin et al. (1981) reported that overall coping mediates the job disruption-depression relationships by attenuating the effect of reported work stressors on strain (depression).

However, while these examples reflect the mediating and moderating function of coping, some other investigations reported no such relationships. To illustrate, Menaghan and Merves (1984) reported that the interaction of perceived work problems with each of the four coping strategies: direct
action, comparison, selective ignoring and restricted expectations, to predict occupational strain was not significant. Similarly, Pearlin and Schooler (1978) found that the interaction of coping strategies with perceived stressors relative to occupation, adds a negligible level of prediction of overall strain.

Examination of these examples and the present study findings raises two important questions: Why do most studies tend to examine the moderating role more than the mediating effect of coping strategies on the perceived stressor-strain relationships? Which is conceptually more plausible: the moderating or the mediating effects of coping strategies on the relationships of perceived work stressors to strain indices?

To address the first question, two reasons may justify the dominant tendency of researchers to test of the moderating effect of coping strategies:

First: In certain cases, the outcomes emerging from statistical procedures regarding the relationships of coping strategies to the perceived stressor-strain link, were interpreted as indicative of moderating rather than mediating effects. A notable example is Billings and Moos' (1981) study. The researchers regressed strain indices (i.e. depression, anxiety and psychosomatic symptoms) on negative life events only; then, on negative life events and coping strategies; and finally, on negative life events, coping strategies and social resources. As an illustrative example, when anxiety was regressed on negative life events only, the standardized simple regression was: Beta = .13. But this value dropped to Beta = .02 when coping strategies and social resources were taken into consideration or controlled for. This reduction was interpreted as due to the attenuating effect of coping strategies (since "social resources" partial regression coefficient was not significant), and was described as indicative of a moderating effect of coping strategies.

In the result Chapter (Section 8.4) of the present study, a similar statistical procedure was used but the interpretation was different. The
decrease in the initial perceived work stressor-strain relationships due to the introduction of coping strategies, was considered as indicative of a mediating effect rather than of moderating effect of coping strategies. This way of interpretation was supported by a later article authored by Finney, Mitchell, Cronkite and Moos (1984). Finney, et al state: "Although we have used stress-attenuation analysis in our own research (Billings and Moos, 1981)...this technique allows an analyst to determine to what extent a variable such as coping or support can be conceived of as a mediator of the stress-functioning relationship. It is incorrect to interpret an 'attenuation effect' as evidence of the efficacy of coping or support in the sense of a buffering effect". Then, they conclude: "Stress-attenuation analysis explores mediating effects, whereas product-term regression and multiple within-groups analysis estimate interactive or moderating effects". This is a typical example of a study where the coping role in the relationships of perceived work stressors to strain indices, was viewed as a moderator instead of mediator, and where the researchers acknowledge their shortcoming and correct the interpretation of the relationship as indicating a mediating rather than a moderating effect.

Second: Some researchers used the terms "moderator" and "mediator" interchangeably. For example, Pearlin, et al. (1981) used multiplicative terms (Job disruption x Coping; Job disruption x support) in relationship to depression among other dependent variables, to test for the interaction, using indiscriminately the terms "interact" and "mediate" to describe these relationships. Failure to distinguish between "moderating" effect and "mediating" effect (see Chapter VIII, Section 8.5, for the difference between them) leads conceptually and methodologically to describing what is actually a mediating effect as a moderating relationship.

Turning to the second question: Which is conceptually more plausible: the moderating or the mediating effects of coping strategies on the perceived
work stressor-strain relationship? It is more pertinent to view coping strategies as mediator of the stressor-strain link. It is recalled that the present study findings indicated that coping acted as mediator. The moderating effect of coping was not supported. Conceptually, considering coping as moderator means that the impact of perceived stressors on strain varies depending on the level of coping. It follows that coping is given, that is, conceived of as existing before the experience of perceived work stressors. Hence, it does not depend, in a sense, on the activation or stimulation of experienced work stressors. The moderating role simply is: given a coping repertoire, does high level, as opposed to low level of coping, make any difference to the effect of perceived stressors on felt strain? This analysis emphasizes the static characteristic attached to coping when it is conceived of as a "moderator".

On the other hand, coping does not become a mediator of perceived work stressor-strain relationships unless a certain level of experienced work stressors to stimulate coping exists. It follows that coping cannot be functional unless it is activated by the experience of work stressors. In other words, coping is not a given resource of the individual whose change unilaterally affects the relationships of perceived stressors to strain, but is affected by perceived stressors, and influences in turn strain by exacerbating or attenuating perceived stressor effects. To conclude, the conceptual advantage of considering coping as mediator is twofold:

(a) - It provides a dynamic rather than a static conception of the role of coping in the perceived work stressor-strain relationships.

Coping as a mediator means that experienced work stressors activate or mobilize individual coping resources. Coping, when stimulated, changes the effect of perceived work stressors on felt strains.

(b) - Another advantage is that coping as mediator provides more explanation of the relationships of perceived work stressors to strain.
As perceived work stressors impinge directly and indirectly upon strain, the mediating role of coping furnishes additional information about the nature and strength of the indirect relationships of perceived work stressors to strain; that is the degree and direction of the effect of experienced work stressors on coping, and the direction and the extent to which the transmitted effect of perceived work stressors to strain is exacerbated or attenuated by coping.

Having explained the advantage of viewing coping as a mediator according to the present study, it remains to address another issue relative to the identification of coping strategies that significantly mediate perceived work stressor-strain relationship, and the nature of mediation. The results of the present study showed that, among coping strategies, only "withdrawal" and to a less extent "evaluation", significantly mediate the relationship of perceived work stressors originating from task, communications, career, role conflict, role overload, and pay; to strain indices including anxiety, depression, psychosomatic complaints and overall strain. The form of the mediation exercised by withdrawal and, occasionally, by evaluation was that every perceived work stressor activates the adoption of withdrawal and evaluation and these coping strategies exacerbate the level of strain indices.

These patterns of findings raise a number of questions:

(1) Why coping through withdrawal and coping through evaluation were the only significant mediators among coping strategies?

(2) Why the coping strategy: "taking action", a form of situation-focused coping, was not found to attenuate the effect of perceived work stressors on strain?

(3) Why "evaluation", a form of situation-focused coping (as opposed to emotion-centred coping), was a stress-exacerbator type of coping rather than a buffer or attenuator of strain?
(4) - Why the coping strategy: "externalization" which involves religious beliefs was not found to exacerbate the effect of perceived work stressors on strain, according to the conceptual orientation of certain researchers?

Regarding the first question, the dominance of the withdrawal mediating effect upon perceived work stressors, in relationships to strain indices, is not indicative of workers' passivity in the glass works, but of the recurring feeling of the limited impacts of coping attempts: It seems as if the work environment as well as the structure and functioning of the organization, has acquired an inertia to strongly and successfully resist the attempts of workers to change experienced work stressors, and to absorb and dampen successful coping attempts made by production workers in stressful work situations. These experiences develop, over time, workers' realization that expected coping outcomes are less contingent upon active efforts to change stressful work encounters. Hence, workers' resort to coping through withdrawal as a means of acquiring some immediate short-lived payoffs. Tolerating a perceived work stressor, or avoiding it, may reduce aroused emotional feelings of discomfort. However, the study showed that withdrawal exacerbates anxiety, depression, psychosomatic symptoms and overall strain. Since these strain indices require a certain length of time to evolve, therefore, the aftermath or the non-immediate effects of frequent adoption of withdrawal as a coping device entails greater strain.

Consistent with this interpretation, is Pearlin and Schooler's (1978) findings and explanation. Studying coping efficacy regarding the relationships of perceived stressors to strain in five independent roles: marriage, child-rearing, household economics and occupation, they found that the buffering effect of coping were important in the three family and child-rearing roles and negligible in the occupational role. Pearlin, et al. (1981) provide the following interpretation: "... The results of our analysis have led us to be impressed as much with the limitations of coping as with its
efficacy. In particular, individual coping appears to be quite ineffective when directed to problems residing in formal organization, its authority and reward systems; it is most effective in dealing with problems involved in face-to-face relations, such as in the family.

With reference to the second and third questions, the most frequently used typology is situation-oriented coping or problem-focused coping, and affective-cognitive oriented coping or emotion-focused coping (Antonovsky, 1979; Lazarus, 1980). The former consists of attempts to change the source of stress through active behaviour, while the latter alters or redefines the meaning of work stressors, and keeps the aroused emotional strain under control. Conceptually, problem-focused coping was considered as effective and emotion-focused coping was viewed as palliative and ineffective (Lazarus and Launier, 1978; Mechanic, 1962). Such standpoint based upon the superiority of instrumental coping (problem-focused coping) over palliative coping (cognitive-emotion oriented coping) seems to imply a bias that works in favour of the problem-focused coping considered as instrumental, functional, realistic, effective, and of long-lasting outcomes. By contrast, cognitive-emotion focused coping is palliative, dysfunctional, unrealistic, ineffective and of ephemeral outcomes. However, this, intuitive conceptual standpoint lacks empirical support. The present study showed that the evaluation of one's limitations and capabilities as well as the evaluation of situation difficulties, exacerbated some strain indices; and that coping by initiating direct action had no significant mediating effect on strain. Consistent with this pattern of findings is Needle et al.'s (1981) study results in that optimistic comparison, a form of cognitive-emotion centred coping, reduced strain; while direct action had no effect on strain indices. Caplan, et al. (1984) found, to their surprise, that the interaction of problem-focused coping (termed simply "coping") with Person-Environment fit (perceived work stressors) had no impact on reported strains. On the other hand, the interaction of
emotion-focused coping (termed "defence") enhanced the prediction of most strain indicators. For example, withdrawal was found to moderate the relationships of fit measures and strain towards increased satisfaction and decreased somatic complaints and anger.

However, it can be argued that problem-focused coping manages situational stressors by solving work problems more than reducing emotional strain, and therefore the efficacy of problem-focused coping should be assessed in terms of the contribution of this coping pattern to the resolution of work problems, and not in terms of its contribution to the reduction of strain indices. Menaghan and Merves (1984) addressed this issue and found that direct action increased rather than decreased later work problems (although Beta = .085, was marginally significant: P < .10). Ilfeld (1980b) reported that optimistic action (problem-focused coping) exerted a negligible effect on the diminution of perceived work stressors, and exacerbated the feelings of job strain (termed distress) and psychosomatic symptoms.

Therefore, whether the efficacy of situation-oriented coping, as opposed to cognitive-emotion oriented coping, should be judged in terms of work stressor diminution or stressful situation resolution; and whether it is more beneficial for the focal coper than cognitive and emotional coping, as certain researchers tend to believe, is not empirically substantiated.

Related to the foregoing issue is the matter raised by the fourth and last question. Coping through religious behaviours was categorized as emotion-focused coping; therefore, mainly judged as ineffective in reducing strains. McCubbin (1975), for example, labelled the coping strategy: "Maintaining the past and dependence on religion" employed by wives in response to prolonged war-induced separation from husbands, as ineffective because it is not a "direct-action" coping. Four coping strategies were considered as highly functional for the sole reason that they are all "direct-action" pattern of coping. The remaining two coping
strategies, namely "reducing anxiety" and "maintaining the past and dependence on religion" were viewed as ineffective because they "fall within Lazarus's classification of potentially dysfunctional pattern". The researchers added: "Lazarus' formulation also suggest that maintenance of the past, denial of fear and dependence on religion, are varied forms of psychological defences which are basically dysfunctional". However, judging the utility of coping through faith and religious behaviour in this manner, is questionable for two reasons:

First: The bias toward direct action or problem-oriented coping is implied in the judgement of coping by means of religious behaviour, as being dysfunctional, because it is not 'direct action'. This is a simplistic theoretical orientation based on the assumption that, as soon as a problem or stressor is dealt with, strain is consequently eliminated or diminished. However, strain may still persist because other factors enter into play. For example, the aftermath of a solved work problem may generate new perceived stressors or new constraints from others, because the problem-solving behaviour satisfies the goals of the coper, and runs counter significant others' expectations. Also, it may be that coping behaviour meets the demand of a particular source of pressure (e.g. from a supervisor) entailing further pressure from other significant sources (e.g. from workmates). Therefore, direct action or situation-focused coping is not necessarily effective per se, but its effectiveness also depends on cognitive, emotional, behavioural, situational and group processes.

Second: Whether the dependence on religion is functional or dysfunctional is unfortunately not sufficiently and empirically documented. McCubbin, et al, acknowledged the paucity of research addressing the issue, stating: "The functional and dysfunctional nature of the six coping patterns have only been speculated upon and were substantiated only by inference or by reference to other theoretical formulations" (Underlines added).

Returning to the findings of the present research, coping through faith, religious behaviour and existential beliefs (termed externalization)
was neither detrimental nor effective. Despite these neutral findings, the author conceives of religion as an important coping source in the present research sample. Religious beliefs buffer the impact of perceived work stressors on a worker's strain and create more tolerance vis-à-vis stress sources. However, one may argue that the adoption of religious beliefs as a coping behaviour increases a worker's passivity regarding situational stressors. On the contrary, the author thinks that, in view of the potential buffering effect of religious beliefs, a worker approaches work stressors more comfortably as the immediate strain consequences are kept within manageable bound (owing to the dampening effect of religion). This perhaps, aids an individual to work out alternative solutions to the perceived problems by attenuating the immediate negative effects of the stressful encounters that disturb the coping construction process.

To summarize, it is argued that viewing coping as a mediator rather than a moderator, as the findings of the present study tend to support, conceptually presents two main advantages: (1) provision of a dynamic rather than a static picture of the role of coping in the stressor-strain link; and (2) provision of more information of the relationships of perceived work stressors to strain.

The dominance of the mediating effects of two coping strategies: withdrawal and evaluation, is analysed and the negligible mediating role of the problem-focused coping: taking action, is discussed, arguing that situation-focused coping was frequently considered as effective in the literature compared with emotion and cognition-focused coping being considered as ineffective, despite the paucity of empirical research support.

Also, the discussion highlights the importance of religion in coping, although neglected or undermined by some researchers.
MEDIATING AND MODERATING ROLE OF CONTEXTUAL, PERSONALITY AND SOCIO-DEMOGRAPHIC VARIABLES IN THE PERCEIVED WORK STRESSOR-STRAIN RELATIONSHIPS.

Of importance is the question whether contextual variables, namely disturbed family-work interface, supportive relationship and participation; exert a mediating effect on the relationships of perceived work stressors to strain indices.

The present research indicated that disturbed family-work interface exacerbates the effect of perceived work stressors on reported anxiety, depression, psychosomatic symptoms and overall strain. This pattern of relationships suggests that family life is a crucial factor that should be taken into account in designing programmes for managing work stress. However, it is intriguing that the mediating effect of disrupted family-work interface on the perceived work stressor-dissatisfaction relationships was not significant. The reason seems to be more methodological than conceptual, owing to the fact that, unlike the measures of anxiety, depression, and psychosomatic symptoms, the scale of satisfaction was commensurate with the work environment; that is, more directly geared to several specific dimensions of work, whereas the previous general affect measures reflect affective responses to work as a whole.

Supportive relationships and participation constitute other contextual variables. The present study showed that supportive relationships mediate the relationships of overall perceived work stressors to dissatisfaction and overall strain. This means that overall perceived work stressors activate the need for supportive relationships, and perceived supportive relationships diminish dissatisfaction and overall strain engendered by work stressors. Prior research has concentrated on the moderating role, rather than, on the mediating effect of supportive relationships or social support. Regarding the moderating role of social support, only modest evidence
suggesting its buffering effect was reported. To illustrate, Pinneau (1976), LaRocco and Jones (1978), Blau (1981) and Jayarathe and Chess (1984) found non-significant interaction of social support with perceived work stressors in the prediction of some psychological and psychosomatic strains. On the other hand, House (1980), LaRocco et al. (1980), Billings and Moos (1982), Karasek et al. (1982) and Winnubst et al. (1982), provided modest evidence that social support moderates the perceived stressor-strain relationships by buffering the effect of perceived stressors on strain indices.

However, most studies tackling the effect of social support on perceived work stressor-strain link used the moderation rather than the mediation approach. Moderation approach is associated with a static view of the role of social support, since it analyses the relationships of perceived work stressors to strain at different level of support considered as given. On the other hand, the present study showed that, in view of the mediating effect of supportive relationships on perceived work stressor-strain link, supportive relationships cannot exert its buffering or attenuating effect on dissatisfaction and overall strain, unless it is activated or stimulated by perceived work stressors. A somewhat similar dynamic view was adopted by Seers et al. (1983) by proposing two distinct hypotheses of social support effects: The buffering hypothesis represented by the positive relationships of stressors to strain under low social support, and the absence of that relationship under high social support. On the other hand, the coping hypothesis consists of a negative relationship of social support to strain under high stressor conditions and the absence of that relationship under low stressor conditions. The study they performed supported the coping hypothesis of social support and showed the inadequacy of the buffering hypothesis.

Low participation in the present study was found to exacerbate the effect of overall perceived work stressors on dissatisfaction. This is
consonant with Shuler's (1977) finding that higher role conflict were related to higher job satisfaction under the condition of greater participation. But, low role ambiguity and role conflict were associated with low level of satisfaction under the condition of low participation. Although both patterns of findings converge, the present study differs from Shuler's study in the wider coverage of perceived work stressors which was not limited to role conflict and role ambiguity, and also in addressing other strain indices, such as anxiety, depression and psychosomatic symptoms.

With reference to personality variables, the findings showed that Type A behaviour pattern mediates the relationship of overall perceived work stressors to strain indices by exacerbating the effect of overall work stressors on anxiety, depression, psychosomatic complaints and overall strain. On the contrary, the mediating role of self-esteem consists of mitigating the impact of overall perceived work stressors on depression and overall strain.

Therefore, both personality variables affect the relationship of perceived work stressors to strain indices. Type A behaviour, when stimulated by experienced work stressors, predisposes the individual to greater anxiety, depression, psychosomatic complaints and overall strain. Concerning self-esteem, perceived work stressors mobilizes this personality resource, which in turn produces a decrease in depression and overall strain.

Turning to socio-demographic variables, the present research indicates that the relationships of overall perceived stressors to strain indices were not significantly mediated, nor moderated by socio-demographic variables. However, it is interesting that Kechroud (1986), following a research conducted in some Algerian industrial organizations, reported a significant interactive effect of "number of dependents" and income on job satisfaction, and a significant interactive effect of tenure on illness, in the first study. In the second study conducted within the same investigation, he found that the interactive effect of income, educational
level, and tenure on job satisfaction was significant. Also significant (although marginally) was the interactive effect of marital status and tenure on job satisfaction. However, there exist some ambiguous points relating to these findings that need clarification, if these results are to be considered:

First: Kechroud used one-way analysis of variance to test for the interaction of socio-demographic variables with perceived work stressors. However, it is not clear whether the figures presented in Table 9.11 (Kechroud, 1986; p. 416) indicate the main effects of age, marital status, number of dependents, income, level of education, and time in job, on satisfaction and illness; or their interactive effects.

Second: The findings presented in the foregoing table regarding the interaction of socio-demographic variables, were ambiguously described and worded. As the findings relative to interaction were similarly phrased, two examples of statements used will suffice:

"There is a significant interaction between job satisfaction and income" (P. 426).

"There is a significant interaction between job satisfaction and the level of education of these factory workers" (P. 426).

The question that arises is: With what variables socio-demographic characteristics did interact? The answer according to the examples is that income interacts with job satisfaction. But, to predict what variable? It should be noted that job satisfaction and illness were considered in the foregoing tables of analysis of variance, as dependent variables. Therefore, it is incorrect to report that income (for example) interacts with the dependent variable (e.g. satisfaction). Rather, income interacts with something else (to be conceived of as an independent variable) to predict satisfaction (the dependent variable).

According to the context of the analysis, it is very likely that the researcher meant that income interacts with overall stress (i.e. perceived
stressors) to predict job satisfaction (First example); and the interaction of the level of education with overall perceived stress significantly predicts job satisfaction (Second example).

To summarize, the discussion indicates why some contextual variables (namely disrupted family-work interface, lack of participation and supportive relationships) and personality dimensions (i.e., type A behaviour pattern, locus of control and self-esteem) mediate the effect of perceived work stressors on some strain indices. The conceptual advantage of the mediation approach over the moderation one is also considered.

Finally, the findings that socio-demographic variables are neither significant mediators nor moderators as indicated by the present study are critically compared with a study findings (carried out in some Algerian organizations) that some socio-demographic variables are significant moderators.

9.9 CONCLUSIONS OF THE DISCUSSION.

The discussion of the findings of the present research leads to the following conclusions:

First: Perceived stressors originating from task, pay, career, communication, role overload and role conflict are more frequently reported by workers in this study, as compared with the rate of reported work stressors in the majority of investigations in the literature.

Second: The afore-mentioned perceived work stressors impinge on reported strains (i.e., anxiety, depression, dissatisfaction and psychosomatic complaints). The divergencies detected between this pattern of findings and related evidence in the literature are attributed to work levels in organizations, socio-cultural context, adoption of a limited range of work
stressor and strain indicators, sample used and analytic techniques.

Third: Organizational and extra-organizational factors (therein referred to as: "contextual variables") represent other salient sources of stress and support. The relationships of contextual variables (e.g. family-work interface, participation and supportive relationships) to strain are not sufficiently examined in the literature.

Fourth: The discussion of the findings reveals that what makes more difference in strain reporting among production workers in the industrial organization examined, is not what people are (i.e. personality attributes and socio-demographic characteristics), but what they experience (i.e. perceived work stressors within and outside the organization) and what they do (i.e. coping strategies).

Fifth: Coping strategies mediate rather than moderate the relationships of perceived work stressors to strain indicators. It is conceptually more tenable to view coping as a mediator rather than a moderator variable for two reasons: (1) it provides a dynamic rather than a static conception (as is the case with a moderator) of the role of coping in the perceived work stressor-strain relationships. Coping as a mediator suggests that experienced work stressors activate or mobilize individual coping resources (i.e. past experiences, coping repertoire, etc...); coping, when stimulated, changes the effects of perceived work stressors on felt strains. (2) It provides more information about how perceived work stressors relate to strain indicators. These conclusions run counter many research findings where coping was viewed as a moderator.

Sixth: Contextual variables and to a lesser extent personality variables considered mediate the effect of perceived work stressors on some strain indicators. Socio-demographic variables, however, are neither significant moderators nor mediators. It seems that organizational (e.g. participation and social support) and extra-organizational (e.g. family and social support)
factors dominate the individual's internal resources (i.e., personality and demographic characteristics) in mediating (attenuating or exacerbating) the effects of perceived work stressors on strain indices.
The assumption underlying your story is that stress is a given for our culture. Not true...... I am a therapist and feel disheartened while teaching relaxation exercises to people who have intolerable jobs or lonely lives. Stress control is just another way to help us tolerate the loss of human and spiritual values.

From a letter addressed to the TIME (June 27, 1983) by a reader.
Conclusions will involve examination of implications of the present research findings for the glass works studied, in particular, and Algerian industrial organizations in general; and consideration of the present research limitations, conceptually and methodologically.

10. 1 IMPLICATIONS

Instead of enumerating directly the implications and recommendations, some elaboration of certain implications is necessary; therefore, recommendations, suggestions and implications are grouped under a few main headings; Each heading represents a set of articulated suggestions and implications.

10.1.1 PARTICIPATION

It was shown that workers were frustrated owing to perceived dysfunction of the participatory system in the factory; and that low participation predicted increased dissatisfaction and greater overall strain, (in the absence of a supportive relationship variable). What should be done about such a situation? Is not a plausible solution to replace the present participatory system by a new imported "ready-made" participatory scheme?

The legislator is warned against approaching the issue in this way. The matter does not reside in replacing one participatory system by another one, but rather: To what extent the potentials of the existing system have been exploited? In other words, has this organization in particular, and other industrial organizations in general, reached an optimum use and application of the present system of participation?
The present research has shown that many causes of such dysfunctions are not due to the philosophy underlying the system of participation but rather to the application and the nature of relationships in the organizations (for more details see Chapter IX: discussion). Therefore, it is recommended to activate the following processes:

First: Elaborating and implementing a systematic educational programme that takes into consideration the requirements of the participatory system and the existing characteristics of workers and representatives, and that is subject to continuous evaluation. The forms proposed for such educational programme are:

1. Owing to the fact that many workers and representatives are illiterate or have insufficient level of instruction, this handicaps their potential contribution to the functioning of the participatory system. The urgent task, therefore, is to establish a systematic instructional program. Its success depends on the following considerations:

   a) Workers should participate with management, union and educational sector representatives in the elaboration of objectives, content, method and the evaluation of the educational programme.

   b) Workers should be motivated to attend these language courses and to learn. That is, the motivational component should be built into the educational programme. Some forms of which are:

      * Provision of feedback or knowledge of progress made during the process of language learning.

      * Satisfactory learning progress and attendance should be rewarded by special degrees. Obtention of such degrees should be taken into consideration in promotions and creation of special bonuses of education.

      * Increasing workers awareness of the utilities and benefits of the
educational programme. Explanation of the educational impacts must not concentrate upon its benefits within the industrial organization, but also on workers' social life outside work. To illustrate, workers approaching the age of retirement pay less attention to the job benefits of education than to its non-work utilities. Therefore, awareness that education serves, in addition to its work benefits, to communicate better with people outside work, to read and understand better Islam, and to check the progress of one's children in school; may prove very motivating.

* Adopting pedagogic methods adjusted to adults. It is wrong to establish a similarity between illiterate workers and school-boys. School teachers and books may prove ineffective and irrelevant in teaching language to adults. The teaching method and content should concentrate on matters of interest to workers, such as work life, social issues, etc.; and must be carried out by people with experience in adult education.

(2) Preparing workers for future representative role by providing them with a learning programme of management functions tailored according to the educational level, seniority and experience of workers, and supervised by the Union. The cooperation of management is a necessary condition to the success of the scheme.

Second: activating downward, upward and lateral communication channels among management departments, participative bodies (i.e. Workers' Assembly and Permanent Committees) and represented workers (Workers' Collective)

Third: Organizational effectiveness and managers' performance are usually assessed by supervisory higher authorities solely on economic output criteria (e.g. productivity and profit). Consequently, managers strive for the realization of production efficiency, paying little attention to the management and development of human resources.
Hence, the belief that participation of workers' representatives is incompatible with the requirements of efficiency, because workers are supposed to execute, not to manage. In other words, subordinates are good "doers" but not good "thinkers".

Therefore, the criteria adopted by the supervisory authority in the evaluation of organization effectiveness should include, in addition to economic criteria (low cost, productivity, profit), behavioural outputs such as low rate of accidents, decreased turnover and absenteeism, adequate social welfare programme, and the dynamitization of the participatory system. These economic and behavioural criteria of organizational effectiveness are likely to encourage managers to cooperate and activate the interaction with workers' representatives to reduce employees' life and work problems, and to improve production and workers' well-being.

10.1.2 ADOPTION OF CULTURE-DERIVED COPING STRATEGIES PRIOR TO INTRODUCING IMPORTED INDIVIDUAL MANAGEMENT TECHNIQUES OF STRESS

In the literature, Stress Management indicates individual-based techniques such as relaxation, meditation, yoga, physical exercise, drugs, biofeedback and stress inoculation; used to reduce and prevent stress. Individual stress management approaches have aroused much interest in the occupational domain to the extent that almost every writer on occupational management recommends these techniques, and presents them as producing a salvatory effect against all sources of stress.

However, before considering the introduction of these imported techniques, the organization should study the local socio-cultural and religious values in order to reinforce and codify those existing cultural values and traditions that encourage group cohesiveness, cooperation, commitment, hard work, moral behaviour, etc. For example, Norfolk (1977) in recommending the following coping behaviour: "Always look at things from the other person's point of view". (p. 99), was impressed by the fact that the scriptures of all
major religions nicely reiterated this basic coping strategy. He cites, among the
teachings of various religions, the following Islamic principle: "No one of
you is a believer until he desires for his brother that which he desires for
himself."

Therefore, managers and heads of personnel departments are urged to
explore, before resorting to imported individual management techniques, the
local culture to identify and reinforce the stress management principles
derived from culture and religious values. In doing so, the management should
consider two things:

First: The set of cultural values introduced and reinforced should not
serve as a manipulative device to increase the control of management
over workers, and to increase productivity. It should be adopted
for the benefit of workers to enhance their coping capacity and
resources, and also for the benefit of the organization to realize
its goals.

Second: Management should manifest genuine interest in culture values,
selected to serve as stress-management guidelines. Consistency of
what is advocated by management with the behaviour of its members,
is an important motivator for workers to pay attention to the cultural
values advocated.

10.1.3 WORK DESIGN AND ERGONOMIC APPROACH

In order to introduce work environment change based on ergonomics and
work design, it is worth mentioning that the rush to the salvation of
behavioural approach to the management of stress (e.g. relaxation, transcendental
meditation, yoga, physical exercise, biofeedback, etc) raises two critical
problems:

First: Proponents of these methods assume that these behavioural approaches
are culture or value-free, and that they can be used with success in reducing stress in every cultural milieu. This implies that the value and belief system of the individual belonging to a culture, is passive enough to receive and accept such techniques with no resistance nor rejection. One can imagine the reaction of an Algerian worker who prays five times a day in which he experiences some "peace of mind", if he is invited to perform Transcendental Meditation. Simply, this stress management method will not work because the worker believes he has a better alternative that enables him to deal with life and work problems. Therefore, beliefs and value system of an individual are not passive entities, and should be given due attention before considering behavioural stress management techniques.

Second: Rarely did researchers, using behavioural approach to stress management, also employ techniques that change the source of stress at work. It is surprising that a book - addressing behavioural approach to the management of occupational stress - recently written by Beech, Burns and Sheffield (1982), concentrates exclusively on individual-based techniques of stress management, namely relaxation, cognitive methods (Rational Emotive Therapy, and Stress Inoculation), self-control, and biofeedback; but does not touch upon the importance of altering the work source of stress through work organization, design and ergonomics. The individual approach to work stress management implies that the causes of work dysfunctions and difficulties lie within the worker and not in the organization or the work environment.

It is recommended that priority should be given to changing the sources of work stress by means of work redesign and ergonomic interventions. If workers suffer from poor physical condition or from somatic pain due to strainful posture imposed by poor equipment design and inadequate workplace layout, training these operators how to relax, or how to alter their cognitions of experienced work stressors, encourages workers to tolerate aversive work conditions and poorly designed work, and treats symptoms instead of tackling the real causes of stress. Therefore, fitting work to
worker is a primary condition. Individual work stress management should serve, when necessary, as complementary devices to ergonomic and work design approach.

But what ergonomic and work design changes are needed?

It is recalled that the study findings showed that physical working conditions, monotony, work overload and conflict between work demands and a worker's opinion, were frequently reported as sources of stress. Additionally, set analysis revealed that perceived task stressors and perceived work overload, in addition to other perceived work stressors, were associated with increased anxiety, depression, dissatisfaction and psychosomatic complaints. To reduce these sources of stress, some ergonomic and work design changes can be performed within the organization, without entailing great cost or dramatic changes in the structure of the organization and the technology used. Some levels of intervention that can be suggested are:

(I) AT THE OPERATOR-MACHINE INTERFACE LEVEL.

Fitting machines, tools and equipment to workers, addresses three aspects:

(a) Sensory input to operators: Displays.
(b) Motor output from operators: Controls.
(c) Display-Control relationships: Layout of panels.

There exist many ergonomic and work design manuals that provide useful information, and suggest principles and guidelines for the design of displays, controls and the displays of panels at the man-machine system level, in order to improve performance, safety and comfort (e.g. Clark and Corlett, 1984; Grandjean, 1975; Shackel, 1976; Van Cott and Kinkade, 1972; Woodson and Conover, 1964, etc.).

However, redesigning inadequate controls, displays and panel layout, to optimize worker-machine interface may prove far beyond the technical capability of the organization in a developing country like Algeria.
But, there exists some feasible types of redesign that can be performed using the existing technical expertise. For example, most shop-floor workers in the glass works, perform dynamic inspection task of bottles moving along a machine—paced conveyor. To allow for individual differences and inspectors' control over their inspection tasks, a buffer stock can be created for each inspection workstation, without great technical difficulties.

(II) AT THE WORKER-WORKSPACE INTERACTION LEVEL.

Inadequate layout of workspace gives rise to three main sources of stress:

(a) Bad working posture.
(b) Reach, clearance and access difficulties.
(c) Visibility problems.

Guidlines and criteria of workspace layout are provided by many useful ergonomic design manuals, that the organization can benefit from. As an example, to choose the working posture, Clark and Corlett's (1984) manual suggests the following criteria:

- A seated operator station is advantageous:
  * Where a stable body is needed.
  * For accurate control.
  * For fine manipulation.
  * For light manual work (continuous).
  * For close visual work with prolonged attention.
  * For limited headroom, low work heights.
  * Where foot controls are necessary (unless of infrequent or short duration).

- A standing position is advantageous:
  * For heavy bulky loads.
  * For mobility to reach and monitor controls and displays.
  * When there is no knee room under the equipment.
* When there is limited front-rear space.
* When there are frequent moves from the workspace.

Criteria suggested by most manuals regarding workspace design cannot be readily applied by management unless two preliminary surveys are carried out:

First: Task analysis consisting of a detailed analysis of all operations performed by the operator, and the equipment involved.
Second: Gathering body dimension data of the factory workers: As anthropometric data for the Algerian population are not available, management can obtain such data by taking body-size measurements of the factory workers under the supervision of an ergonomist. It is of vital importance that workspace layout accommodates, not only the average user, but 90% (or if possible 95%) of the potential users, so that only the smallest acceptable size is the 5th percentile and the largest acceptable size the 95th percentile.

Anthropometric data and task analysis help considerably in ameliorating the adaptation of workspace layout to the local workers.

(III) AT THE WORKER-PHYSICAL WORKING CONDITION INTERFACE LEVEL.

The study indicates that 52% of workers always or often (as opposed to only 19% who rarely) reported working under poor physical working condition. Additionally, physical working conditions constitute a source of satisfaction for only 9% of the workers investigated. A great deal can be done by the organization to control or reduce the aversive effects of auditory, visual, acoustic, vibrational and chemical environments.

However, if these safety measures are to succeed, they must be reinforced by an educational programme of safety. For example, provision of workers with ear protectors does not guarantee that workers will make adequate use of these protection aids, or adopt management safety instructions. Therefore,
the safety and health education programme should concentrate on:
- Regular use of audio-visual techniques to increase workers' awareness of noise sources and hazards.
- Involving workers' in the elaboration of the hygiene and safety programme which must not be unilaterally initiated by the management, and imposed upon workers.
- Safety and hygiene procedures must be built into workers' training programmes.
- Emphasis should be placed on preventive rather than remedial measures.
- Periodic monitoring of workers' health.

(IV) AT THE MAN-MAN INTERACTION LEVEL

Stress does not arise only from man-machine interface, inadequate layout of workspace and physical working condition, but also from social relationships that develop among individuals within a workgroup or inter-groups of workers.

The study revealed that among coping strategy factors, there is a coping factor termed: Withdrawal. That is, remaining passive in the presence of work stress, planning to leave the factory or to be absent from work, and the tendency to retain affective reactions to work stressors. The study showed that withdrawal exacerbates the effect of all perceived work stressors studied. (task, role conflict, pay, communication, overload and career stressors), on anxiety, depression, dissatisfaction, psychosomatic complaints and overall strain. A social factor such as lack of social support at work explains partly the resort to withdrawal as a coping behaviour.

In order to alleviate work stress stemming from the working social environment, it is suggested that management adopts, when possible, work-team approach to the organization of work. The building of workteams can preferably be based on the following guidelines.
First: Preferably, workteam should be formed on the basis of member preferences to work with one another using sociometric techniques. For instance, workers performing inspection of bottles can be asked to say who they would prefer or reject as workmate for inspection work. Consequently, small work-teams are formed according to workers' preferences and rejections.

Second: Work-team should be assigned complementary and meaningful tasks to perform. That is, work that requires group cooperation rather than friction or competition.

Third: Reducing individual incentive schemes and reinforcing group-based reward system, to enhance group cohesiveness and reduce conflicting relationships.

Fourth: A supervisor that pays due attention, not only to group performance to take corrective measures, but also to psycho-social processes that develop within the group during the performance of tasks. These processes include coordination of group activities, activating communication within the group as well as between the work group and other groups, encouraging group participation in decision-making, and provision of social support.

Fifth: Work-team should be given responsibilities to organize, assign tasks among its members and decide upon the form of rotating its members over the activities of the task.

Sixth: Workteam should be encouraged to develop its own stress management and prevention strategies, to elaborate solutions to cope with manufacturing problems that arise, and to provide suggestions for the amelioration of working methods, work organization, working conditions, etc. in the future.

10.1.4 HUMAN RESOURCE MANAGEMENT

The methods of selection, training, performance evaluation and
promotion, involve many shortcomings that contribute to the exacerbation of workers' stress. It was indicated, in the present study, that a considerable percentage of workers reported the absence or lack of promotion, expected no prospective opportunity for advancement, and perceived the promotional criteria adopted by management as ambiguous and unfairly granted; and that among other perceived work stressors, perceived career or promotion stressors were related to increased anxiety, depression, dissatisfaction and psychosomatic complaints. The following are some recommendations regarding selection, training, performance appraisal and promotion:

(I) Selection:

The method of selection used in the Glass Works studied, involves application form and a short interview carried out by a non-psychologist. It is suggested therefore, that

First: To reach a more valid decision on candidate selection, it is necessary to combine information from application form (or biography), interview and tests to select the best candidates needed.

Second: Traditionally, selection methods concentrate upon assessing performance abilities. Due attention should be given to some personality attributes that predispose the individual to experience more stress (e.g. anxiety trait, tolerance of ambiguity, etc.), or that predispose to physical illness as coronary heart diseases (e.g. Type A behaviour pattern).

Third: Selection should be carried out by an occupational psychologist.

(II) Training:

Usually the application of workers' training programme has two characteristics:

First: A worker is trained under ideal conditions: the operated machine is well maintained, material needed is available, the task to be learnt is clear, and the machine breakdowns are absent.
Second: Evaluation of trainee’s performance rests exclusively upon skill acquisition.

However, the organization should pay attention to the following considerations:

First: Reality is different from situations designed for training. A trainee will not work under ideal conditions, but in workshops where machine maintenance and physical-working conditions are inadequate, materials needed are not easily provided, and machine breakdowns are likely. Training, therefore, should include learning how to deal with new and unusual work situation, and how to cope with maintenance problem, material shortage and machine breakdowns that are bound to happen.

Second: Developing trainees' awareness of stress sources, stress effects and coping strategies adopted; and the potential impacts of these coping strategies on the individual, group and organization.

(III) Performance Evaluation

Evaluation of workers' performance is generally based on the final work output. This is a necessary but not a sufficient criterion for the assessment of important aspects of workers' performance. Performance appraisal should take into consideration workers' success in dealing with stressful situations, and coping with work social and technical problems. Therefore, one's success in reducing work stress factors, or his problem-solving abilities, is another important component that should be included during the assessment of workers' performance.

(IV) Promotion

To alleviate perceived career stressors it is suggested that:

First: Criteria for promotion merit, as they are applied in the organization, should be clear and objective.

Second: Whenever promotions are granted to a group of workers, information explaining the criteria and reasons for promoting these workers in
particular, should be exhaustively and immediately communicated to all members of the organization.

Third: Criteria for promotion should not contain only performance and compliance with the organizational regulations, but also a workers' ability to manage difficult work situations encountered.

10.1.5 PROMOTING SOCIAL SUPPORT SOURCES

The present research indicates that the moderate level of supportive relationships exerts a direct effect on strains by reducing dissatisfaction and overall strain. Supportive relationships also mediate the effect of perceived work stressors on reported strain, so that strain (dissatisfaction and overall strain) induced by perceived work stressors is attenuated by supportive relationships. These findings emphasize the important function of social support in the vitiation of stress. Therefore, it is recommended that the organization should promote social support sources in the following ways:

(I) Establishing a counselling service:

Lightbody (1978) describes counselling in organization as "a way of responding to another person, by relating with them, so that the other is helped to explore their thoughts, feelings, behaviour and situation; in order to reach a clear understanding of their self and their situation; so that they can use their strengths to cope more effectively to make appropriate decisions, and to take action to change."

Counselling should be voluntary and confidential. It addresses:

- Work-related problems.
- Social life or personal problems.
- Health and psychological disturbances.
- Pre-retirement counselling.
Counsellor, as a source of support, provides help— with the active participation of the worker— in the search and comprehension of stress causes encountered, in the awareness of stress effects, and in the selection of coping strategies to adopt vis-à-vis stress sources. The counsellor may also play an important role in enhancing positive interaction between workers' families and the organization, by analysing and advising the client how to deal with family stressors.

(II) Supportive Leaderships:

Supervisors can contribute considerably to the promotion of social support resources, by providing subordinates with help and guidance needed, and by maintaining cohesive work groups that constitute an important source of support to group members.

(III) Extra-Organizational Sources of Support

Family is a typical example of source of support as well as of stress. The present study indicated that disrupted family-work interface predicts increased anxiety, depression, dissatisfaction, psychosomatic complaints and overall strain; and mediates work stressor-strain relationship by exacerbating the effect of perceived work stressors on anxiety, depression, psychosomatic symptoms and overall strain.

Organizational concern should not be limited to the work sources of stress, but also covers family life stressors. Individuals, at work, cannot insulate themselves from personal problems, to concentrate exclusively upon their work. Actually, workers carry to work their preoccupations, tensions, worries, frustrations and irritations, from the family-life problems. The relationship of family life to work is so intricate that their effects are inseparable. Therefore, it is suggested that the organization can contribute to the promotion of family source of support by:
First: Activating the counselling service that helps workers to cope with, and control some family-life dysfunctions, especially those due to relational, emotional and children rearing problems.

Second: Recruiting social workers that keep in touch with workers' families, to sensitize the Personnel Department about social problems each family encounters, and to establish links between workers' families and relevant public organizations responsible for administrative, social, educational, and medical services.

Third: Putting into effect a social welfare scheme, carried out jointly with workers' representatives, that benefits all organizational members.

### 10.1.6 PLANNING FOR STRESS PREVENTION AND MANAGEMENT

The different approaches, proposed earlier, to reduce stress at work can be integrated in a programme or a planning for preventing and managing occupational stress. Such a programme can be incorporated in the organization development of human resources or personnel policies.

The proposed planning for stress prevention and management consists of three main stages as diagrammed in Figure 10.1.

**FIRST STAGE: Identification.**

It consists of gathering information and collecting data to detect the following components of the stress process:

* Work stressors: their nature (e.g. role conflict, role overload, role ambiguity, pay, communication, career, task and working condition stressors). Their location (i.e. individual, group, workshop, section, department, etc.).

* Factors that mediate (i.e. exacerbate or attenuate) the consequences of work stressors on workers, involve personality characteristics (i.e. Type A behaviour pattern, self-esteem, locus of control, trait...
STRESS IDENTIFICATION

Type: 
- role conflict
- role overload etc...
- Location

Mediators of work stressor-strain relationship:
- Personality
- Socio-demographic variables
- Organization
  - Social support
  - Participation etc...
- Extra-organizational factors:
  - Family
  - Life events

Strain:
- Psychological:
  - Anxiety
  - Depression etc...
- Psychosomatic:
  - Headaches
  - Insomnia etc...

Coping:
- Coping strategies used.
- Coping outcomes concerning:
  - The individual
  - The group
  - The organization

STRESS PREVENTION AND MANAGEMENT

Fitting work to worker:
- Ergonomic and work design change.

Fitting worker to work:
- Selection
- Training
- Promotion
- Individual stress management techniques

Work socio-cultural context:
- Religious values
- Organization culture
- Social support system

FOLLOW UP AND EVALUATION

FIGURE 10.1 Flow-chart diagram regarding stress management and prevention planning.
anxiety, and tolerance of ambiguity); socio-demographic characteristics (e.g. gender, age, education, tenure, income; and rural-urban background); organizational structure (e.g. social support, participatory system, and leaderships); and extraorganizational factors such as family life and social life events.

* Strain reflecting the consequences of recurrent experiences of work stress. Strain manifestations are psychological or cognitive-affective (e.g. headaches, insomnia, and loss of appetite); and behavioural such as withdrawal behaviour and decreased performance.

* Coping: Cognitive, emotional and behavioural styles used to cope with perceived sources of stress, and the outcomes and consequences of coping behaviour for the individual, the immediate social environment (e.g. workgroup), and the organization.

The stage of identification, that is, collecting information or data regarding work stressors, mediators, strain and coping, preferably through systematic stress surveys within the organization, helps considerably - if adequately carried out - in elaborating and designing strategies to manage and prevent stress.

SECOND STAGE: Prevention and management of stress.

On the basis of the treatment of information assembled in the foregoing stage, the organization examines possible stress strategies of potential efficacy in reducing or controlling stress. A set of strategies have been suggested in the present chapter. These strategies can be reorganized and categorized into three classes:

(I) Underlying the first class of strategies is the principle of fitting work to worker. It consists of ergonomic and work design change in the work environment (i.e. equipment, workspace, physical working condition and work organization) to improve its fit to the workers' cognitive and physiological limitations, and needs.
(2) The rationale of the second set of strategies is to fit a worker to his job. Such strategies include selection and placement, training, performance appraisal, promotion; and individual-based stress management techniques (e.g., meditation, relaxation, yoga, physical exercise, and biofeedback). This set of strategies should complement, but not replace the foregoing set of strategies.

(3) This set of strategies is derived from local culture and religious values. Management should avoid automatic resort to behavioural management techniques of stress (i.e., relaxation, meditation, physical exercise, etc.) developed in industrialized countries, but explore beforehand, without a complex of inferiority, the potentials of the local culture.

THIRD STAGE: Evaluation and Follow-up

Stress prevention and management elaborated and implemented should be continuously monitored and evaluated. This follow-up assessment of the stress management and prevention programme provides the necessary feedback information to identify and tackle the programme shortcomings.
So far, major emphasis has been placed upon the question: What is the present research? Equally important, however, is the question: What the present research is not? Dealing with the limitations of the present study, does not necessarily overshadow its merits, nor undermine its importance. On the contrary, it provides indirectly a new emphasis to the research objectives, approach and significance.

10.2.1 CONCEPTUAL LIMITATIONS

(1) Organizational factors (e.g. participation and social support) were found to predict and mediate the effect of perceived work stressors upon strain indices. However, whether these organizational factors predict coping strategies, and mediate the relationships of perceived work stressors to coping strategies; and whether such organizational factors mediate the relationships of strain indices to coping, was not addressed.

(2) Extra-organizational factors, represented in the present study by family-work interface, predict strain and mediate perceived work stressor-strain relationships. But, the role of family life in the prediction and mediation of: (a) perceived work stressor — coping behaviour relationships; (b) strain indices — coping behaviour relationships; was not examined.

(3) Predictive and mediating role of personality characteristics (e.g. Type A behaviour pattern, locus of control and self-esteem) in the relationship of perceived work stressors to strain indicators was considered in this research. However, the functioning of personality dimensions as predictors in the relationships of coping to perceived stressors and to strain indices, merits examination.

(4) Recursive relationships of perceived stressors and coping to strain manifestations were addressed. But nonrecursive relationships or reciprocal causation between perceived work stressors and strain indices,
(5) Validation of the present research findings by future studies in various industrial organizations in Algeria is needed. Such studies help in demonstrating the generalizability of the present research findings, and contribute to the identification of those patterns of relationships consistent across various studies.

10.2.2 METHODOLOGICAL LIMITATIONS

(1) The present research, owing to its cross-sectional nature, is unable to study dynamically the variables, that is, the change of relationships between variables over time. Coping, for example, is viewed as a response if studied at one point in time. However, if coping is examined over an extended period of time, a more realistic and dynamic picture about coping process can be captured: some coping processes which were a coping response at a given point in time, become a source of stress inducing further stress to the individual at a subsequent time. The level of work satisfaction, for example, may be conceived of in a cross-sectional study as an affective response to perceived work stressors. However, in a longitudinal research, low level of satisfaction may not appear as a work stress outcome, but also as an affective variable that produces further strain, therefore, becomes an antecedent condition, an intervening process and an outcome.

(2) The sample of the present study involves only production workers. Such a choice is justified by the overwhelming concern of prior research with the higher levels of an organization hierarchy: managers, executives, engineers, administrators, technicians, foremen, etc.; and the paucity of studies regarding shop-floor workers.

However - as far as developing countries in general, and Algeria in particular, are concerned - research relating to all organizational levels
are almost absent. Therefore, future occupational stress studies in developing countries should address:

- Various types of occupational organizations, such as industrial, medical, educational, correctional and social organizations.
- Different levels within an organization, or different categories of workers.
- Male as well as female workers: Citing the example of the Algerian industrial organizations, female workers are almost absent in a number of industries such as mining, metal, chemical and engineering industries. But, they are considerably employed in food, electronic and textile industries. Therefore, a working population of women in industry exists, but research into women stress in developing countries is non-existent.

(3) Some stress indicators were not covered because of time and practical constraints. For example, concerning stress consequences, cognitive-affective strain as well as psychosomatic symptoms were addressed. But, other effects representing biochemical changes (e.g. Catecholamines and serum cholesterol) and illness (e.g. Coronary heart diseases and ulcers), were not considered.


Bamundo, P.J; and Kopelman, R.E: (1980), The moderating effects of occupation, age, and urbanization on the relationship between job satisfaction and life satisfaction. Journal of Vocational Behaviour, 17, 100-123.


Brand, R.J.; Rosenman, R.H.; Sholtz, R.I.; and Friedman, M. (1976), Multivariate prediction of coronary heart disease in the Western Collaborative Group Study compared to the findings of the Framingham study. Circulation, 53, 348-355.


Breslow, L.; and Buell, P. (1960), Mortality from coronary heart disease and physical activity of work in California. Journal of Chronic Diseases, 11, 615-626.


Cohen, J. (1978) Partialed Products are interactions; Partialed Powers are curve components; Psychological Bulletin, 85, 858-866.


Front de 'Libération Nationale (1975) Gestion Socialiste des Entreprises.


Haas, J.E (1964) Role conception and group consensus; Columbus, Ohio: Bureau of Business Research.


Kaplan, B.H.; Cassel, J.C.; and Gore, S. (1977) Social Support and health, Medical Care, 15, 47-58.


Kavdžiċ, B; Rus, V; and Tannenbaum, A.S (1971) Control, Participation and effectiveness in four Yugoslav industrial organizations. Administrative Science Quarterly, 16; 74-86.


Logan, W.P.D (1952) Mortality from coronary and myocardial disease in different social classes, Lancet, 268, 758-759.


Osler, W. (1892) the Lumleian lectures on angina pectoris, Lenoet, 1, 839-844.


I'm a student doing a research on workers' experience, problems, opinions, feelings and behaviour in the presence of job difficulties and problems.

I'm not interested in the personnel of management, or in supervisors. I'm interested in workers in shop-floors because they live the reality of work, and are in direct contact with production. Today, you are chosen for interview because we can spend some time this morning (or afternoon) in talking without disturbing production.

The questions I'm going to ask, have no right or wrong answers because every worker has his own experience and opinion at work.

Please, remember that your answers or anything you say in this interview are completely confidential. Your name is not needed in this study.

Is there a question you would like to ask me before we start?
I'm going to ask you some questions about your work. For each question there are three answers among which you choose the answer that describes best your experience with work.

(1) Do your physical working conditions such as noise, cold, heat, lighting, dust and hygiene:
- Make your work comfortable ? ......................... ( 1 ) 1-1
- Make your work somewhat difficult ? ................... ( 3 ) 1-1
- Make your work very difficult ? ....................... ( 5 ) 1-1

(2) Is your work:
- Very harmful for your health ? ........................ ( 5 ) 1-2
- Somewhat harmful for your health ? ................... ( 3 ) 1-2
- Not harmful ? ...................................... ( 1 ) 1-2

(3) Do you find your work:
- Very boring ........................................... ( 5 ) 1-3
- Somewhat boring ? .................................... ( 3 ) 1-3
- Interesting ? ......................................... ( 1 ) 1-3

(4) Is your work:
- Very tiring ............................................ ( 5 ) 1-4
- Somewhat tiring ? ..................................... ( 3 ) 1-4
- Not tiring at all ? ................................... ( 1 ) 1-4

(5) Does your work have:
- Much risk of accidents ? .............................. ( 5 ) 1-5
- Some risk of accidents ? .............................. ( 3 ) 1-5
- Safe ................................................ ( 1 ) 1-5

---

FINANCIAL INCENTIVES ( S6 TO S8 )

I'm going to read some questions about your pay. For each question, there are five answers, among which you choose the answer that comes closer to your work experience.

(6) To what extent does your pay match your responsibility, effort and experience ?
- None .................................................. ( 5 ) 1-3
(7) To what extent are your pay and bonuses adequate as compared with the cost of living?
   - None ............................................. (5) 1-9  
   - Little .......................................... (4) 1-9  
   - Moderate ........................................ (3) 1-9  
   - Much ............................................. (2) 1-9  
   - Very much ....................................... (1) 1-9  

(8) Compared with other people working in similar job as yours in other factories, to what extent is your pay similar to their pay?
   - None ............................................. (5) 1-10  
   - Little .......................................... (4) 1-10  
   - Moderate ........................................ (3) 1-10  
   - Much ............................................. (2) 1-10  
   - Very much ....................................... (1) 1-10  

---

**ROLE OVERLOAD**  (S9 TO S12 )

To change a little bit, let's move to another aspect of your work. Here also there are five response choices for every question. You choose the response that describes best your work experience.

(9) How often must you work very fast to complete your work on time?
   - Never ............................................. (1) 1-13  
   - Rarely .......................................... (2) 1-13  
   - Sometimes ...................................... (3) 1-13  
   - Often ............................................ (4) 1-13  
   - Always ......................................... (5) 1-13  

(10) How often does the amount of work you have to do interfere with how well it gets done?
   - Never ............................................. (1) 1-14  
   - Rarely .......................................... (2) 1-14  
   - Sometimes ...................................... (3) 1-14  
   - Often ............................................ (4) 1-14  
   - Always ......................................... (5) 1-14
(11) How often are you compelled to do many things at the same time?
- Never............................................ ( 1 ) 1-15
- Rarely............................................ ( 2 ) 1-15
- Sometimes.................................... ( 3 ) 1-15
- Often............................................. ( 4 ) 1-15
- Always.......................................... ( 5 ) 1-15

(12) How often do you find your work difficult or complicated?
- Never............................................. ( 1 ) 1-16
- Rarely............................................. ( 2 ) 1-16
- Sometimes................................. ( 3 ) 1-16
- Often............................................ ( 4 ) 1-16
- Always.......................................... ( 5 ) 1-16

ROLE CONFLICT

The following questions are about other things you may experience at work. Each question reports a kind of experience with your job and with people at work, and each question is followed by five response choices. Please feel free and tell me any response among the five responses for each question, that really reports your experience at work.

(13) How often do you receive conflicting instructions or orders from your superiors?
- Never................................................. ( 1 ) 1-19
- Rarely................................................. ( 2 ) 1-19
- Sometimes......................................... ( 3 ) 1-19
- Often............................................... ( 4 ) 1-19
- Always.............................................. ( 5 ) 1-19

(14) How often do you receive contradictory demands from your workmates, and from your superiors?
- Never................................................. ( 1 ) 1-20
- Rarely................................................. ( 2 ) 1-20
- Sometimes......................................... ( 3 ) 1-20
- Often............................................... ( 4 ) 1-20
- Always.............................................. ( 5 ) 1-20

(15) How often the instructions, demands and orders you receive, do contradict your opinion of how the work should be done?
- Never............................................... ( 1 ) 1-21
Let's now turn to another aspect of your work. Each of the following questions is followed by five response choices among which you choose the response category that best represents your experience with work.

<table>
<thead>
<tr>
<th>Question</th>
<th>Response Choices</th>
<th>Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>(16) How often do you receive instructions without adequate resources and material to execute them?</td>
<td>- Never. (1)</td>
<td>1-22</td>
</tr>
<tr>
<td></td>
<td>- Rarely. (2)</td>
<td>1-22</td>
</tr>
<tr>
<td></td>
<td>- Sometimes. (3)</td>
<td>1-22</td>
</tr>
<tr>
<td></td>
<td>- Often. (4)</td>
<td>1-22</td>
</tr>
<tr>
<td></td>
<td>- Always. (5)</td>
<td>1-22</td>
</tr>
</tbody>
</table>

**ROLE AMBIGUITY (S17 TO S20)**

<table>
<thead>
<tr>
<th>Question</th>
<th>Response Choices</th>
<th>Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>(17) To what extent are you clear, as you would like to be, about what you have to do on this job?</td>
<td>- Very much. (1)</td>
<td>1-25</td>
</tr>
<tr>
<td></td>
<td>- Much. (2)</td>
<td>1-25</td>
</tr>
<tr>
<td></td>
<td>- Moderate. (3)</td>
<td>1-25</td>
</tr>
<tr>
<td></td>
<td>- Little. (4)</td>
<td>1-25</td>
</tr>
<tr>
<td></td>
<td>- None. (5)</td>
<td>1-25</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Question</th>
<th>Response Choices</th>
<th>Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>(18) To what extent do you know how your work is evaluated by your supervisor or management?</td>
<td>- Very much. (1)</td>
<td>1-26</td>
</tr>
<tr>
<td></td>
<td>- Much. (2)</td>
<td>1-26</td>
</tr>
<tr>
<td></td>
<td>- Moderate. (3)</td>
<td>1-26</td>
</tr>
<tr>
<td></td>
<td>- Little. (4)</td>
<td>1-26</td>
</tr>
<tr>
<td></td>
<td>- None. (5)</td>
<td>1-26</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Question</th>
<th>Response Choices</th>
<th>Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>(19) To what extent are you provided with information explaining the criteria for promotion, and pay increase?</td>
<td>- Very much. (1)</td>
<td>1-27</td>
</tr>
<tr>
<td></td>
<td>- Much. (2)</td>
<td>1-27</td>
</tr>
<tr>
<td></td>
<td>- Moderate. (3)</td>
<td>1-27</td>
</tr>
<tr>
<td></td>
<td>- Little. (4)</td>
<td>1-27</td>
</tr>
<tr>
<td></td>
<td>- None. (5)</td>
<td>1-27</td>
</tr>
</tbody>
</table>
(20) To what extent your supervisor and management let you know about new regulations and decisions that concern your work?

- Very much.................................................................(1) 1-28
- Much.............................................................................(2) 1-28
- Moderate........................................................................(3) 1-28
- Little..............................................................................(4) 1-28
- None...............................................................................(5) 1-28

PROMOTION (S21 TO S25)

Would you tell me how true each of the following statements is of you:

whether the thing described by a statement is definitely true, more true than false, neither true nor false, more false than true, and definitely false. Please, notice that: "true" and "false" do not mean at all "right" or "wrong". They mean something which occurred or did not occur to you at work.

(21) To get a promotion in this factory you need to work hard and have a good behaviour.

- Definitely true.................................................................(1) 1-31
- More true than false...........................................................(2) 1-31
- Neither true nor false..........................................................(3) 1-31
- More false than true............................................................(4) 1-31
- Definitely false....................................................................(5) 1-31

(22) You have obtained less promotion than you deserve.

- Definitely true.................................................................(5) 1-32
- More true than false...........................................................(4) 1-32
- Neither true nor false..........................................................(3) 1-32
- More false than true............................................................(2) 1-32
- Definitely false....................................................................(1) 1-32

(23) People who get ahead in the factory do not deserve it.

- Definitely true.................................................................(5) 1-33
- More true than false...........................................................(4) 1-33
- Neither true nor false..........................................................(3) 1-33
- More false than true............................................................(2) 1-33
- Definitely false....................................................................(1) 1-33
(24) You do not feel you are getting anywhere on your job.
- Definitely true...........................................( 5 ) 1-34
- More true than false...........................................( 4 ) 1-34
- Neither true nor false...........................................( 3 ) 1-34
- More false than true...........................................( 2 ) 1-34
- Definitely false...........................................( 1 ) 1-34

(25) The more one knows people in the management the more likely one gets promoted.
- Definitely true...........................................( 5 ) 1-35
- More true than false...........................................( 4 ) 1-35
- Neither true nor false...........................................( 3 ) 1-35
- More false than true...........................................( 2 ) 1-35
- Definitely false...........................................( 1 ) 1-35

ANXIETY  ( ANX1 TO ANX7 )

The following items describe how people may feel as a result of work experience, difficulties and problems. For each item, there are five response choices among which you choose the response that expresses best your feelings.

<table>
<thead>
<tr>
<th>Response categories</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Never happens to you.</td>
<td>( 1 )</td>
</tr>
<tr>
<td>- Rarely happens to you.</td>
<td>( 2 )</td>
</tr>
<tr>
<td>- Sometimes happens to you.</td>
<td>( 3 )</td>
</tr>
<tr>
<td>- Often happens to you.</td>
<td>( 4 )</td>
</tr>
<tr>
<td>- Always happens to you.</td>
<td>( 5 )</td>
</tr>
</tbody>
</table>

(1) Your job tends to directly affect your health..........( ) 1-38
(2) You work under a great deal of tension...............( ) 1-39
(3) You have felt fidgety or nervous as a result of your job( ) 1-40
(4) If you had a different job, your health would probably improve.............................( ) 1-41
(5) Problems associated with your job have kept you awake at night........................................( ) 1-42
(6) You have felt nervous before attending meetings in the enterprise.................................( ) 1-43
(7) You "take your job home with you" in the sense that you think about it when doing other things.................( ) 1-44
DEPRESSION

The following items also describe how people may feel as a result of work experience, difficulties and problems. You choose among the five response categories, the response that represents your feelings.

<table>
<thead>
<tr>
<th>Response categories</th>
<th>Normal score</th>
<th>Reverse score</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Never.</td>
<td>( 1 )</td>
<td>( 5 )</td>
</tr>
<tr>
<td>- Rarely.</td>
<td>( 2 )</td>
<td>( 4 )</td>
</tr>
<tr>
<td>- Sometimes.</td>
<td>( 3 )</td>
<td>( 3 )</td>
</tr>
<tr>
<td>- Often.</td>
<td>( 4 )</td>
<td>( 2 )</td>
</tr>
<tr>
<td>- Always.</td>
<td>( 5 )</td>
<td>( 1 )</td>
</tr>
</tbody>
</table>

(1) How often do you feel downhearted and blue ? ............... ( ) 1-47
(2) How often do you feel tired for no reason ? ............... ( ) 1-48
(3) How often do you find yourself restless and cannot keep still? ................................................................ ( ) 1-49
(4) How often is your mind as clear as it used to be ?.
 ( score to be reversed ) ........................................ ( ) 1-50
(5) How often do you find it easy to do the things you used to do ? ( score to be reversed ) ........................................ ( ) 1-51
(6) How often do you feel hopeless about the future ? ............... ( ) 1-52
(7) How often do you find it easy to make decisions?
 ( score to be reversed ) ........................................ ( ) 1-53
(8) How often are you more irritable than usual ? ............... ( ) 1-54
(9) How often do you still enjoy the things you used to?
 ( score to be reversed ) ........................................ ( ) 1-55
(10) How often do you feel you are useful and needed ?
 ( score to be reversed ) ........................................ ( ) 1-56

WORK SATISFACTION

Would you tell me how do you feel about the following aspects of work, whether you feel very satisfied, satisfied, moderately satisfied, a little satisfied, or not satisfied at all.

<table>
<thead>
<tr>
<th>Response categories</th>
<th>Scoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Very satisfied.</td>
<td>( 5 )</td>
</tr>
<tr>
<td>- Satisfied.</td>
<td>( 4 )</td>
</tr>
</tbody>
</table>
- Moderately satisfied. (3)
- A little satisfied. (2)
- Not satisfied at all. (1)

| (1) Physical working conditions such as noise, heat, cold, dust, lighting, hygiene, etc. | 1-59 |
| (2) Your rate of pay and bonuses. | 1-60 |
| (3) The activities of your representatives. | 1-61 |
| (4) The kind of work you are doing. | 1-62 |
| (5) The amount of work you are given. | 1-63 |
| (6) Your future with this enterprise. | 1-64 |
| (7) The way the factory is run. | 1-65 |
| (8) The way people outside look at your job. | 1-66 |
| (9) The extent to which you are kept informed about matters that concern you. | 1-67 |
| (10) The supervision of your immediate boss. | 1-68 |
| (11) The extent to which you are consulted about changes. | 1-69 |
| (12) People you work with. | 1-70 |

### PSYCHOSOMATIC COMPLAINTS (H1 TO H14)

I'm going to list different troubles and complaints people have, and you tell me how often have you had each complaint as indicated by each of the following statements?

<table>
<thead>
<tr>
<th>Response categories</th>
<th>Scoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Nearly all the time.</td>
<td>(4)</td>
</tr>
<tr>
<td>- Quite often.</td>
<td>(3)</td>
</tr>
<tr>
<td>- Sometimes.</td>
<td>(2)</td>
</tr>
<tr>
<td>- Never.</td>
<td>(1)</td>
</tr>
</tbody>
</table>

| (1) Do you have trouble getting to sleep or staying asleep? | 2-1 |
| (2) Have you ever been bothered by nervousness, feeling fidgety or tense? | 2-2 |
| (3) Are you ever troubled by headaches or pain in the head? | 2-3 |
| (4) Do you have loss of appetite? | 2-4 |
| (5) How often are you bothered by having an upset stomach? | 2-5 |
| (6) Do you find it difficult to get up in the morning? | 2-6 |
| (7) Have you been bothered by shortness of breath when you were not exercising or working hard? | 2-7 |
(8) Have you been bothered by your heart beating hard ?...( ) 2-8
(9) Do you drink more than you should ? .................( ) 2-9
(10) Have you had spells of dizziness ?...............( ) 2-10
(11) Are you bothered by nightmares ?..................( ) 2-11
(12) Do you tend to lose weight when you have something important bothering you ?.........................( ) 2-12
(13) Are you troubled by your hands sweating so that you feel damp and clammy ? .........................( ) 2-13
(14) Do you feel you are bothered by all sort of pains and ailments in different parts of your body ?.........( ) 2-14

COPING STRATEGIES

(1) What do you do when you receive conflicting demands from your workmates, and superiors ?

(2) What do you do when you have to do things on the job that are against your better judgement of how it should be done ?

(3) What do you do when you have too much work ?

(4) What do you do when your work is repetitive and monotonous, and your working conditions (noise, heat, cold, dust, lighting, etc.) are inadequate ?

(5) What do you do when you are not sufficiently informed about things that concern you or your work ?

(6) What do you do when you have problems to get promoted in the factory ?

(7) What do you do when you have pay problems (The pay is not enough compared with the cost of living, or is less than the salary obtained for the same job elsewhere) ?
COPING STRATEGIES

Problems often come up at the factory that involve your work and others. It is quite normal that every person, when faced with problems, difficulties, etc..., behaves in a certain way. Would you tell me how often do you think, do, or behave the way indicated by each of the following statements?

<table>
<thead>
<tr>
<th>Response categories</th>
<th>Scoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Every time.</td>
<td>( 5 )</td>
</tr>
<tr>
<td>- Often.</td>
<td>( 4 )</td>
</tr>
<tr>
<td>- Sometimes.</td>
<td>( 3 )</td>
</tr>
<tr>
<td>- Rarely.</td>
<td>( 2 )</td>
</tr>
<tr>
<td>- Never.</td>
<td>( 1 )</td>
</tr>
</tbody>
</table>

(1) Talking about your problems with your family....................... ( ) 2-17
(2) Ignore the problem until you cool off.............................. ( ) 2-18
(3) Simply leave what you are doing and take up something totally different................................................. ( ) 2-19
(4) Seek additional information about the problem.................... ( ) 2-20
(5) You do not carry your work worries home............................ ( ) 2-21
(6) Confront the matter openly........................................... ( ) 2-22
(7) Engage in your favourite hobbies..................................... ( ) 2-23
(8) Draw upon your past experiences, perhaps you have been in a similar situation before........................................ ( ) 2-24
(9) Accept the problems because there is little to do about.......... ( ) 2-25
(10) Try to meet all problems so that to satisfy the expectations of people concerned ................................................. ( ) 2-26
(11) Seek the help of God.................................................. ( ) 2-27
(12) Not drop the matter until it is resolved............................ ( ) 2-28
(13) Not pay attention to the matters as far as they do not affect other's opinions about you................................. ( ) 2-29
(14) Concentrate on the aspects of job suffering from neglect rather than tackling simultaneously many aspects of it........... ( ) 2-30
(15) Retain feelings of anxiety, tension, fear and anger.............. ( ) 2-31
(16) Overlook the dark sides of your job and concentrate on the good aspects of it......................................................... ( ) 2-32
(17) Read or listen to Koran or religious talks.......................... ( ) 2-33
(18) Pay more attention to work problems than out-of-work problems.............................................................................. ( ) 2-34
(19) Try to see the humorous aspects of the problem.................... ( ) 2-35
(20) After all, all people experience these problems not only you............................................................................... ( ) 2-36
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(21)</td>
<td>Get a good night sleep</td>
</tr>
<tr>
<td>(22)</td>
<td>Drink too much coffee and/or smoke a lot than usual</td>
</tr>
<tr>
<td>(23)</td>
<td>Life without problems has no charm</td>
</tr>
<tr>
<td>(24)</td>
<td>Compare your present with your past in the job</td>
</tr>
<tr>
<td>(25)</td>
<td>Use tranquillizers or other medication</td>
</tr>
<tr>
<td>(26)</td>
<td>If the problems accumulate, you ask for changing the job</td>
</tr>
<tr>
<td>(27)</td>
<td>Leave your work area and go somewhere</td>
</tr>
<tr>
<td>(28)</td>
<td>Compare your difficulties with others' problems</td>
</tr>
<tr>
<td>(29)</td>
<td>Issues are not important and are not worth worrying about</td>
</tr>
<tr>
<td>(30)</td>
<td>Seek the help of others at work</td>
</tr>
<tr>
<td>(31)</td>
<td>Learning more about yourself, you may be the source of the difficulties</td>
</tr>
<tr>
<td>(32)</td>
<td>Imagining yourself as being a boss capable of changing the situation as you would like it to be</td>
</tr>
<tr>
<td>(33)</td>
<td>Keep busy in order not to have time to think or to keep your mind off the problem</td>
</tr>
<tr>
<td>(34)</td>
<td>Try to work out a compromise with people concerned</td>
</tr>
<tr>
<td>(35)</td>
<td>Pay attention only to problems that directly affect you</td>
</tr>
<tr>
<td>(36)</td>
<td>Share work problems with nobody</td>
</tr>
<tr>
<td>(37)</td>
<td>Keep optimistic whatever the problem would be</td>
</tr>
<tr>
<td>(38)</td>
<td>Exercise some sports</td>
</tr>
<tr>
<td>(39)</td>
<td>Do nothing about it</td>
</tr>
<tr>
<td>(40)</td>
<td>Discuss the matter with the individuals concerned</td>
</tr>
<tr>
<td>(41)</td>
<td>Leave the matter to time, time brings a solution to it</td>
</tr>
<tr>
<td>(42)</td>
<td>Retreat to home</td>
</tr>
</tbody>
</table>

---

**COMMUNICATIONS**

(1) When you submit a request, a claim, a suggestion, or anything else to the management, how long do you usually wait to get a reply (whether positive or negative)?

- No reply .............................................(1) 2-61
- Long time .............................................(2) 2-61
- Neither long nor short time ......................(3) 2-61
- Short time ..............................................(4) 2-61
(2) How often do you usually learn about new regulations, decisions, happenings or information that concern you, from:

<table>
<thead>
<tr>
<th></th>
<th>Often (4)</th>
<th>Sometimes (3)</th>
<th>Rarely (2)</th>
<th>Never (1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>- your supervisor</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Personnel of the administration</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Representatives</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Workmates</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

PARTICIPATION (PAR1 TO PAR3)

(1) How often do you talk or discuss with representatives matters or problems that concern your work?
- Often .................................................( ) 2-69
- Sometimes ............................................( ) 2-69
- Rarely ..................................................( ) 2-69
- Never ..................................................( ) 2-69

(2) To what extent have the matters raised been met by representatives?
- Many solved ............................................( ) 2-70
- A moderate number solved ...........................( ) 2-70
- Few solved .............................................( ) 2-70
- None solved ..........................................( ) 2-70

(3) To what extent are the matters discussed by representatives relevant to your work problems?
- Very relevant .........................................( ) 2-71
- Moderately relevant ...................................( ) 2-71
- A little relevant .......................................( ) 2-71
- Not relevant ..........................................( ) 2-71

FAMILY-WORK INTERFACE (FW11 TO FW15)

Would you tell how true of you are the things indicated by the following statements: true, half true half not, slightly-true, and not true.
### INTERPERSONAL RELATIONSHIPS

The following are some kinds of relationships a worker may have with his workmates, supervisor, representatives and management personnel. Would you tell me how true of you are the things described by the following statements?

<table>
<thead>
<tr>
<th>Response categories</th>
<th>Normal scoring</th>
<th>Reverse scoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Completely true.</td>
<td>( 5 )</td>
<td>( 1 )</td>
</tr>
<tr>
<td>- Quite true.</td>
<td>( 4 )</td>
<td>( 2 )</td>
</tr>
<tr>
<td>- Neither true nor false.</td>
<td>( 3 )</td>
<td>( 3 )</td>
</tr>
<tr>
<td>- Slightly true.</td>
<td>( 2 )</td>
<td>( 4 )</td>
</tr>
<tr>
<td>- Not true at all.</td>
<td>( 1 )</td>
<td>( 5 )</td>
</tr>
</tbody>
</table>

1. Your workmates are friendly and easy to approach..............( ) 3-1
2. Your workmates are not willing to help you in work problems( ) 3-2
3. People you work with exchange opinions and ideas..............( ) 3-3
4. Your supervisor is friendly and welcomes any discussion with him.................................................................( ) 3-4
5. Your supervisor is not willing to help his subordinates over their problems....................................................( ) 3-5
6. Your supervisor is more aggressive toward you in particular, than toward other workers........................................( ) 3-6
7. Your supervisor is generally fair in his behaviour toward his subordinates.......................................................( ) 3-7
8. Representatives are friendly and easy to approach..............( ) 3-8
TYPE A BEHAVIOUR PATTERN

I'm going to read some types of behaviours of people at work and social life. These types of behaviour are neither good nor bad; neither right nor wrong. Would you tell me the percentage of each type of behaviour you think you have?

<table>
<thead>
<tr>
<th>Response categories</th>
<th>Normal score</th>
<th>Reverse score</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Nothing.</td>
<td>(1)</td>
<td>(5)</td>
</tr>
<tr>
<td>- 25%</td>
<td>(2)</td>
<td>(4)</td>
</tr>
<tr>
<td>- 50%</td>
<td>(3)</td>
<td>(3)</td>
</tr>
<tr>
<td>- 75%</td>
<td>(4)</td>
<td>(2)</td>
</tr>
<tr>
<td>- 100%</td>
<td>(5)</td>
<td>(1)</td>
</tr>
</tbody>
</table>

(1) You are casual about appointments (score to be reversed) ( ) 3-14
(2) You anticipate what others are going to say...............( ) 3-15
(3) You always feel rushed.....................................( ) 3-16
(4) You can wait patiently (score to be reversed).............( ) 3-17
(5) You try to do many things at once..........................( ) 3-18
(6) You are emphatic in speech (may pound desk)...............( ) 3-19
(7) You only care about satisfying yourself no matter what others may think (score to be reversed)..................( ) 3-20
(8) You are slow in doing things (score to be reversed).......( ) 3-21
(9) You are easy going (score to be reversed)..................( ) 3-22
(10) You express feelings........................................( ) 3-23
(11) You have few interests outside work......................( ) 3-24

LOCUS OF CONTROL

I would like know your opinion about general things that concern work and life in general. Would you tell me whether you agree or disagree with each idea indicated by each of the following statements:
(1) Many of the unhappy things in people's lives are partly due to bad luck (external).............................( ) 3-27
(2) Becoming a success is a matter of hard work, luck has little or nothing to do with it (Internal)......................( ) 3-28
(3) It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune (External) .....................................................................................................................( ) 3-29
(4) In your case, getting what you want has little or nothing to do with luck (Internal).............................( ) 3-30
(5) It is hard to know whether or not a person really likes you (External).........................................( ) 3-31
(6) Many times you feel that you have little influence over the things that happen to you (External)..........( ) 3-32
(7) People misfortunes result from the mistakes they make (Internal).........................................................( ) 3-33
(8) There really is no such thing as "luck" (Internal).......( ) 3-34
(9) How many friends you have depends upon how nice a person you are (External)........................................( ) 3-35
(10) What happens to you is your own doing (Internal).....( ) 3-36
(11) It is impossible for you to believe that chance or luck plays an important role in your life (Internal)......( ) 3-37

SELF-ESTEEM (SE1 TO SE10)

The statements that follow describe how people see themselves. Think about yourself and tell me how strongly do you agree or disagree with each statement. Remember there are no right or wrong answers.
(3) All in all, you are inclined to feel that you are a failure (score to be reversed). ............................................( ) 3-42
(4) You are able to do things as well as most other people...( ) 3-43
(5) You feel you do not have much to be proud of (score to be reversed). ............................................( ) 3-44
(6) You take a positive attitude toward yourself....................( ) 3-45
(7) On the whole, you are satisfied with yourself....................( ) 3-46
(8) You certainly feel useless at times (score to be reversed)( ) 3-47
(9) You wish you could have more respect for yourself (score to be reversed). ............................................( ) 3-48
(10) At times, you think you are not good at all (score to be reversed). ............................................( ) 3-49

SOCIO-DEMOGRAPHICS (SD1 TO SD10)

Finally, I need some information about you.

(1) How is your present work called?

.................................................................( ) 3-52,53
(2) How long have you been in this factory? ............( ) 3-55
(3) How many jobs have you done since you joined this factory? ............................................( ) 3-55
(4) On the average, how much do you earn per month including the basic salary and bonuses? ............( ) 3-57,59
(5) How long have you been studying?
- None, you cannot read nor write..........................( 1 ) 3-61
- None, but you can read or write..........................( 2 ) 3-61
- Primary school..............................................( 3 ) 3-61
- Intermediate school...........................................( 4 ) 3-61
- Secondary school............................................( 5 ) 3-61
(6) Have you been in any training centre?............( ) 3-66,67
For how long?............................................( ) 3-66,67
(7) Where do you live?...........................................
( ) 3-66,67
(8) How old are you?............................................( ) 3-66,67
(9) Are you
- Single?......................................................( 1 ) 3-69
- Married?.....................................................( 2 ) 3-69
- Divorced?...................................................( 2 ) 3-69
- Widowed?...................................................( 2 ) 3-69
(10) If married, widowed or divorced how many children have you? ............................................( ) 3-71,72

-Section: .................................. - Interview serial N°: .................
-Department: .................................. - Date of interview: .................
-Unit: .................................. - Duration of interview: ..................
INTRODUCTION

I'm a student in the University of Oran. My study in the University is to understand the experience of workers with their jobs and also how the factories where they work function. But, because the study in the University is more theoretical than practical, I decide to learn directly from workers themselves: how they see their work, what kind of problems they face, how they solve them. So, I'm actually learning from workers.

I have questions about your work, what kind of difficulties and problems you have encountered in the factory, what you do about them, the effect of work on your feelings and your health; and about other things.

There is no right or wrong answer. Every worker has his own opinion, sees his work in his own way, has his own difficulties and problems, and his own ways of tackling them. One cannot say that this worker is right and that worker is wrong. As I would like to interview as many workers as I can in this factory, every day two workers are invited for interview provided that the production is not disturbed. You have been invited for the interview today because I can talk with you for some time without disturbing the production.

Your answers and those of many workers like you will be transformed into mathematical form, so that individual cannot be identified. For example, the results will say how many workers have such or such problems, how many workers solve some problems in this way, and how many solve them that way. Anything you say in this interview is completely confidential. To maintain this complete confidentiality, I'm not going to ask you your name, because it is not needed in my study.
**SOCIO-DEMOGRAPHICS (SD1 TO SD7)**

I need, first of all, some information about you. I'm not going to ask you your name as I'm interested only in some general things about your education, age, work and so on, so that I can compare work problems of aged with those of young workers, of people with long experience with those with short experience of work, and so on.

<table>
<thead>
<tr>
<th>Question</th>
<th>Options</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) How is your present work called?</td>
<td></td>
<td>4-1,2</td>
</tr>
<tr>
<td>(2) How long have you been in this factory?</td>
<td>4-5, 6, 7</td>
<td></td>
</tr>
<tr>
<td>(3) On the average, how much do you earn per month including the basic salary and bonuses?</td>
<td></td>
<td>4-10,11</td>
</tr>
<tr>
<td>(4) How much schooling have you had? (In years)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- None, you cannot read or write</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- None, but you can read or write</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Primary school</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Intermediate school</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Secondary school</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(5) Have you been in any training centre?</td>
<td>4-12, 13</td>
<td></td>
</tr>
<tr>
<td>(6) How old are you?</td>
<td>4-15, 16</td>
<td></td>
</tr>
<tr>
<td>(7) Are you:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Single</td>
<td></td>
<td>4-19</td>
</tr>
<tr>
<td>- Married</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Divorced</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Widowed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(8) If married, divorced or widowed, how many children have you?</td>
<td>4-22, 23</td>
<td></td>
</tr>
<tr>
<td>(9) Section</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(10) Department</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(11) Unit</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**ROLE OVERLOAD (S1 TO S10)**

Your work makes you experience a lot of things. I'm going to read some questions. Each question is followed by responses, among which you choose the response that reflects your experience with your work. Recall that there is no right or wrong answer as every worker has a different experience with work.
For example:
("How often do you have too much work that you cannot finish in a normal work day?""). The question is followed by five answers among which you choose one: always, often, sometimes, rarely, or never. If you judge that you often have too much work... just say: "Often". If rarely you come across the experience of having too much work that..., just reply: "rarely" and so on.

<table>
<thead>
<tr>
<th>Response categories</th>
<th>Normal score</th>
<th>Reverse score</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Always.</td>
<td>( 5 )</td>
<td>( 1 )</td>
</tr>
<tr>
<td>- Often.</td>
<td>( 4 )</td>
<td>( 2 )</td>
</tr>
<tr>
<td>- Sometimes.</td>
<td>( 3 )</td>
<td>( 3 )</td>
</tr>
<tr>
<td>- Rarely.</td>
<td>( 2 )</td>
<td>( 4 )</td>
</tr>
<tr>
<td>- Never.</td>
<td>( 1 )</td>
<td>( 5 )</td>
</tr>
</tbody>
</table>

(1) How often do you have too much work that you cannot finish in a normal work day? ........................................ ( ) 1-1

(2) How often are you annoyed by having to do many things at the same time ?........................................... ( ) 1-2

(3) How often do you have a right amount of work that keeps you busy without much pressure ? ( scores to be reversed )..... ( ) 1-3

(4) How often does the high amount of work you have decrease the quality of the work done ?........................................ ( ) 1-4

<table>
<thead>
<tr>
<th>Response categories</th>
<th>Normal score</th>
<th>Reverse score</th>
</tr>
</thead>
<tbody>
<tr>
<td>- A very great deal.</td>
<td>( 5 )</td>
<td>( 1 )</td>
</tr>
<tr>
<td>- A great deal.</td>
<td>( 4 )</td>
<td>( 2 )</td>
</tr>
<tr>
<td>- Some.</td>
<td>( 3 )</td>
<td>( 3 )</td>
</tr>
<tr>
<td>- A little.</td>
<td>( 2 )</td>
<td>( 4 )</td>
</tr>
<tr>
<td>- Very little.</td>
<td>( 1 )</td>
<td>( 5 )</td>
</tr>
</tbody>
</table>

(5) To what extent is your job harmful to your health ?........... ( ) 1-5

(6) To what extent does your job contain the risk of accidents that can be serious ?........................................ ( ) 1-6

(7) To what extent do you feel your work makes you use your skills and capabilities ? ( scores to be reversed )........ ( ) 1-7

<table>
<thead>
<tr>
<th>Response categories</th>
<th>Normal score</th>
<th>Reverse score</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Always.</td>
<td>( 5 )</td>
<td>( 1 )</td>
</tr>
<tr>
<td>- Often.</td>
<td>( 4 )</td>
<td>( 2 )</td>
</tr>
<tr>
<td>- Sometimes.</td>
<td>( 3 )</td>
<td>( 3 )</td>
</tr>
</tbody>
</table>
The next group of questions concerns your pay. Please, tell me how true each of the following statements is of your present job. ("how true" means to what extent the thing reported by each statement exists in your work, and does not mean wrong or right statements or answers. Here too, for each statement, you choose one response among the five response categories.

<table>
<thead>
<tr>
<th>Response categories</th>
<th>Normal score</th>
<th>Reverse score</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Completely true.</td>
<td>( 5 )</td>
<td>( 1 )</td>
</tr>
<tr>
<td>- Quite true</td>
<td>( 4 )</td>
<td>( 2 )</td>
</tr>
<tr>
<td>- Half true half not.</td>
<td>( 3 )</td>
<td>( 3 )</td>
</tr>
<tr>
<td>- Slightly true.</td>
<td>( 2 )</td>
<td>( 4 )</td>
</tr>
<tr>
<td>- Not at all true.</td>
<td>( 1 )</td>
<td>( 5 )</td>
</tr>
</tbody>
</table>

(11) The pay is much lower than the amount of effort and experience you put into your work. ......................... ( ) 1-13
(12) Your pay has not increased at the rate you expected it to be .................................................... ( ) 1-14
(13) Your pay is higher than the pay of your relatives, neighbours and friends working in industry (score to be reversed) ............................................ ( ) 1-15
(14) Your present pay and bonuses enable you to make some monthly savings (score to be reversed) .................. ( ) 1-16
(15) The way the pay is handled around discourages hard work. ( ) 1-17
(16) Your pay is much below the normal cost of living in this city......................................................... ( ) 1-18
(17) The pay looks right for the job you are doing (score to be reversed) ............................................. ( ) 1-19
(18) Compared with two years ago, you are able to afford a better quality of living (score to be reversed) ....... ( ) 1-20
(19) Your pay is much lower than that of people you know having similar job. ................................................................. ( ) 1-21
(20) Some bonuses that you think you are entitled to are not given to you. ................................................................. ( ) 1-22
(21) There is, sometimes, a substantial increase in your pay ( score to be reversed ) ......................................................... ( ) 1-23
(22) The amount of money you earn in this factory encourages you to work harder and harder ( score to be reversed ) ....... ( ) 1-24

---

CAREER. ( S 23 - S 31 )

Now, let's move to another aspect of your job, namely promotion. As before, I'd like you to tell me how true each of the following statements is of your present job. Remember, there is no right or wrong answer. The answer you choose, provided it expresses truly your experience with work is really what matters most for this study.

<table>
<thead>
<tr>
<th>Response categories</th>
<th>Normal score</th>
<th>Reverse score</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Completely true.</td>
<td>( 5 )</td>
<td>( 1 )</td>
</tr>
<tr>
<td>- Quite true.</td>
<td>( 4 )</td>
<td>( 2 )</td>
</tr>
<tr>
<td>- Half true half not.</td>
<td>( 3 )</td>
<td>( 3 )</td>
</tr>
<tr>
<td>- Slightly true.</td>
<td>( 2 )</td>
<td>( 4 )</td>
</tr>
<tr>
<td>- Not at all true.</td>
<td>( 1 )</td>
<td>( 5 )</td>
</tr>
</tbody>
</table>

(23) You feel you have stayed at the present rank for too long. ( ) 1-27
(24) For the kind of job you are doing, there is no chance for training or for progress. ................................. ( ) 1-28
(25) To be promoted in this factory, one must work hard, and have a good behaviour ( score to be reversed ) ............. ( ) 1-29
(26) Most people who get ahead in this factory deserve it. .... ( ) 1-30
(27) You do not feel you are getting anywhere on your job in the future......................................................... ( ) 1-31
(28) You feel you are getting ahead in this factory ( score to be reversed ) ..................................................... ( ) 1-32
(29) You are provided with opportunities for training to improve your skills ( score to be reversed ) ......................... ( ) 1-33
(30) Working too hard or having a long experience has usually no effect on the way promotions are handled around. ........ ( ) 1-34
(31) Good jobs, you think you are entitled to, are usually taken before you hear of them, in this factory.................... ( ) 1-35
ROLE CONFLICT.  ( S 32 TO S 41 )

Any work can create a variety of opportunities, difficulties or problems. Your work, certainly, makes you experience a lot of things. I'm going to list a number of things that may bother people at work. I would like you to tell me how often you have experienced the things described by the following statements, at work:

<table>
<thead>
<tr>
<th>Response categories.</th>
<th>Normal score.</th>
<th>Reverse score.</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Every time.</td>
<td>( 5 )</td>
<td>( 1 )</td>
</tr>
<tr>
<td>- Often.</td>
<td>( 4 )</td>
<td>( 2 )</td>
</tr>
<tr>
<td>- Sometimes.</td>
<td>( 3 )</td>
<td>( 3 )</td>
</tr>
<tr>
<td>- Rarely.</td>
<td>( 2 )</td>
<td>( 4 )</td>
</tr>
<tr>
<td>- Never.</td>
<td>( 1 )</td>
<td>( 5 )</td>
</tr>
</tbody>
</table>

(32) Some of your workmates want you to do one thing and some other workmates want you to do something else totally different ( ) 1-38
(33) You receive demands, instructions, or requests that are totally different, from your superiors ( ) 1-39
(34) You feel being caught between two opposite demands: demands from your workmates, and demands from your supervisors ( ) 1-40
(35) The instructions, demands or requests you are asked to execute complement one another. ( score to be reversed ) ( ) 1-41
(36) Most of the demands and instructions you are asked to do go against your own opinion or judgement ( ) 1-42
(37) You feel able to satisfy totally different demands from different persons at work ( score to be reversed ) ( ) 1-43
(38) You receive instructions without enough material and equipment to execute them ( ) 1-44
(39) To satisfy some people on your job you have to upset others ( ) 1-45
(40) What you are asked to do, on your job, matches your own opinion or judgement. ( score to be reversed ) ( ) 1-46
(41) The equipments, tools and material you are provided are enough for doing your work properly ( score to be reversed ) ( ) 1-47

ROLE AMBIGUITY  ( S 42 - S 53 )

The next few questions deal with other aspects of work. Would you tell me how often you have experienced the situations or aspects indicated by the following statements. As before, each aspect is followed by five response categories, among which you choose the one that best describes
your experience.

<table>
<thead>
<tr>
<th>Response categories</th>
<th>Normal score</th>
<th>Reverse score</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Always.</td>
<td>( 5 )</td>
<td>( 1 )</td>
</tr>
<tr>
<td>- Often.</td>
<td>( 4 )</td>
<td>( 2 )</td>
</tr>
<tr>
<td>- Sometimes.</td>
<td>( 3 )</td>
<td>( 3 )</td>
</tr>
<tr>
<td>- Rarely.</td>
<td>( 2 )</td>
<td>( 4 )</td>
</tr>
<tr>
<td>- Never.</td>
<td>( 1 )</td>
<td>( 5 )</td>
</tr>
</tbody>
</table>

(42) You know what has to be done and why it should be done. (score to be reversed) ................................( ) 1-50

(43) You do not know whether your are doing well on your job or not ............................................................................( ) 1-51

(44) You are not clear about what to be done on your work or why it should be done .................................................( ) 1-52

(45) Regulations, rules, and instructions that concern your work are clearly explained to you (score to be reversed) ...........................................................................( ) 1-53

(46) A lot of things happen in this factory without being informed..........................................................................................( ) 1-54

(47) You get confused of the way promotions are handled in this factory .............................................................................( ) 1-55

(48) It is very hard to understand the purpose of many regulations and rules...................................................................( ) 1-56

(49) You feel you know (or anticipate) what your fellow workers expect from you on the job (score to be reversed) ...........................................................................( ) 1-57

(50) You are given enough information about what goes on in this factory. (score to be reversed) ...........................................................................( ) 1-58

(51) You cannot know (anticipate) what your workmates expect you to do on your work ...........................................................................( ) 1-59

(52) You do not know who is your supervisor, as many people supervise you ...........................................................................( ) 1-60

(53) You have little information of what you need to learn about your work .................................................................( ) 1-61

ANXIETY (ANX1 TO ANX13)

Now let's go to something different. I've some statements that describe how some people feel as a result of work. I'll read each feeling at a time, and you just tell me how often have you felt this way, during the past few months: whether every time, often, sometimes, rarely, or never?
**Response categories.**

<table>
<thead>
<tr>
<th>Normal score</th>
<th>Reverse score</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>1</td>
<td>5</td>
</tr>
</tbody>
</table>

(1) There are many things you worry about at work...........  
(2) You feel fidgety or nervous as a result of your work.....  
(3) You feel embarrassed by minor incidences with others at work..................................................  
(4) Work problems keep you awake at night....................  
(5) You feel relaxed at work (score to be reversed) ..........  
(6) You drink too much tea, coffee, or smoke, than your normal quantity.............................................  
(7) You find it hard to keep your mind on the task or work....  
(8) You feel unsecure in this factory............................  
(9) On your way to the factory, you are afraid of things that may happen to you at work.................................  
(10) Your feelings cannot be easily hurt by work problems (score to be reversed)........................................  
(11) You have the feeling that you are going to crack up.......  
(12) You wish you could be as happy as others seem to be......  
(13) You shrink from facing a difficulty or make an important decision at work...........................................

**DEPRESSION** (DEP1 TO DEP12)

As before, here are some items about how people may feel at work. When you think about yourself and your work for the last few months, how often do you feel as indicated by the following statements, whether every time, often, sometimes, rarely, or never?
(1) You feel downhearted and blue. ............................................( ) 2-1
(2) You feel tired for no apparent reason.......................................( ) 2-2
(3) You feel hopeless about the future..............................................( ) 2-3
(4) You feel calm and cannot be easily upset by work problems (score to be reversed)...............................( ) 2-4
(5) You find yourself restless and cannot keep still..............................( ) 2-5
(6) You feel you have little or no interest in doing things at work......................................................( ) 2-6
(7) You feel easily annoyed or irritated at work........................................( ) 2-7
(8) You enjoy things you used to at work (score to be reversed)..........................( ) 2-8
(9) You feel confused and cannot easily make your mind up at work.................................( ) 2-9
(10) You find it easy to do things you used to do on your work (score to be reversed).................................( ) 2-10
(11) You feel you cannot overcome many difficulties you face at work.................................( ) 2-11
(12) You blame yourself for your mistakes at work.................................( ) 2-12

WORK DISSATISFACTION. (DIS1 TO DIS13)

A worker who has been working for this factory for a certain length of time may like certain things, and may dislike other things at work. Here are some statements that ask you: How satisfied (or dissatisfied) are you with, or how much do you like (or dislike) what is described by each statement? Would you please not to think too much and try to answer as quickly as possible.

<table>
<thead>
<tr>
<th>Response categories</th>
<th>Scoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Completely.</td>
<td>( 1 )</td>
</tr>
<tr>
<td>Quite.</td>
<td>( 2 )</td>
</tr>
<tr>
<td>Half half.</td>
<td>( 3 )</td>
</tr>
<tr>
<td>Slightly</td>
<td>( 4 )</td>
</tr>
<tr>
<td>Not at all.</td>
<td>( 5 )</td>
</tr>
</tbody>
</table>

(1) How much do you like the way your workmates get along with each other? .................................( ) 2-15
(2) How much do you like the way your supervisor treats his workers? .................................( ) 2-16
(3) How satisfied are you with the encouragement you get when you do a good work? .................................................. ( ) 2-17
(4) How satisfied are you with the way your representatives handle matters raised by your co-workers?.................( ) 2-18
(5) How much do you like the way this factory is run?.....( ) 2-19
(6) How satisfied are you with working conditions: lighting, temperature, safety, hygiene, etc ?......................( ) 2-20
(7) How much do you like the kind of work you do ..........( ) 2-21
(8) How satisfied are you with the amount of say and influence you have regarding things that concern you?....( ) 2-22
(9) How satisfied are you with the opportunities for learning and training?..................................................( ) 2-23
(10) How satisfied are you with chances for getting ahead in this factory?....................................................( ) 2-24
(11) How satisfied are you with the extent and the way you are informed about things that concern your work ?....( ) 2-25
(12) How satisfied are you with the pay and bonuses for the work you do ?..................................................( ) 2-26
(13) Considering the things you like and things you dislike at work, generally speaking, how satisfied are you with your job as a whole ?...........................................( ) 2-27

PSYCHOSOMATIC COMPLAINTS. ( H1 TO H10 )

I'm going to read some troubles or problems of health which workers complain of. Would you tell me how often you are bothered, during the past twelve months, by each of the following health problems:

<table>
<thead>
<tr>
<th>Response categories.</th>
<th>Scoring.</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Almost always.</td>
<td>( 5 )</td>
</tr>
<tr>
<td>- Often.</td>
<td>( 4 )</td>
</tr>
<tr>
<td>- Sometimes.</td>
<td>( 3 )</td>
</tr>
<tr>
<td>- Rarely.</td>
<td>( 2 )</td>
</tr>
<tr>
<td>- Never.</td>
<td>( 1 )</td>
</tr>
</tbody>
</table>

(1) Having headaches or pains in the head.........................( ) 2-30
(2) Having loss of appetite.............................................( ) 2-31
(3) Bothered by upset stomach..........................................( ) 2-32
(4) Feeling tired when you first get up............................( ) 2-33
(5) Bothered by heart racing or pounding..........................( ) 2-34
(6) Having trouble getting to sleep or staying asleep.......( ) 2-35
(7) Feeling all sorts of ailment in different parts of your body..................................................( ) 2-36
(8) Feeling weak all over.................................................( ) 2-37
(9) Having spells of dizziness............................................( ) 2-38
(10) Feeling mentally exhausted so that you cannot concentrate or think clearly.............................................( ) 2-39

---

**FAMILY-WORK INTERFACE. ( FWI 1 TO FWI 12 )**

Here are some questions concerning your family life and work. Would you tell me how often do you come across the things described by each of the following statements?

<table>
<thead>
<tr>
<th>Response categories</th>
<th>Normal score</th>
<th>Reverse score</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Every time.</td>
<td>(5)</td>
<td>(1)</td>
</tr>
<tr>
<td>- Often.</td>
<td>(4)</td>
<td>(2)</td>
</tr>
<tr>
<td>- Sometimes.</td>
<td>(3)</td>
<td>(3)</td>
</tr>
<tr>
<td>- Rarely.</td>
<td>(2)</td>
<td>(4)</td>
</tr>
<tr>
<td>- Never.</td>
<td>(1)</td>
<td>(5)</td>
</tr>
</tbody>
</table>

(1) Work hours leave enough time for you to spend with your family. ( score to be reversed ).................................( ) 2-42
(2) Work makes you too tired to enjoy family life.........................( ) 2-43
(3) You are asked to work overtime when you do not want to... ( ) 2-44
(4) The area where you live makes it difficult for you to have enough rest at home.................................( ) 2-45
(5) The accommodation you have causes you a lot of worries even at work..................................................( ) 2-46
(6) At work, you are worried about things to do with your wife and children ( for married subjects ) or parents, brothers and sisters. ( single subjects )..........................( ) 2-47
(7) Work makes you forget your family problems and worries ( score to be reversed )..............................................( ) 2-48
(8) Being with your family makes you forget work problems ( score to be reversed )...............................................( ) 2-49
(9) Shift work prevents you from enjoying your family life....( ) 2-50
(10) The amount of travel to and from work does not affect your family life ( score to be reversed ).................................( ) 2-51
(11) Your wife and children ( for married subjects ) or parents, sisters, and brothers ( for singles ) suffer from your misconduct every time you have problems at work...........( ) 2-52
Your accommodation is comfortable ( have sufficient number of rooms ) ( score to be reversed ) ..........................( ) 2-53

**SUPPORTIVE RELATIONSHIPS**

(SRI TO SR10)

Here are a few more things about the relationships among employees in this factory. I would like you to think about your relationships with your co-workers, representatives and supervisors during the last twelve months or so, and tell me how true each of the following statements is of you. Your answers remain completely confidential. Please answer each statement as frankly as you can.

<table>
<thead>
<tr>
<th>Response categories.</th>
<th>Normal score.</th>
<th>Reverse score.</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Completely true.</td>
<td>( 5 )</td>
<td>( 1 )</td>
</tr>
<tr>
<td>- Quite true.</td>
<td>( 4 )</td>
<td>( 2 )</td>
</tr>
<tr>
<td>- Half true half not.</td>
<td>( 3 )</td>
<td>( 3 )</td>
</tr>
<tr>
<td>- Slightly true.</td>
<td>( 2 )</td>
<td>( 4 )</td>
</tr>
<tr>
<td>- Not at all true.</td>
<td>( 1 )</td>
<td>( 5 )</td>
</tr>
</tbody>
</table>

(1) Your workmates often help you with your work problems......( ) 2-56
(2) Your supervisor tries to help you when you have some difficulties.................................( ) 2-57
(3) Representatives show much concern when you discuss work problems with them..................( ) 2-58
(4) You cannot rely on your workmates to lend you a hand when you need it ( score to be reversed ) ......................( ) 2-59
(5) Representatives are indifferent about your difficulties and problems at work ( score to be reversed )..............( ) 2-60
(6) Your supervisor lacks a lot of understanding toward you ( score to be reversed ) ............................( ) 2-61
(7) You often exchange ideas and jokes with your workmates....( ) 2-62
(8) You do not feel at ease when you talk with your supervisor ( score to be reversed ) ........................( ) 2-63
(9) People you work with, rarely show interest in your opinions or ideas ( score to be reversed )...............( ) 2-64
(10) Your supervisor is friendly and can be easily approached..( ) 2-65
PARTICIPATION. (PAR1 TO PAR11)

Still, a few more questions. Would you tell me how often you come across the things described by each of the following statements. Please try to answer as frankly as you can. Your answers remain strictly confidential.

<table>
<thead>
<tr>
<th>Response categories</th>
<th>Normal score</th>
<th>Reverse score</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Every time.</td>
<td>(5)</td>
<td>(1)</td>
</tr>
<tr>
<td>- Often.</td>
<td>(4)</td>
<td>(2)</td>
</tr>
<tr>
<td>- Sometimes.</td>
<td>(3)</td>
<td>(3)</td>
</tr>
<tr>
<td>- Rarely.</td>
<td>(2)</td>
<td>(4)</td>
</tr>
<tr>
<td>- Never.</td>
<td>(1)</td>
<td>(5)</td>
</tr>
</tbody>
</table>

(1) You discuss your job matters that come up, with your representatives (score to be reversed) .................( ) 2-68
(2) Problems dealt with by representatives have nothing to do with your work ........................................( ) 2-69
(3) Most problems discussed by representatives remain unsolved.................................( ) 2-70
(4) Your representatives ask your opinion about matters that concern you (score to be reversed) ...........( ) 2-71
(5) When you have a problem, you avoid to talk with representatives about it. ..................( ) 2-72
(6) Representatives discuss matters that concern your work (score to be reversed) ......................( ) 2-73
(7) Representatives succeed in solving work problems raised by workers (score to be reversed) ..........( ) 2-74
(8) It is almost impossible for you to influence the decisions of your supervisor about things that concern you ...................................................( ) 2-75
(9) You have much say and influence over things that concern your work (score to be reversed) ...........( ) 2-76
(10) It is easy to get your suggestions about your work across to your supervisor (score to be reversed).( ) 2-77
(11) You ignore almost everything about important decisions.............................................( ) 2-78

TYPE A & B BEHAVIOUR PATTERN (TABP1 TO TABP15)

Now, think about yourself, not necessarily at work, but also outside work (your daily life): How do you behave, talk, walk, eat, etc.? Of course, every one has his own conduct that differs more or less from others.
For example: one may find his actions like eating, talking or walking generally slow. Another person may see his action as quick. There is nothing wrong of being slow or quick in our actions. Here, are a few statements about people behaviour. Would you tell me whether each of the following statements is true of you or not. Please try to answer as quickly as possible.

Response categories
- Yes, that is true of you.
- No, that is not true of you.

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) You usually arrive late at appointments. ( B )</td>
<td></td>
<td>3-1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(2) You usually hurry a speaker to the point or interrupt him ( A )</td>
<td></td>
<td>3-2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(3) You are usually fast in doing things (walking, eating, repairing, etc..) ( A )</td>
<td></td>
<td>3-3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(4) You are usually easily upset when you are kept waiting (friends, bus, doctor, etc..) ( A )</td>
<td></td>
<td>3-4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(5) You usually do two things at the same time like talking while eating, doing another thing while watching TV, etc.. ( A )</td>
<td></td>
<td>3-5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(6) When you get angry, people around you usually know easily that (shouting, slam a door, throw things, etc..). ( A )</td>
<td></td>
<td>3-6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(7) You usually care too much about what people may think of you. ( A )</td>
<td></td>
<td>3-7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(8) You usually set deadlines for yourself when doing things at home or at work. ( A )</td>
<td></td>
<td>3-8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(9) You usually see yourself a relaxed and easy-going person ( B )</td>
<td></td>
<td>3-9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(10) When you make an appointment you usually arrive on time. ( A )</td>
<td></td>
<td>3-10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(11) You are usually slow in doing things (walking, eating, talking, etc..). ( B )</td>
<td></td>
<td>3-11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(12) You usually do not mind being kept waiting (e.g. bus, doctor, friends, etc..). ( B )</td>
<td></td>
<td>3-12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(13) You usually do not care about what others might think of you when you want to do something. ( B )</td>
<td></td>
<td>3-13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(14) You usually feel you are a hard-driving in doing the things you want. ( A )</td>
<td></td>
<td>3-14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(15) You usually take things too seriously however trivial they may be. ( A )</td>
<td></td>
<td>3-15</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
LOCUS OF CONTROL

Once again, I would like to know your opinions about general things of life. There are no wrong or right answers. Let's have an example: "Do you believe a kid can usually be whatever he wants to be when he grows up? Some people may agree with it, some others may disagree with it. Shall we say the first group of people is right and the second group of people is wrong? No, there is no right or wrong answer. There is no good or bad idea. The only difference it makes is that people are not alike. Everyone has his own way of thinking, his own opinion about some aspects of life.

Here are some statements about some aspects of life in general. I would like you to tell me whether you agree or disagree with each statement. If you want me to repeat a question please do so.

Response categories
- Yes, I agree.
- No, I disagree.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Response</th>
<th>Locus of Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Some people seem born to fail while others seem born for success no matter what they do. (external)</td>
<td>3-18</td>
<td></td>
</tr>
<tr>
<td>(2) If things start out well in the morning, it is going to be a good day no matter what you do. (external)</td>
<td>3-19</td>
<td></td>
</tr>
<tr>
<td>(3) There are some habits such as smoking, drinking too much coffee, etc... that you would like to break with but you cannot. (external)</td>
<td>3-20</td>
<td></td>
</tr>
<tr>
<td>(4) When things go wrong, they happen because of your misbehaviour and not because of bad luck. (internal)</td>
<td>3-21</td>
<td></td>
</tr>
<tr>
<td>(5) A kid can usually be whatever he wants to be when he grows up. (internal)</td>
<td>3-22</td>
<td></td>
</tr>
<tr>
<td>(6) A person who succeed in his career is more lucky than others. (external)</td>
<td>3-23</td>
<td></td>
</tr>
<tr>
<td>(7) Usually, bad things happen to you because of others mistakes (external)</td>
<td>3-24</td>
<td></td>
</tr>
<tr>
<td>(8) Success in dealing with people depends on the mood of people one deals with and not because of one's influence on them. (external)</td>
<td>3-25</td>
<td></td>
</tr>
<tr>
<td>(9) Planning ahead is a waste of time because something always turns up that causes you to change your plans. (external)</td>
<td>3-26</td>
<td></td>
</tr>
<tr>
<td>(10) One can make people (e.g. friends, co-workers and relatives) like or dislike him, as he intends to. (internal)</td>
<td>3-27</td>
<td></td>
</tr>
<tr>
<td>(11) You make your own decision, or act, regardless of what other people may think or say (internal)</td>
<td>3-28</td>
<td></td>
</tr>
</tbody>
</table>
SELF-ESTEEM

Let's now change a little bit the subject. I'm going to read some statements that describe how people see themselves on their job. When you think about yourself, how true is each statement of you. Remember there are no right or wrong answers. Please, answer as quickly as you can, it is your first impressions that are most important.

<table>
<thead>
<tr>
<th>Response categories</th>
<th>Normal score</th>
<th>Reverse score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Completely true.</td>
<td>( 5 )</td>
<td>( 1 )</td>
</tr>
<tr>
<td>Quite true.</td>
<td>( 4 )</td>
<td>( 2 )</td>
</tr>
<tr>
<td>Half true half not.</td>
<td>( 3 )</td>
<td>( 3 )</td>
</tr>
<tr>
<td>Slightly true.</td>
<td>( 2 )</td>
<td>( 4 )</td>
</tr>
<tr>
<td>Not at all true.</td>
<td>( 1 )</td>
<td>( 5 )</td>
</tr>
</tbody>
</table>

(1) You have the feeling that you can do everything well...........( ) 3-31
(2) You usually feel afraid and tense when you have to talk in front of a group ( score to be reversed )...................( ) 3-32
(3) There are a lot of things about yourself you would change if you could (score to be reversed ).............................( ) 3-33
(4) You usually feel comfortable when you start a conversation with people you do not know before......................................( ) 3-34
(5) When you talk in front of a group of people, you usually feel pleased with your performance ( good speech ).................( ) 3-35
(6) When people say nice things about you, you find it difficult to believe they are sincere ( score to be reversed ).............( ) 3-36
(7) You usually have the feeling that people do not like to be with you ( score to be reversed ).................................( ) 3-37
(8) Considering your work and social life, you think you are a successful person.....................................................( ) 3-38
(9) You usually have the feeling that there is nothing you can do well ( score to be reversed ).................................( ) 3-39

COPING STRATEGIES

Problems often come up, at work, that involve your work, yourself and your relationships with others. Workers when faced with problems, difficulties, etc... at work, usually think, feel, and behave in their own ways. There is nothing wrong about having our own way of looking at things and respond
differently from others to the problems we experience. I would like you to tell me how often you have thought or behave in the way described by the following statements, when you have experienced problems, difficulties, painful experiences at work.

### Response categories
- Always.
- Often.
- Sometimes.
- Rarely.
- Never.

### Scoring
- Always: (5)
- Often: (4)
- Sometimes: (3)
- Rarely: (2)
- Never: (1)

1. You talk about your problems and difficulties of work with your family. ( )
2. You try to understand what goes wrong. ( )
3. You seek the help of others at work. ( )
4. You put a lot of humour and jokes in your conversation with your workmates. ( )
5. You remind yourself that error is human. ( )
6. You seek the help of God. ( )
7. You leave the matter to time, it may be solved sometimes in the future. ( )
8. You become more engaged in the out-of-work activities: watching T.V., tinkering, etc. ( )
9. You direct your tension, anger, irritation, caused by work problems, towards other persons, or objects. ( )
10. You try to explain your difficulties to your superiors. ( )
11. You get more involved with your children, wife, parents, relatives and friends. ( )
12. You engage in more and more prayer. ( )
13. You "tell yourself" that for everything bad there is also something good. ( )
14. You remind yourself of your limitations: what you can do and what you cannot do. ( )
15. Planning not to go to work the day after. ( )
16. You look at your conduct, what is wrong with it. ( )
17. You look for an intermediate solution to the problem, with people concerned. ( )
18. You work harder and harder. ( )
19. You set priorities among problems: Which should be tackled first, which second, etc. ( )
20. You cannot help bringing your work worries home. ( )
(21) When problems accumulate, you think of quitting this factory to another one.................................................................( ) 3-62
(22) You do nothing about it.................................................( ) 3-63
(23) You make sure that people are aware you are doing your best...( ) 3-64
(24) You think more and more about religion and God, when in difficulties.................................................................( ) 3-65
(25) You try to bring your feelings into the open..............................( ) 3-66
(26) You tend not to take day-to-day problems of work seriously...( ) 3-67
(27) You try to remember how other workers in a situation like yours, handle the problems.............................................( ) 3-68
(28) You discuss the matter with the individuals concerned with the problem.................................................................( ) 3-69
(29) You discuss frankly with your supervisor the things that bother you.................................................................( ) 3-70
(30) You read or listen to Koran or religious talks.............................( ) 3-71
(31) You try to learn your work more and more...............................( ) 3-72
(32) You face or confront the persons with whom you have problems.( ) 3-73
(33) You reassure yourself that everything will be all right............( ) 3-74
(34) You set aside a certain time during the evenings and at weekends when you do anything that is not related to work....( ) 3-75
(35) You leave your work area and go somewhere until you feel calm .................................................................( ) 3-76
استبيان الدراسة الاستطلاعية

ملحوظة:

أحسن مذكر القاري، إذا استمع عليه تتبع الاستبيان نتيجة تحريره باللهجة
الدارجة المألوفة لدى عينة البحث، أي لدى العمال الذين يشتغلون في
الورشات الإنتاجية بمنهج الزجاج، والذين يفتقرون إلى مستوى تعليمي كافٍ
لايمسم لهم بفهم الاستبيان إن هو خارج اللغة العربية الفصحى ولذلك، نظرا
لمواصلات عينة البحث، عمدت إلى وضع بنود الاستبيان أصلا باللغة الإنجليزية
ثم اضطلعت بمماثلة المعنى ومتابعته بين متن الاستبيان الأولي (المحرر بالانجليزية)
والملحق المصاحبة باللغة الدارجة، منتجياً في ذلك الترجمة الحرفية.

وقد شكّق علي عدم تمكني من وضع صورة للاستبيان باللغة العربية الفصحى
المحرّر نظرا لماضى الأطروحة، وكذا لانتقاء العامل المقرر لرافق النسخة بالصحى
الملحق، لأن المقابلات المجرّدة اعتمدت صورة الاستبيان المحرّر باللهجة
الدارجة.

DIALECT VERSION OF THE PILOT STUDY QUESTIONNAIRE
مقدمة

أنا طالب يدقير بحث على التجارب انتخاب الخدامة والحاويات،
الذي يعيشهم في الخدمة، ورؤيهم في الحاويات، والشي الذي
يمسكوا به، ورواية يديبو كثيرة عندهم مشاهد وعمليات في الخدمة.

ما يهمني في تراويث المسؤلين، الشفّافين، والعمال، انتخاب البيرات،
الشي يهمني الخدامة انتخاب الانتاج، والشي يخدمون بالمثاليين والماديَن
لخطر هذا الخدامة، والشي يخدمون هادوءهم اللي حقيقة مجرمين وواضحين الواقعة
انتشار الخدمة، اليوم اختيارك باش أسألك سؤالات لخطر أقدر في هنذا
التعيين (في هنذ لعشية) نقض وقت في الكلام بلا ما نظفو الانتاج،

السؤالات التي رأيتك اقراها ماليتك، ما فيهاشي جواب محاج
وجواب مشي محاج، جواب طبيعي وجواب طبيعي، على كل حالة، كل واحد
وكيش يكمم، كل واحده زيده، كل واحده تجربته في الخدمة

نفكشك الليشي اللي تقولونه بيتي بيجي، وزيدي لك بلقي
الاسم اشتاء ما أحتاجوش في قرايتي هادي.

قبل ما نبدأ، عندك شي سؤال، ولا تبغوني تعوزف أكشر
على شي حاجة، قبل لدي.
الوظيفة وظروف العمل الفيزيقية

راليح أسالك على خدمتك، لكل سؤال أقوله لك كلاً من 3 جوابات ومن بين هذه الجوابات تختار الجواب الذي يصف تجربتك في خدمتك.

بطاقة رقم (1)

<p>| | | | |</p>
<table>
<thead>
<tr>
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<tbody>
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<td>(1)</td>
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<tr>
<td>5</td>
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</tbody>
</table>

1  - المكان الذي يعمل فيه، مثل الحس، البرد، الحمان، ونقص الإضاءة أو كثرةها، الغبار الخ، واش:

* يخلوك تخدم في راحتك؟ ................................. (1)
* يخللي خدمتك وأعرة شوي؟ ................................. (3)
* يخللي خدمتك وأعرة بالزاف؟ ................................. (5)

2  - خدِمتك واش:

* تضر بزاف الصحة؟ ................................. (5)
* تضر شوية الصحة؟ ................................. (3)
* لانضر، الصحة؟ ................................. (1)

3  - واش خدمتك:

* خلالك تملها بزاف؟ ................................. (5)
* خلالك تملها شوية؟ ................................. (3)
* خلالك ما تملها (تهتم بها)؟ ................................. (1)

4  - واش خدمتك:

* تتعبك بزاف؟ ................................. (5)
* تتعبك شوية ................................. (3)
* ما تتعبك؟ ................................. (1)

5  - واش خدمتك فيها:

* لاكسيمات (الحوادث) بزاف؟ ................................. (5)
* لاكسيمات سرائ ؟ ................................. (3)
* ما فيه لاكسيمات؟ ................................. (1)
السؤال المسمى

١ - اقرأ ألقآء عليك سؤالٍ على خلصتك (سلالك). لكل سؤال كابين خمس جوائز التي تختار من بينها الجواب الذي يقرب (يميل) من الشيء الذي تعيش في مصلّيك.

بطاقة رقم (١)

<table>
<thead>
<tr>
<th>جهدك وتجريبك في العمل؟</th>
</tr>
</thead>
<tbody>
<tr>
<td>٨ (٥) لا ............... *</td>
</tr>
<tr>
<td>٨ (٤) قليلُ ............ *</td>
</tr>
<tr>
<td>٨ (٣) متوسطُ ............ *</td>
</tr>
<tr>
<td>٨ (٢) يكثر بالزاف ............ *</td>
</tr>
<tr>
<td>٨ (١) كافٍ بالزاف ............ *</td>
</tr>
</tbody>
</table>

٢ - واش خلصتك ولمريم يكفيكك في معيشتك؟

<table>
<thead>
<tr>
<th>كافٍ ولا عالياً على خلاصهم؟</th>
</tr>
</thead>
<tbody>
<tr>
<td>٨ (٥) لا كافية ............ *</td>
</tr>
<tr>
<td>٨ (٤) قليل وناب كافية ............ *</td>
</tr>
<tr>
<td>٨ (٣) مرات كافية ............ *</td>
</tr>
<tr>
<td>٨ (٢) كافية ............ *</td>
</tr>
<tr>
<td>٨ (١) كافية بالزاف ............ *</td>
</tr>
</tbody>
</table>

٣ - واش خلصتك وخلصت العمال الآخرين في مصنع آخر

| ٨ (٥) موظف بالزاف ............ * |
| ٨ (٤) موظف ......... * |
| ٨ (٣) موظف ......... * |
| ٨ (٢) موظف ......... * |
| ٨ (١) موظف ......... * |

٤ - كف كف ولا عالياً على خلاصهم؟

| ٨ (٥) موظف بالزاف ............ * |
| ٨ (٤) موظف ......... * |
| ٨ (٣) موظف ......... * |
| ٨ (٢) موظف ......... * |
| ٨ (١) موظف ......... * |
لكل سؤال ومنها تختار الجواب الذي يصف الشيء الذي تعشبه في عملك.

<table>
<thead>
<tr>
<th>بطاقة رقم و (1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(9) - شحال مرة يختمك تخدم بالخف باش تكل خدمتك في الوقت؟</td>
</tr>
<tr>
<td>13</td>
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</tbody>
</table>

| (10) - شحال مرة من قوة الخدمة اللي قاوئة عندك، ما تقدر تخدمها ملح كما لازم الحال؟ |
| 14 | (1) حتى مرة * |
| 14 | (2) قليلًا * |
| 14 | (3) مرات * |
| 14 | (4) الكثرة * |
| 14 | (5) دائما * |

| (11) - شحال مرة لازم عليك أدبير حوادث يزاف مع بعض (في وقت واحد) في خدمتك؟ |
| 15 | (1) حتى مرة * |
| 15 | (2) قليلًا * |
| 15 | (3) مرات * |
| 15 | (4) الكثرة * |
| 15 | (5) دائما * |

| (12) - شحال من مرة تيالك خدمتك معيبة ومعجدة؟ |
| 16 | (1) حتى مرة * |
| 16 | (2) قليلًا * |
| 16 | (3) مرات * |
| 16 | (4) الكثرة * |
| 16 | (5) دائما * |
السؤال الـ١٣: هل تختلف بعضاً من أوامر شفاف أوانسكم؟

<table>
<thead>
<tr>
<th>رقم السؤال</th>
<th>الودع</th>
<th>القيض</th>
<th>المهمات</th>
<th>الكشفية</th>
<th>الدعم</th>
</tr>
</thead>
<tbody>
<tr>
<td>19</td>
<td>(1)</td>
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<td>19</td>
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</table>

السؤال الـ١٤: هل تختلف بعضاً من أوامر شفاف أوانسكم؟

<table>
<thead>
<tr>
<th>رقم السؤال</th>
<th>الودع</th>
<th>القيض</th>
<th>المهمات</th>
<th>الكشفية</th>
<th>الدعم</th>
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<tbody>
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<td>20</td>
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<td>20</td>
<td>(5)</td>
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</tbody>
</table>
(15) - شجاع من مرة توجد روحك متوافق في
الاٍ وامير الليس تجاهك انتخاب الخدمة
(o) يعني الامير على واس لكيفها تخدم ؟

21  ( 1 )  حتى مرة ......................... *
21  ( 2 )  قليل جدا ...................... *
21  ( 3 )  مواتيات ....................... *
21  ( 4 )  الكثرة ........................ *
21  ( 5 )  دائمًا ........................ *

(16) - شجاع من مرة تقولونك ذكر الخدمة
هذي ولا هذي عليك والماتسيب كافٍ

22  ( 1 )  حتى مرة ......................... *
22  ( 2 )  قليل جدا ...................... *
22  ( 3 )  مواتيات ....................... *
22  ( 4 )  الكثرة ........................ *
22  ( 5 )  دائمًا ........................ *
فيماض اللماعور

لا يجب أن نودوا إلى حاجة أخرى في عملك، لكل سواء من السؤالات الآتية

(17) - واسع خدمتك ولحوالي اللذي واجب عليك ادبرهما

باينية (واضحية)؟

25 (1) بزاف الكثرة

25 (2) الكثرة

25 (3) متوسط

25 (4) قليل

25 (5) لا

(18) - واسع يوضح لك كيفاش تُتوحي خدمتك؟

26 (1) بزاف الكثرة

26 (2) الكثرة

26 (3) متوسط

26 (4) قليل

26 (5) لا

(19) - واسع يفهموك كيفاش واحد يترقي ويطلع، وكيفاش تزييد الخمسة وليبريم؟
<p>| | |</p>
<table>
<thead>
<tr>
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<tbody>
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<td>27</td>
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</table>

(20) - واش علموك على القرارات والقواتين الجديدة اللگي
تهمك وتهم خدمتك؟

<p>| | |</p>
<table>
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<td>28</td>
<td>(5)</td>
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</tbody>
</table>

الترقيقة

رابع أقرأ علىك حواويج انتاج خدمتك ولكل حاجة تجاوبني وات مشي صحيح (ما كايش) ، قليل وبين صحيح ، مرات صحيح ومرات مشي صحيح ، الكثرة صحيح : ابتهك "صحيح" ، "شي صحيح" ما فيش جواب صحيح وجاب خاطئي مشال الحساب ، لكشين تعني واش الشيء اللي أسالك عليه
مصاري ولا ما مماريتش.
(21) حدثت مرتين في لوزين هادئ يخدم مليسح،
ويعود مريض.

<table>
<thead>
<tr>
<th>عدد</th>
<th>صحيح</th>
<th>الكثرة صحيح</th>
<th>مرات مصحح (مرات مصحح)</th>
<th>قليل وبين صحيح</th>
<th>مشي مصحح</th>
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</table>

(22) ترقيت (طغنت) قال مليسح.

<table>
<thead>
<tr>
<th>عدد</th>
<th>صحيح</th>
<th>الكثرة صحيح</th>
<th>مرات مصحح (مرات مشي صحيح)</th>
<th>قليل وبين صحيح</th>
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</tbody>
</table>

(23) الكثرة انتاع الناس اللي طلعو وترقاو ما يستهلوش.

<table>
<thead>
<tr>
<th>عدد</th>
<th>صحيح</th>
<th>الكثرة صحيح</th>
<th>مرات مصحح (مرات مشي صحيح)</th>
<th>قليل وبين صحيح</th>
<th>مشي مصحح</th>
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</tbody>
</table>

(24) تشوّف روحك راجح تقدم كيّما راك بلى ماتطلع في هاد:

<table>
<thead>
<tr>
<th>عدد</th>
<th>صحيح</th>
<th>الكثرة صحيح</th>
<th>مرات مصحح (مرات مشي صحيح)</th>
<th>قليل وبين صحيح</th>
<th>مش مصحح</th>
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<tbody>
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<td>34</td>
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<td></td>
</tr>
</tbody>
</table>
السؤالات اللذي جاين بعينها واشتعمال يحبها نتيجة المشاكل والمضاعفات التي يعيشونها في عملهم، لكل سؤال كل سؤال خمس جوابات تختار من بينها الجواب الذي يعني الشيء الذي تختصره.

<table>
<thead>
<tr>
<th>الأوزان العادية</th>
<th>الأوزان العادية</th>
<th>فئات الإجابة</th>
</tr>
</thead>
<tbody>
<tr>
<td>(5)</td>
<td>(1)</td>
<td>عمر ما 5رات</td>
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<td>(2)</td>
<td>قليل بين 4رات</td>
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<td>الكثرة بمرالله</td>
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<tr>
<td>(1)</td>
<td>(5)</td>
<td>داين بمرالله</td>
</tr>
</tbody>
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بطاقة رقم (1) (1) - خدمتكم تغفر صحتكم
الاستجابة

السؤالات التي رأى أكبرهم عليك بيبيوا الشيء اللي العـمـال
يمكن وحـسـوا به لما تكون عندهم مشاكل وصعوبات في لوزين، كما قـمـي
السابق، تختار من بين خمس جوابات الجواب الذي بيرـس حقيقـة الشيء اللي
تـحس بيـه لما تعيش مشاكل في خدمتك.

<table>
<thead>
<tr>
<th>الأوزان العكسية</th>
<th>الأوزان العادية</th>
<th>فئات الأجوبة</th>
</tr>
</thead>
<tbody>
<tr>
<td>(5)</td>
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<td>حتى مرة</td>
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<td>(3)</td>
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<tr>
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<td>الكـشـروة</td>
</tr>
<tr>
<td>(1)</td>
<td>(5)</td>
<td>دائمـاـ</td>
</tr>
</tbody>
</table>
بطاقة رقم (1)

1. شحال من مرة تحس لروحك حزين وقانط ؟.....
2. شحال من مرة تحس لروحك تعصان قمیر
3. هاكل؟
4. شحال من مرة تحس لروحك مقبل ؛ ما تجيبه
5. لراحة لا والو ؟
6. شحال من مرة تحس خاطرك وبالك مرتاح (يعكس الوزن) ؟
7. شحال من مرة تشوخف روحك مازال يجيوك سهيلين
8. لحوایج اللي كنت تخدمهم من قبل في الخدمة (يعكس الوزن) ؟
9. شحال من مرة تشوخف روحك مازالت تبغي لحوایج اللي كانت تعبد من قبل في الخدمة (يعكس الوزن) ؟
10. شحال من مرة تحس لروحك مازال يحتاجوك
الرضاء المهني

الآن قول لي كيفاش نحس في خدمتك بخطوات اللي رايح أذكرههم وات تشوف روحك راضي بزاف راضي مرات راضي قليل وبين راضي ولا مشي راضي.

<table>
<thead>
<tr>
<th>الأوزان</th>
<th>فئات الأجودية</th>
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<td>قليل وبين راضي</td>
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<td>مشي راضي</td>
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</tbody>
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بطاقة رقم (1)

1. الحالة انتاع الخدمة مثل الحس، الجرد، إسحائه، غبار، قلة
2. الخدمة وليرب انتاعك
3. الخدمة انتاع الديتلي
4. نوع الخدمة اللي تخدمها في الوزين
5. الخدمة (قاوية مش قاوية) اللي عنك
6. المستقبل انتاعك في هامشي الشركة
7. الطريقة (كيفاش) اللي راه وزويين يتمشي عليها
8. اللي اللي الناس بيتر من الوزين يقولوه على خدمتك
9. شحال وكيفاش يعلمك على الحوايح اللي تفهم خدمتك
10. الشاف كيفش يدير للخدمة انتاعو
11. المشاوارة اللي يشتر روك في لحوايح اللي رايحين يبدوها
12. الناس اللي تخدم معاهم
الاضرار النفسية الجسمية

رايح أذنوك مشاكل انتاع الصحة اللي العمال على كل حال يمكن يشكو منها
وانت تقللي واش حسبت بهم كل مرة ، الكثرة ، مرات ، ولا حتى مرة ؟

<table>
<thead>
<tr>
<th>الأروزان</th>
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بطاقة رقم (2)

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<tbody>
<tr>
<td>1</td>
<td>(1) ماترقق غير بالسيف و كثير قد ماترقش مليج ؟ .......</td>
</tr>
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<td>2</td>
<td>(2) تحس روحك تزلف تقلق و تضايق بالخف .........</td>
</tr>
<tr>
<td>3</td>
<td>(3) تحس أوجع الرأس أو راسك يضاير .........</td>
</tr>
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<td>(4) ما طبيش عليك العاكلة .........</td>
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<td>5</td>
<td>(5) تحس حاجة تشرك في ليستوم .........</td>
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<tr>
<td>6</td>
<td>(6) تنوش بالسيف في الصباح .........</td>
</tr>
<tr>
<td>7</td>
<td>(7) تحس روحك تنهج لو كان ادير غير حاجة خفيفة .........</td>
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<tr>
<td>8</td>
<td>(8) تحس بقلق يشبه ( يخليه ) برأف .........</td>
</tr>
<tr>
<td>9</td>
<td>(9) واش تشرب الشراب بالرائف .........</td>
</tr>
<tr>
<td>10</td>
<td>(10) تجيك الدوخة .........</td>
</tr>
<tr>
<td>11</td>
<td>(11) تشوف جوايغي في المنام اللي ذايمك وتتخوفك ....</td>
</tr>
<tr>
<td>12</td>
<td>(12) كيتيحم تتهم في صحك ( في ونك ) .........</td>
</tr>
<tr>
<td>13</td>
<td>(13) يضايقوك ظبيبك اللي يعرقا بالخف حتى تحس بهم بدرانين</td>
</tr>
<tr>
<td>14</td>
<td>(14) راش تحس بالسطر في كل جنابك وقوايمك ....</td>
</tr>
</tbody>
</table>
التكيف (1)

1. قول لي واش ادیر، لنها الخدامة معاك والشیان كل واحد يعطىك رأي مخالف على الآخر ين، يعني في خدمتك يكترا الربان من الخدامة ومن الشیان؟

2. قول لي واش ادیر کیس روك بالشيء اللي تخدموکيیاش تخدمو، وانت ماتوقفش على هاد الأوضار لائیعندك رايات اخرین على الخدمة؟

3. قول لي کییاش ادیر کیتیكون مندك الخدمة قاوبة بزاف؟

4. قول لي واش ادیر کتیكون دیر الخدمة اللي ما تتبیلش، ومیكان العمل فيه الیبرد اسکتانا العبرة قلة الیول والنظافة وفيه الدانی انتعاش لیلکسات؟

5. قول لي واش ادیر کیمایخبروکش کیما لازم الحال على الحوایج اللي تهم خدمتك؟

6. قول لي واش ادیر کیما يطلعوكش في خدمتك؟

7. قول لي واش ادیر کیتیكون مندك مشاکل انتعا الخلیصة (الخلصه ماتکیشئی لمعیشة، خلمتكض طایحة على انتعا اخرین الذي يخدموا خدمتك في لوزیدات اخرین)
استراتيجيات التكثيف

على كل حال يصبحنا مشاكل التي تخمح وتخص خدمتك في لوزيـنـنـن
وكل عامل واحترام يذكر ويحسن كنكم مشاكل في لوزيـنـنـن، وفيما يصلنا
انت، أطلب منك تقويلي شحال من مرتة تفكك، تميز، وادير كم هو مذكور
في السؤالات اللي رايح اقرأهم عليك

الآوران | الخصائص الاجماليـة
--- | ---
(5) | دايمـا
(4) | الكثرة
(3) | ممكـنـات
(2) | قليـلـة
(1) | حتى

بطاقة رقم (2)

<table>
<thead>
<tr>
<th>رقم</th>
<th>السؤال</th>
</tr>
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<tbody>
<tr>
<td>17</td>
<td>1- تتكلم في مشكل الخدمة مع عائلتك ؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟</td>
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<td>18</td>
<td>2- ما تخصش في المشاكل هذيك حتى تتكلم ( تهذا ) ؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟</td>
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<td>19</td>
<td>3- تخلي الالي اللي كنت ادير ولي فيه مشكل ، وأدير حاجة أخرى الالي مشي كيفها ؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟</td>
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<td>20</td>
<td>4- تحوش ندي المعلومات كتيرة على المشكل ( تحوش تعرف عليه حوايج برف ) ؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟</td>
</tr>
<tr>
<td>21</td>
<td>5- ما تديش مشاكل الخدمة للدار ؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟</td>
</tr>
<tr>
<td>22</td>
<td>6- تواجه المشكل وتقابلوا ؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟</td>
</tr>
</tbody>
</table>
| 23 | 7- تولي تيغي بروف الحوايج اللي ديرهم بي بـم من الخدمة
|   | كنون عنك مشاكل في لوزيـنـن ؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟|
|   | كنون عنك مشاكل في لوزيـنـن ؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟|
|   | كنون عنك مشاكل في لوزيـنـن ؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟؟|
(8) - تشوف وانش مراطق مشاكل بكري بحاجة لمساحلون ادى دلك باباش

(9) - تستنبل للفحلام ما تقدر ديرة حتي حاجه

(10) - تحووس نجري ذات المشاكل باش تروبي الناس اللي

(11) - تحووس ربي بعاونك

(12) - تبقى فقاحت المشاكل حتي تغريبها

(13) - ما تديرش في المشاكل مادام تطورت العمل معاك

(14) - منيدا غير في الحواين اللي فيهم مشكل في خدمتك واحواج

(15) - ما تيينيش رواك تنفيزك..والشي اللي تحس بيه في

(16) - تحاول تس الاقيام القبيحة في الخدمة وتفكر برك فشي

(17) - تقرأ ولا تسمع القرآن الكريم والا حاديث كن تكون عنك مشاكل

(18) - مشاكل الخدمة ولوزيين كيفما كانت ما تديرش فيها

(19) - كن تكون عنك مشاكل تحووس على الحواج اللي تخليلك

(20) - تقرر تضحك وتدايج شوية في المشاكل هانشك

(21) - تغاي ترد ملبيه
(22) - كنتون عندك مشاكل تشرب القهوة ولا تكملي بزافأ
(38) ملّي كنت ................. ( )
(39) (23) - الدنيا بلا مشاكل ماعندها حتى دوق ................. ( )
(40) (24) - تشوف روحك في السابق كيكنك ولان كيراك ................. ( )
(41) (25) - تشرب الدواء اللي يكالميك وبريجيك ................. ( )
(26) - لكان المشاكل زادة قوات في الخدمة تطلب باش تبدل
(42) الخدمة هادئةك ................. ( )
(43) (27) - تخلي خدمتك وتدور شوية حتى تتكلمه ................. ( )
(28) - تشوف واش غير أنت عندك مشاكل ولا حتى الناس الآخرين
(44) - عندم مشكل بحال انتاعك ................. ( )
(29) - تقول روحك بالالي المشاكل هذي طايمة وما تستاهل شرواحد
(45) باش يخصم فيها ......... ( )
(46) (30) - تشوف الخدمة معاك ولا الشاف باش بعاونوك ................. ( )
(31) - تولي تبغي تعرف جوياج علي روحك بزاف ، فليما
(47) المشاكل هذي انتاع الخدمة حات منك ولن قوات بسبيك ( )
(32) - كيتكون عندك مشاكل تتمنى لوكان كنت شافمسس
(48) الشيفان باش تفري مشاكل ................. ( )
(33) - تشغيل روحك بالخدمة باش ما تتكرش في المشاكل
(49) اللي عندك ................. ( )
(34) - كيتكون عندك مشاكل مع آخرين تتساوس
(50) تقرب رايةك برايم باش تفري المشاكل هادي .. ( )
ما تهمك غير المشاكل اللي تمسك أنت، والمشاكل اللي تمسك من بعيد في لوزين ما عندك صالحة فيهما

(36) كيكون عندك مشاكل تخليها ليك، وماشئًا كيكون عندك حتى واحد فيهما

(37) تبقى متناول بالخير كيما كان المشاكل كبير ولا مشكل صغير

(38) تولي أديس الرياضة (أو تكثر الرياضة) لما تكون عندك مشاك

(39) كيكون عندك مشاكل في لوزين تخليها كيماها ما تخرج فيها

(40) تكلم وديسيتي المشاكل مع الناس اللي خليهم فيهما

(41) تخلي المشاكل للوقت، فلا لما المشاكل هاذب

(42) تلوالي تفاضل تبقى في الدار ولا تخرج لما تكون عندك مشاكل في العمل
التصنيفات

بطاقة رقم (2)

(1) - كنتقدم شكایة، طلب، اقتراح، ولا أي حاجة أخرى للوقت

يعني للمؤسولين شحال تقارع باش يجاوبوك؟

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<tr>
<td>61</td>
<td>(4)</td>
<td>*</td>
</tr>
</tbody>
</table>

(2) - شحال من مرة الناس اللي رايح أذكروهم لك يعلموك ويخبروك على ديسبيرونات اللي يفيدوك ويفيدو خدمتك؟

<table>
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<tr>
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<th>حتى مرة</th>
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</tbody>
</table>

* الشاف انتاعك
* الناس الليخدموا
* في لامينستراتسون
* الديلجاتي
* الخدامه اللي
* يخدموا معاك
* الخدامه اللي يخدموا
* في سرفيس اخرين
* في لوزين ولاللي
* يخدموا في لوزينات
* اختياري
الشـكـلـة

بطاقة رقم (2)

(1) ـ شـحال من مـرة تـتـكلم وتـتـتـناقـش في مـشـاكل ومشـاكل الخـدـمة مع الدـبلقـيـ؟

69
(4)

69
(3)

69
(2)

69
(1)

(2) ـ شحال من مـشـاكل الـلـي تـتـكلموا الخـمال فيها الدـبلقـي

70
(4)

70
(3)

70
(2)

70
(1)

(3) ـ واش المشاكل التي ناقشها الدبلقى تعـد خدمتكم؟

71
(4)

71
(3)

71
(2)

71
(1)
الآن قل لنسي واسح لحواي يـُــُـُــُــُ~

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<th>الأوران</th>
<th>فئات الأجيال</th>
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<td>مراولك</td>
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بطاقة رقم (2)

(1) ـ تهليط غير في خدمتك في نوزين الشيء اللي خلاك ما تهتش كيما

(2) ـ الخدمة انشع لكيوب واسايع زيادة اللي تخدمهم

(3) ـ مشاك عائلتك يشغلو بالـ شك في الخدمة

(4) ـ الوقت اللي تقطعيه في ترايبور كتروح وتيجي للخدمة

(5) ـ السكنة انداعك شاغل يالك بزاف كنكون في الخدمة
العلاقة بين الأشخاص

رابع ذكر أنواع انتخاب العلاقات ( واحد كيفرشدار مع اخرين ) بين عامل والخدمة معاه، وشقيقه، والناس اللي يخدموه لامينسترا سيون، وانت تقول لي لجواب ( العلاقات ) اللي رابع اقرامه ايش كاينة منها بزاف، كاينة منها مهـ، كاينة منها قليل، ما كانش مهـا:

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<td>ما كاينة منـهـا</td>
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بطاقة رقم (3)

| (1) | العمال اللي يخدموك معاه ناس ملاح ................................. |
| (2) | العمال اللي يخدموك معاه ما يعانونيكون عندك مشاكل         |
| (3) | انتخاب الخدمة ( يعكس الوزن ) ................................. |
| (4) | انت وعمال اللي معاه نتقلوا في حواجج بزاف وترابيود  |
| (5) | على بعضك البعض ............................................... |
| (6) | الشاف انتاعك ناس ملاح ويبغي يتكلم ويتكلم مع كل         |
| (7) | وااحدد ......................................................... |
| (8) | الشاف ما يعاونش الخداقة انتاعوا في مشاكلهم  |
| (9) | يعكس الوزن ) .................. |
6 ـ الشّاف اشتكى حاقد عليّك غير أنّ (يعكس الوزن) ...

7 ـ الشّاف اشتكى مابظلّم حتى واحد من الخدامة

الله تغبتوا

8 ـ الدّبلقى ناس ملاح وفرحوا بكمل واحد واحده يتكلّم

معه اسم

9 ـ الدّبلقى يمستو وا له كتتكم على مشاكلك ...

(10) ـ الدّبلق مادينش في الخدامة وما فيه

فائدة (يعكس الوزن)

(11) ـ ما كاش تفاهم بينتانا احنا العمال وبين الدبلق

انتاعنا (يعكس الوزن) ...
## صفحة A من النمط السلوكي

تابع اقرأ عليك مفات اتباع الناس، وكأن ناس اللي فيهم يزايف من هذ الصفات، وكأن اللي فيهم قليل من هذ الصفات، وهذ الصفات ما هي قيحة ولا ملحية، أنت قول لي شحال ففي البيئة فيه كل صف من الصفات اللي راحا اقرأهم عليك؟

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<tr>
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بطاقة رقم (3)

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<tr>
<td>14</td>
<td>(1) توصول روتار في موميدك (يعكس الوزن) ............... ( )</td>
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<tr>
<td>15</td>
<td>(2) تقدر تعرف من قبل اخرين واحش راح يقولوا ....... ( )</td>
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<td>16</td>
<td>(3) تحسن روحك كل يوم جلان (زبان) ................. ( )</td>
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<td>(4) ما تغلطش كتقرع (يعكس الوزن) .................... ( )</td>
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<td>18</td>
<td>(5) من عادتك تفتي دبج ياها يزايف مع بعض ......... ( )</td>
</tr>
<tr>
<td>19</td>
<td>(6) تتكلم بموت عالي (محم) ، بحال انسان اللي يخطبّ ففي الناس ( )</td>
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<td>(7) دايبا غف في روحك ماعندك محالة في الناس واشرخمو فيك (يعكس الوزن) .................. ( )</td>
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<td>(8) انت نقي في حركتك (يعكس الوزن) ................. ( )</td>
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<td>(9) عندك الحاجة كيما جات جات ، ما تكسر راسك فيها (يعكس الوزن) .................. ( )</td>
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<td>(10) اللي اللي تحسو (اللي لداخل) ثيئو ............... ( )</td>
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<td>(11) يبر من الخدمة ما عندك محالة حتى في حاجة ... ( )</td>
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| 30     | (4)    | الحاجة اللي تبغيها وتولاتها ماتطولش زهري (داخلي)
| 31     | (5)    | ما تقدرش تعرف واش واحد ييفك ولا مايفليش (خارجي)
| 32     | (6)    | الكثرة تكشف يومك ما تقدرش تشبع اللي يصرالك (خارجي)
| 33     | (7)    | ليكي والمميزي يطيبوا على الواحد من لاقوت اختياره
| 34     | (8)    | ما يفرش كيفاش يتعرف (داخلي)
| 35     | (9)    | لاكونت مليج يكونو عندك محابك بزاف، ولا كنت مشي مليج محابك يكونو قلال (داخلي)
| 36     | (1)    | الشي اللي يصرالك انت سابه (داخلي)
| 37     | (1)    | أنت ما أثني باللي ازهر عنده تأثير على حياتك (داخلي)
تحريج للحوار الغير متوقع

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</table>

40 - تشتوف روحك انسان بوقع قيمة على الاقل بحال اخرين ( )
41 - تحس بيلي فيك خصائص ( مفاط ) مليحة ............... ( )
42 - تحس بروحك قادر ادبر حوايج بزاف كيما الكثرة انتاع النناس ................. ( )
43 - تحس بروحك كلخسارة ( يعكس الوزن ) ............... ( )
44 - تحس بروحك ما شهدك حلويات بزاف اللي تفتخر بها والناس يشكون عليها ( يعكس الوزن ) ....... ( )
45 - تحس بروحك مشتيمي تحاكم روحك ............... ( )
46 - تحس بروحك كل منتشم النباش رححة ............... ( )
47 - تحس بروحك ما تتفع حتى في حاجة ( يعكس الوزن ) ....... ( )
48 - تحس بروحك ما يقاو احترامك لروحك ( لنفسك ) ....... ( )
49 - تحس بروحك ما يقاو خير ( يعكس الوزن ) ....... ( )

بطاقة رقم (3)
### معلومات أساسية

قبل من تكملوا أسئلتك على جوايز علي نسخة البطاقة رقم (3)

<table>
<thead>
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<th>رقم</th>
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<th>الجواب</th>
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<td>1</td>
<td>الخدمة انتُك كيف تسموها؟</td>
<td></td>
</tr>
<tr>
<td>53,52</td>
<td>شحال من عام خدمة عندك في لوزين هذا؟</td>
<td></td>
</tr>
<tr>
<td>55</td>
<td>شحال من خدمات درتهم من الوقت الذي دخلت فيه اللوزين هذا حتى الآن</td>
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<td>59,57</td>
<td>شحال يخصوك في شهر بالتقريب (حسب كل حاجة حتى لبريم)</td>
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</tr>
<tr>
<td>61</td>
<td>لا ما تقرأ ما تكتب</td>
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<tr>
<td>64,63</td>
<td>شحال من عام قبض في ستاج</td>
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<tr>
<td>67,66</td>
<td>شحال في عملك</td>
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</tr>
<tr>
<td>69</td>
<td>منازب؟</td>
<td></td>
</tr>
<tr>
<td>69</td>
<td>متزوج؟</td>
<td></td>
</tr>
<tr>
<td>69</td>
<td>مطلقة</td>
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</tr>
<tr>
<td>69</td>
<td>ما نتكلم لمره؟</td>
<td></td>
</tr>
<tr>
<td>72,71</td>
<td>في حالة كون المنف حا متزوج، طالعا  ، أرمل (</td>
<td></td>
</tr>
</tbody>
</table>

* الاسم (الورشة) * | الرقم السلسلي للمقابلة |
* الدائرة | تاريخ المقابلة |
* الوحدة | مدة المقابلة |
استبيان الدراسة الأساسية

ملاحظة: ألفت انتباه القارئ إلى هذه الملاحظة الهامة قبل قراءة بنود الاستبيان: ترجم الاستبيان من الإنجليزية إلى الدارجة وليس إلى اللغة العربية الفصحي، وتوجيهت في الترجمة شئين أساسيين: ترادف المعنى والتعبير بلجنة يفهمها العمال ( هيئة البحث ) الذين يفتقرن إلى مستوى تعليمي كاف لاستيعاب النص باللغة العربية الفصحي أو بالفرنسية، وبناءً على ذلك تبنيت اللهجة الدارجة في تحرير الاستبيان المعتمد في العناصر المجراة، وتجدر الإشارة إلى أنه لم يتم بدقة ضوابط لغوية معينة في تحرير الاستبيان إلا بموافقة لفظ اللهجة الدارجة لمتن من اللغية الإدكليزي.
أنا طالب في جامعة وهران، قرايري في الجامعة هي على التجارب الدينية.

العمال يعيشون في خدمتهم، وعلى لوزينات التي يخدم فيها كيفاش يتشاور، لكن...

واحد ما يقدرشيِّفهم العمال غير شرَّ اللوزينات التي يخدموا فيها ويتكلم معهم يتكرَّر، لأنهم السبب جيت للجثة هذا ياش أسلل العمال كيفية...

يفرونا خدمتهم، المشاكل التي يعيشوها، كيفاه يديروا باش يخبروها، يعني...

رايح رأيح اتعلهم من العمال.

رايح أسللك على خدمتك، المشاكل والمشاعبات التي عشتها في لوزين، واش اديس...

كيفش مشاكل، التأثير انداعها على الشيء الذي تحس به وعلى محتك، وأسا لسك...

على حوايح اخرين.

هبلك حتى جواب ما هو صحيح ولا خطاً، لأن كل عامل ورايحه، كل مام وغيرها...

وكيفاء يشوف ويخدم، كل عامل ومشاكول وطريقته التي يجري بها ممكلو، تصاريح كل حال، واحد ما يقدرشيِّفهم الكلام انداع هذا العامل صحيح والكلام انداع عامل آخر مشي صحيح، رايح اتكلم مع خادمه براف وكيل يوم اتكلم مع زوج عمال...

للازه منهم الخدمة مرتبة كهار هلاق وأنا طلبتي باش أسللك اليوم...

لخطر أقدر اليوم اتكلم معك بلا ما يتعل الاتصال...

الجوابات انتهاك والجوابات انتهاك العمال الذين اسالتهم من قبل رايح اندير عليهم...

حسابات، وهكذا الأجيبية انتهاك الواحد ما يتعرش، نجليك مثل: من بعديد...

لحسابات، النتائج رايح تقول شحال من خِلَاءً عنهم شكل معيون، شحال مسان...

الخدمة قرار المشاكل بطريقة هذي، وشحال من خيامة قرار هذه المشاكل...

بالطريقة هذي ( النتائج ما تتولش فلان قال ما دام فلان هذا والذي اللي قاله رجعتهم...

كل حاجة تكونها لي تبقى بيني وبينك، وباش ربحك أكثر، مارايحش نستسكي على...

أسمك لخطر ما رايحش احتاجو في قرائي هذي...
معلومات أساسية

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2. شحال من عام خدمة عندك في هذا "ليزي" ...................................................... 56,7
3. شحال يخلوكم في الشهر بالتقيبة ، حسب كل شيء حتى أربع مرات ...........
4. شحال من عام قرابة ، قربت ................................................................. 10,11
5. ماذا تكتب لا ، ولكن تقدر تقر ولا تقدر تكتب ...........................................
6. الانتقاءي .................................................................
7. المتوسط .................................................................
8. الذاوقي .................................................................
9. الذاتي (.................................................................
10. الشامل من عام .................................................................
11. عازب ... .................................................................
12. متزوج .................................................................
13. مطلقا .................................................................
14. ماتتتك الموه .................................................................

(7) شحال عندك من أولاد وبدات تخدم عليهم ( يلق هذا السوءال
في حالة كون الفحوص متزوجا ، طالقا أو أرسلأ ) .................................

* القسم ( الورشة ) : .................................................................
* الرقم المسلسل للحالة : .................................................................
* تاريخ الحالة : .................................................................
* الوحدة : .................................................................
* مدة الحالة : .................................................................
الخدمة اعتماداً على تجربة كثيرة، راجع السيرة اسئلة، كل سؤال متبوع بخمس أجوبة (جوابات) والمطلوب منك تختار الجواب اللي بين الامام اللي يعيش في الخدمت.
تتكوّن بلي ما كانت جواب صحيح، ورود مشي صحيح، لأن الأجوبة تدل على الشيء اللي يعيش الموظف، والشي اللي يعيش عامل مشي مثل الشيء اللي يعيش. عامل آخر:

بشكل:
( شال من مرة تكون عندك خدمة بالزاف اللي ما تقدر تكملها في نهارها) هــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــ&...
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<td>(2)</td>
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(5) - تقوف الخدمة انتاعك ارثر الصحة انتاعك
(6) - تقوف الخدمة انتاعك فيها النجلي انتاع لكسيدات
(7) - الخدمة انتاعك تبين الشي اللي تقدرلو، اللي تعرفو
(8) - يعكس الوزن

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<th>الزيادة العادية</th>
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(8) - شحال من مرة لباس اللي تخدم فيها، فيها الخماش، البرد، الحس،
(9) - شحال من مرة ليخليلك تتعب أكثر؟
(10) - شحال من مرة اللي في خدمتك كمثل الحماج البرد، الحس الضوء لعشتني، يخليلك تخدم مرتح بلا تعب؟

(بيكس الوزن)
الجواب - الكهرباء

السواءات التي راجع آقراهم عليك بهمو خلصتك. المطلوب منك تقولي واش لحوايـج
اللي مذكورين في السوائات كائنة صحيح، كائنة الكثرة، كائنة مرات
ماكانت، كائنة قليل، ما كابدناش. وانت تختار جواب من هذه الجوابات
التي تحس يناسب الشيء اللي تعشو، نبهك بلي ما كانش جواب صحيح وجـواب

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(11) - الخلصّة قليلة بزاف، لأنّ قارنتها بالخدمة اللي تخدمها وليتي
اللي عندك ............................ ( )
(12) - الخلصّة ما زادتش بالإمداد اللي كنت تتنهاها تزيد ( )
(13) - الخلصّة انتاعك مليحة على الخلصة انتاع أصحابك
، جيرانك، واللي من ذاتي انتاعك اللي يخدمو في
لوزيات ( يعكس الوزن ) ................................. ( )
(14) - بالخلصّة وليتم تقدر تفظل ( توقّر ) شوي في رأس الشهر
( يعكس الوزن ) ................................. ( )
(15) - الخلصّة في هاد لوزين ما تشجع انسان اللي خدام
( بالزاف ) ................................. ( )
(16) - الخلصّة ما تكفيشي واحد بشي في هاد المدينة .. ( )
( يعكس الوزن ) ................................. ( )
( يعكس الوزن ) ................................. ( )
(18) - تشرف روحك درك عاش مني اللي كنت في العامين اللي
فتوا ( يعكس الوزن ) ................................. ( )
(19) - الخلسة انتظاره طابعة على الخلسة انتظار الناس التي تعرفهم

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<td>21</td>
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(20) - كائن لزمن اللي عندي الحق فيهم أوما مذو علميش...

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(21) - مرات الخلسة انتظار تظليل (يعكس الوزن) ...

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(22) - الخلسة انتظاري في هاذ لوزين نشجعتي على الخدمة...

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الترقية

درك راج نسبيك على حاجة إخري اللي هي الترقية يعني الطлуوب في الخدمة...

كيفا قيل، تقولي الجواب المذكور في السوءات اللي راج أقراعهم على كوك وش كائن محيح، كائن الكثرة، كائن مرات، كائن قليل، ما كان في كل الجوابيات (والشي ي.IMAGE) ليتهمي يزايد هاد ينادي بين الشي اللي تعيش فيه جواب...

علي هاذ واللي ما ينادي يقول كاين مقاط وجواب صحيح لخطر كل واحد...

يجاوب على حساب التجاوز والشي اللي يعيش في لوزين...

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(23) - تحس روحك قعت كما كنت وقت طويل بلا ما طلعتي في الخدمة...

(24) - الخدمة اللي راك تخدمها مارا بحش يكون فيها سناج، واحد ما يتعلم حاجه جديدة فيها...

(25) - واحد بانش يطلع في هاذ لوزين بيكون انسان خدام والأخلاق...

(26) - انتخاب맞حية (يعكس الوزن)
كل خدمة عندنا مشاكلها وميزاتها، الخدمة انتهاك بلا شك تخليل تجربة وتشويش حواجز برفق، رايو اذكرو حواجز اللي يمكن تخل الناس يقلقو ويزعمون...(30) تقدم بالازلف ولا رايو تحاد طولة في الخدمة هاد لحواج

الشيئان ما يديروه عليها كيتطلع وحاد...

لبلايس اللي يحتاو، اللي الين مندك الحق فيهم...

ما تسعى عليهم غير من بعد ما بيدهم لوخدين اخرين...

بطاقة رقم (1)

(32) في خدمتك، كل واحد من الخدمة معايير يراكو هدای...

(33) كل واحد من الشفاه بأمرك تحلب رضي خلاف على الشيء اللي يأمرك

(34) تحس، برجوك محصور بين زوج ريان مفصول، رايو انتهاع العمال

اللي معال في الخدمة ورايو انتهاع الشفاه انتهاك...

(35) الأسر انتهاع الخدمة اللي يبيكوا من الشفاه ومن الفوق متكاملة

(36) يعني حاجة تكل الحاجة اخرى (يعكس الوزن)

(37) الخطرة انتهاع الأسر والربيان إستئاج الشفاه اللي طبقها ما توقف

(38) عليها ( ما تتلبس رايك)

(39) الربيان والأسر المختلفين اللي يبيكوا من الشفاه ونن العمالي

(40) تقدر طبقها بلا مشكل (يعكس الوزن)
(38) - يعطوك أواصي والخدمة بلا ما يملوك المربي الكافي

44

(39) - في خدمتك تشوف روحك لكان يضايق ناس ناس آخر ين.

45

(40) - لحراي والخدمة اللي يأمري انها في خدمتك تشوقها تنساب

46

(41) - يعني تناسب مع الشيء اللي تُخف فيه ( يعكس الوزن)

47

( يعكس الوزن) ...

48

( يعكس الوزن) ...

49

(42) - بالر ياهل اديرو في الخدماة انتاءك، ورائي

50

(43) - قليل بين يحلوك تعرف الخدماة انتاءك واش راه ماشي ملأ ولا

51

(44) - ماتعرف الشيء اللي مطلوب منك اديرو في الخدماة وعلاه مطلوب

52

( ملك اديرو .....

53
(45) ـ القوانين اتخاذ الخدمة ، والأوامر التي تجيز ملقوك يوضعوها لكم

(46) ـ يفسروهاكم ( يعكس الوزن ) 

(47) ـ نازع حوايظ يصاروا في هذا لوزين أو ما تجيزوك وضعتها فوق 

(48) ـ وأحد ما يفهم فيها والو ، كيخمن كيفاه طلوع في الخدمة 

(49) ـ راهما تنمذ في هاذ لوزين ....

(50) ـ واعر بالزاف واحد باش يفهم المقصود اتخاذ القوانين والأوامر 

(51) ـ اللري كابينة في لوزين ....

(52) ـ ليستوهمك إيميز في خدمتك ( يعكس الوزن ) 

(53) ـ الكثير الشيفان يخبروك بالشي اللي كاين واللي يصر فـ

(54) ـ لوزينـن ( يعكس الوزن ) ....

(55) ـ لا تقدرش تعرف الشيء اللي الخدامة معاك يستناو منك إدبروه 

(56) ـ في خدمتكم ....

(57) ـ ما تقدرش تعرف الشفاـف انتهاءك لليقيـي ، بزاف ناس شيفان 

(58) ـ عليك ....

(59) ـ يخبروك قليل يزاف علي الحوايظ اللي لأزم تعرفهم على 

(60) ـ الخدمة انتاك ....
الفلق

درك روح وحاجة أخرى، راح تذكر سؤال على واسع، يحس الواحد كييميش مشاكل في خدمته، كل سؤال الذي يذكر الشيء الذي يمكن تحسو في الخدمة

كِسَّكن صعوبات ومشاكل في أشهر الحلي فانو وكل سؤال خمس جوابات الجواب

الشيء الذي يحس ببيته.

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بطاقة رقم (1)

(1) - كاين حاوي لزاف في الخدمة. اللي شغلين للك بالي....
(2) - تحس روح وحاجة لت сфере مشاكل الخدمة....
(3) - كييميش غير مشاكل متغير مع الاخر في الخدمة تتفاقم....
(4) - المشاكل واجب الخدمة تظهر على رقده الليل....
(5) - تحس بروحك حتى حاجة ما تقلع في الخدمة. (يعكس الوزن)...
(6) - تشرب لناي القوة، ولا تكونها أكثر من العادة....
(7) - وليت ما تشعرش امير بالك في الخدمة. (بالك ولا مشتات)....
(8) - ما تحقّك، حياتك مضمونة في هاد الوزن....
(9) - في طريقك للهاؤبين تخاف من حاجة تفرّك نهار هذا كفي الخدمة....
(10) - مشاكل الخدمة ما تأثرش عليك. (يعكس الوزن)....
(11) - تحس راير تثرتّ من قوة المشاكل واجب الخدمة....
(12) - تبيتني تكون سعيد (حاجة ما تقلع) كما الناس اخرين اللذي....
(13) - تحس بروحك ما تقدرش تواجه مشاكل الخدمة. أوم ماتقرش تشغّي....
الاختبار

كما من قبل رابح أجر بعض الاستمالة اللي تذكر اللي يمكن واحد يحس بـ
في الخدمة من كثرة المعويات والمشاكل، وانت تختار من بين خمس جواباً لت
الجواب اللي بيبين اللي تحس بيه في الخدمة في أشهر اللي فيـ.

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1. ( 1 ) - تحس بر وحك حزين وقانـط .................................
2. ( 0 ) - تحس باللعب غير هاكدك ، بلا ما تعرف عاش ............
3. ( 0 ) - قطع الابض في المستقبل انشاعك ..........................
4. ( 0 ) - تحس بروحك كالمه حتى حاجة ما تزفعك بالخف (بعكس الوزن) .......
5. ( 0 ) - تحس روحك قادر على تغيير مثاب طلب عليك الراحة ........
6. ( 0 ) - تحس روحك ما يفاقنس الفر بياش تزفع بالخف في خدمتك ........
7. ( 0 ) - تحس ولي تغيب وتزفع بالخف على اللي كنت في الخدمة ...
8. ( 0 ) - بعكس الوزن) .................................................. ( 0 )
9. ( 0 ) - يعـ. مازال تغي لحواجج اللي كنت تعنيك في الخدمة ........
10. ( 0 ) - يعـ. مازال تغي لحواجج اللي كنت تعنيك في الخدمة ........
11. ( 0 ) - يعـ. مازال تغي لحواجج اللي كنت تعنيك في الخدمة ........
12. ( 0 ) - يعـ. مازال تغي لحواجج اللي كنت تعنيك في الخدمة ........
الرضي ال مهم

العامل اللي يخدم في لوزين لمدة يولي يحب ويرفض على حوا يرجح
في الخدمة، أو ما يحب و ما راضي يشجع على حوا يرجح أخرين في
الخدمة، على كل حال راجح تستضيعه على شحال انت راضي
(ولا ما راضي)، ولا واق تعجبك (ولا ما تعجبك) كل حاجي
في الخدمة اللي مذكورة في السوال، أدنى باش ما تخصك طيب
في كل سوال وتجاوب شوي وبالخف.

الوزان

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بطاقة رقم (2)

(1) - شحال تعجبك العلاقات ادعت الخدامة مع بعضهم بعض
15 (كيفا تدير مع بعضهم بعض) (بتناسب بها)

(2) - شحال تعجبك الطريق التي يتعامل بها (بتناسب بها)
16 (الشاف ادعت الخدامة التي تحت)

(3) - شحال راضي على شكر اللي يشكور والتشجع اللي
17 (يشجعك كنتخدم خدمة مليحة) (بتناسب بها)
18

(4) - شحال راشي بالخدمة الديلقي

(5) - شحال عاجيك : ( الطرقية ) اللذي راه لوزي

19

(6) - شحال انت راضي على لبلاس اللذي تخدم فيها

من داحية الحما، البرد، الوضوء والعـ

سيكر تي، النظافة الخ

20

(7) - شحال تغيي الخدمة انذاعي اللذي راك تخدمه في هاذ

الوزي

21

(8) - شحال انت راشي على المشاركه انتاعك ( المناقشة مع دبلق) 

عد رايك ليشفان ) باش تقري المشاكل انتاع خدمتك

22

(9) - شحال راشي على ستاجات التدريب ، الشي اللي تعلمتو

فـي خدمتك

23

(10) - شحال انت راشي على المطلع اللذي طلعـت

واللذي راج تطلع في الخدـمة

24

(11) - شحال انيت راشي على الشي اللي يخروك بـ

والطريقه اللي يخروك بيه على الخوايج اللذي تهم

خدمتك

25

(12) - شحال انت راضي بالخلصة ولبريم اللذي يعيتويـم

لك على الخدمة انتاعك

26

(13) - لكان خمت في الشي اللي يعبيك واللذي ما يعبيك فـي

لوزين هذا لـ شحال يعني تشو روحك راضي على الخدـمة

انتاعك كلها

27
الاعراض النفسية الجسدية

رابح اذكرك بعض المشاكل انتعا الصحة اللي الخاملة يشكي منها ودقيقة
شحال من مرة ضعفيت في العام هذا اللي فات، ياتري مضايقتك دايمة، الكورة
مرات، قليل، ولا حتى مسيرة.

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<tr>
<th>الأوزان</th>
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بطاقة رقم (2)

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<tr>
<td>30</td>
<td>1 - تحس بالوجه والسُنگر انتعا الراس .............</td>
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<tr>
<td>31</td>
<td>2 - ما تلبين، عليك الماكلة .......................</td>
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<tr>
<td>32</td>
<td>3 - تحس لستوتي توجعك وتقلب الماكلة ..........</td>
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<td>33</td>
<td>4 - تنشود تعبان (مُدقق) كيتحض من الراق في الصاع ...</td>
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<td>5 - تحس القلب انعطاك يضرب (يدق) بالخف (يخيط بالزاف) ...</td>
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<td>35</td>
<td>6 - تحس روحك ما يجيب الراقد، أوكى ترقد ما ترقدش مليح ........</td>
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<td>7 - تحس بسر في قواييمك قاع .........................</td>
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<td>37</td>
<td>8 - تحس روحك فشلات وتعبان قاع ..................</td>
</tr>
<tr>
<td>38</td>
<td>9 - تجيب الدخات ........................................</td>
</tr>
<tr>
<td>39</td>
<td>10 - تحس بالاك (عقلك) تعبان ما نقدر لا نختم ولا نرد بالاك</td>
</tr>
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</table>

في حاجة
التخليص بين الأسرة والعمل

راحت أثر عليك سوائلة على الحياة انتعاك في العائلة وفي الخدمة، وأننتوالي
شحال من مرة عش الحواري اللالي مذكرين في كل سوائلة، واجد، دايما
الكثيرة، مرات، قليل، ولا حتى مرة.

| الأوزان المعكوسة | الأوزان العادية | فئات الأوزان
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(1) الخدمة تخليك لك الوقت الكافي الذي تقعد فيه مع أولادك (يعكس الوزن)...
(2) كتربع لدار تصب روحك تنعاج (من الخدمة) ومنا تقدر يا تقعد...
(3) ما تبني وديناء تيدم سعادة زيدا وهم يبيطلب منك باشا تدعهم...
(4) ما تقدر تجرب في الدار بسبب الحومة (الكارثي، الجيران، الليلي)...
(5) تسكين فيها...
(6) السكنة الليلي عندك متحلقات بالزاف...
(7) كننا في الخدمة الحوائج انتعاك الدار وللولد انتعاك (سعود للمتروجين)...
(8) ولا انتعاك والديك انتعاك خواتننا (سعود للعازف) يشغيل بالك بالزاف...
(9) الخدمة تخليك تنسي المشاكل انتعاك عائلتك (يعكس الوزن)...
(10) كننا في الدار بين أولادك (للمتروجين) ولا بين والديك خواتننا...
(11) العزازب تنسي المشاكل انتعاك الخدمة (يعكس الوزن)...
(12) الخدمة انتعاك ليكب طلقننا في حياتنا عائلتك...
(13) نحن درايس ما حسبك حتى مشكل في الدار (يعكس الوزن)...
(14) عائلتنا نتجosi على كننا انتعاك مشاكل في الخدمة...
(15) نحن روحك موعي في سكنك (مرجع من ناحيتها) (يعكس الوزن)...
(16)


### دفاتر العلاقة الشخصية

كائن حواشي اخرين نحب نسقك علىها ، خص في علاقتك مع الخدمة معا ، مع الديلقي ومع الشينان ، كيفاش دير معاهم ، كيفاش دير معاك العام هذا اللي فات ، وجاوب على السؤالات اللي راجح نقراهم عليك ، نفكر باللي الجوابات انتفاك ما يطلق عليهم حتى وانه ، واتنسى باش تجاويني بمراحة ، كل حاجة تبقى بيني وبينك .

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</table>
المشتركة

مازال باقي شؤويني انتقائي السؤالات، تقدر تقولي شحال من مرة مسحل لخواص اللي مذكورين
في السؤالات اللي راني اقراهم عليك، ذكرك بلي الشيء اللي تقوله بيي خدمنتك
وعلا هذا الشيء اتمني تجاوني براحة

<table>
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البطاقة رقم (2)

(1) ـ تتلكل مع الديليقي في المشاكل انتباع وانتباع الخدمة .......
(2) ـ المشاكل اللي يناقشها الديليقي بعيدة يراها على المشاكل انتباع
(3) ـ الكثيرة انتباع المشاكل مايبروها اديلقي (تبقى له)
(4) ـ الديليقي يشتروك في مشاكل الخدمة اللي تعيشها
(5) ـ كيتكون منك مشاكل في خدمة ما تغيش تكلم الديليقي عليها
(6) ـ الديليقي يعكس الديليقي الخدمة (سمى) الخدمة انتباع...
(7) ـ الديليقي يعكس الخدمة
(8) ـ ماتقدرش تائر على الشاف (تخليه) ييدل رايي الوبي اللي ماتوقظم على
(9) ـ تحس رجوك تقدر تبديل خواص في الخدمة والكلمة انتباع مسومة
(10) ـ تقدر تبين للشاف انتباع رايي في مشاكل الخدمة
(11) ـ ما جبروكش بخواص اللي يديسيوهم الفوق على خدمتك ....
 vănونج A للنظام السلوكي

والآن أبغـي تخلص في روحك، مثـي برك في العمل، حتى بر من الخدمة ويعني في الحياة انتابك انتباث كل يوم كـيفاش يعني تشتت، تتكلم، تأكل، على كل حال كل
إنسان ذي خلاف على انسان آخر، بالمثل: واحد يمكن يشف الحركات انتاب
المواطن، مشي الكلام، ثقيلة. واحد آخر يمكن يشف الحركات انتاب هذي خفيفة مش
عبيب واحد يكون ثقيل، ولايكون خفيف في الحركات انتابو، رابح أعر عليك حواج
اللي الناس يمكن دههم في حياتها وانت تقولي واش هذا الحواج ينطبقوا عليك (اديرهم)
صحيح ولا ماينطبقوش ( مايرهمش)، يعني باش تجاوبني بلا ما تخلص براف فـ
السئؤال.

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<th><strong>الإجابة مطلوبة</strong></th>
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<td><strong>نعم، كاينة صحيح</strong></td>
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<td><strong>لا، مشي كاينة</strong></td>
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1. من عادتك توصل رونتر كيكون عندك موعد (كما كان الموعد) (ب) ................................. (ب)
2. من عادتك تقاطع واحد في الكلام وتختلي بيرب في الكلام (ب) ................................. (ب)
3. من عادتك خيف في حركاتك (في ماشينك، ماكلتك، كلامك الغ) (ب) ................................. (ب)
4. من عادتك تقلق وتضطرب كخـمك تقارع (صاحبك، البيض، طبيب، الشرح في المارشي، الخ) (ب) ................................. (ب)
5. من عادتك ادير زوج حواج ولا أكثر مع بعض في وقت واحـ (ب) ................................. (ب)
6. تشف النظريات وانت دير حاجة أخرى، تأكل وتنكلم وهكذا (ب) ................................. (ب)
   - من عادتك كيكون مشي مليمح (رعان، قلقان، ونكدًا) ................................. (ب)
   - على الخف بلي ماراكس في نهرك (تعابر، تضرب، تزحف) ................................. (ب)
   - على اخرين، نقص حواج (ب) ................................. (ب)
(7) - من عادتك تخيم بزاف في الناس كي قاء يشوفوك ، النظرية انتاعهم عليك

(8) - من عادتك كنت تدير حاجة بر ، في الخدمة ، ولا في الدار إبهرها

(9) - من عادتك عندك الحاجة كيما جاءت جات ما تكسرش راسك معاها (A) 

(10) - من عادتك تكون في الوقت كيكون عند موعد (متواجد) مع الناس (A)...

(11) - من عادتك تقبل في حركتك (في ماشيتك، ماكلتك، كلامك وهكذا)

(12) - من عادتك ما عندك صالحة كي خشك تقارع (بيس، محببتك)

(13) - من عادتك ما عندك صالحة في الشيء اللي يقولو الناس عليك كييفي

(14) - من عادتك كي دير حاجة في بالك تبقى عاقبها حتى توصلها

(15) - تشوف فرحك سيبريو أكثر من القلازم: حاجة صغيرة طلعت فيها وتهبط (A)
مرأة أخرى، أبلغت رأيك في شيء حاسمة. الليل واحد يخيم فيههم في الدنيا. نذكرك بلي ما كتاب جواب مثبط وجواب مثبط. بالي، بالمشال لكان شوفنا هذا السؤال: واش ظنُ بلي اطفال الشي اللذي يشاد في صغره. يومه كبي. كأين ناس اللذي يقولوا أواء يوصل، وكأين ناس اللذي يقولوا لا ما يوصل. لنا واس نقدروا نقولوا بلي جمعة اللولا اللقيت واه هي مديحة الجماعة التي قالت را هي الخاطئة من دك تقولوا بلي ما كانش جواب مثبط وجواب مثبط صحيح، مكانش جواب نقاس، جواب كامل، جواب مثبط وجواب مثبط صحيح، لخطار الناس مثبط كيف كيف، وكل واحد كيلاح يخسوم ويشوف للكنيا اللذي يعيشها رابح تقولك سوالات واحن تجاوبني بواه موافق ولا مفي موافق على الحاجة اللذي ذكرته في السؤال.

البطاقة رقم (3)

قدوات الآجوبة

المكتوب

(1) - كأين ناس بزيدوا مكتوب عليهن ينحوو، وكأين كيبر ينحوو

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ينغيبنود، يع هددوا ولما خدموش ( تحكم خارجي) .

(2) - واحد لكان شهو الحوا يبدأو مثبط في صباح، نهار هذاك رابح يكمل مثبط ( تحكم خارجي) .

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لكن ما تقدرش (تحكم خارجي) ...................( )

(4) المشاكل اللي تكون عندك أنت سبابها وتجي نشأش من قلت ازهـر
(تحكم داخلي) ...................( )

(5) الشيء اللي يتنام الطفل في الصغر، يوصـل كـي كـير (تحكم داخلي) ( )

(6) الإنسان اللي ينجح في حياته عـنـدـازهر ، والناس اللي ما نجوا

ازهرهم قليل (تحكم خارجي) ...................( )

(7) المشاكل احـتيـح عليـك بلا فوت انتخاع اخرين (تحكم خارجي) ...........

(8) لـلمـحالـة بـين وـاحـد وـالناس اخـرين، سـبابها أخـرين يـداو يكـونـو

مـلاح مـعـا هذا الوـاحـد (مشي بـسبب) (تحكم خارجي) ...........

(9) واحد اللي يخطـط (يشوف) بـعيد فـيزـن يفـسـح وقت ، مـثـا لـهـذا

الوقـت تـصر خواياخ تخلي وـاحـد يـبدـل لـبـلالات أنتـأوو...........

(10) واحد يقدر يخلي الناس (صاوي خابوو، وخدامه معـاء)

بيغوو ، ولا يكرهـو كـما يبيـغي هنمو (تحكم داخلي) ...............

(11) كـبيعـي ~ديـر حـاجة (تـقرر حاجـة) ما يهمكـش الناس

واش يخـمـو ولا واش يقولو فيها (تحكم داخلي) ...........
لا يُدْعَ عُيُودٍ لحوائج النبي ﷺ، انتقل لكيّدّ التغذية الناس يشفّوه ارواحهم (يجمو في روحهم) في الخدمة، لكل سوء تقول له تجاوبني واعش الذي الذي يذكرن السوء، كاين صحيح كاين الكثرة كاين مرات كاين قليل ما كايداش تذكر ما كاين بش جواب صحيح وجواب مشي صحيح، أعنى باش تجاوب بلا ما تحم يِزراف في السواء:

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<th>الأوران العادية</th>
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<td>ما كاين عصبية</td>
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البطاقة رقم (3)

(1) - تشوف روحك بلي كل حاجة بنجي اديراها، اديرة ملحي...........
(2) - تشوف روحك تتهيب وتهذب كتتكلم في جماعة ( يبعد الوزن)...........
(3) - كاين بالنزف حواشي ولا طايب فيك ما يعجبوكش، تنتين تبدله لو كان تقدر ( يبعد الوزن)...........
(4) - كتتكلم مع ناس متعرقهم تحس روحك مرتاح مشي حشمان...........
(5) - كتتكلم في جماعة تحس روحك تتكلم ملحي...........
(6) - الناس كتشكر، تحس بلي يشكرو بالذي اللذي مافيشك ( يبعد الوزن)
(7) - تحس بلي الناس ما يبغوش بتمشوا معاك ( يكون معاك)
(8) - كتphinx في حياته، تخدم ورحوك انسان ناجح...........
(9) - تشوف روحك كل حاجة بنجي اديراها ماتقدرش اديربها ملحي كيمـا
(10) - يبرم ( يبعد الوزن)...........
استراتيجيات التكثيف

تقرر مشاكل انتقال خدمة، مشاكل انتقالك ومشاكل علاقتك بالعمال اللي تخدم معاهم، كل واحد على كل حال، يعيش المشاكل اخسري بها يفكر فيها ويحلها بالطريقة انتقالك أو ما كان حتى تجيب واحد يخدم في مشاكلك بشي كيما يجعل القناعة فيها، ويجب يحل مشاكل بالطريقة اللي يشوفها صالحة، أطلب منسك تؤولي شحال من مرة خمت ولا درت الشي (لحوالك) اللي مذكورين في السواء اليات كن تكون عندك مشاكل وصعوبات وتضاوض عاصرة في الخدمه.

الوزان

الإجواب

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(8) - ولئن يعجبوك براف ادبر حواجز اللعب من الخدمة تجاه
التليفزيون، تبُريكك في الدار تتعلق مع الناس اللي تعرفهم.

(9) - تُرِدَّ ازدافك انتفا الخدمة على الناس اخرين ولا على حواجز اخرين.

(10) - تبكي لشبىك (تحدي) مشاكك لشيقاتك.

(11) - ولئن شبىك لوكان تبقى في حموم طارق، والديك، حبتك،

وصحبتك.

(12) - ولئن تملي براف.

(13) - تقول لروحك من بعد ما تعود، وتفاقم الحالة، كم falta من بعد.

(14) - تفكر روحك أنيك اللي تقدر ادبرو، والشي اللي ما تقدرش ادبرو.

(15) - تخم باش ما تروحش للخدمة عدوة من نهار هذاك انشاع.

المشاكل.

(16) - تخم في روحك، ليقوت اللعب فيك اللعب خلاك اطيع في
المشاكل.

(17) - كتنكن عندك مشاك مع أخرين تجاه الخدمة تنفع اللعب شيوي برضيتك.

(18) - تولي تخدم بالراح.

(19) - كتنكون عندك مشاك تدني بالمشكل لكبير تفرغه وتروح للمتوسط.

(20) - ما تقدرش تخلي مشاك الخدمة في لوزن، نقباو شغلينك في

الدار.
22 - تخلي المشاكل كيما راهـاً................. ( )
23 - تتيقن بيني الـعـمـال عارفين بيلي راك دابر مجهودك........ ( )
24 - تذكري الله، وتخنف في الدين مزايف كن تكون في مشاكل........ ( )
25 - تبني وتكتم في الشي اللي تحس به وتخايل اللي ضاربتك........ ( )
26 - ولتي ما تدبيش في مشاكل كل يوم................. ( )
27 - تبقى تتنفك ناس اخرين كيفاً دارو كيماً عندهم المشاكل

اـشاعك

28 - بيـكلي ( تتناقش) المشاكل مع الناس اللي داخلين فيها........ ( )
29 - تتكتم بمرحباً ( برثـماً) مع الشاف على الشي اللي شافه بالك... ( )
30 - تقرا ولا تسمع براف القرآن ، الا حداثة ، والخطـب الدينية..... ( )
31 - وليت تحوـس تستعلم مليج الخدمة اشاعك................. ( )
32 - تقابل الناس اللي عندك مشاكل معاهمـم...................... ( )
33 - تصب روحك بلي كل مشكل قادي يفر كيماً لأزم الحال

34 - في إعـبـات من بعد الخدمة ، وفي أيام الراحة اللي عندك، تتيغي

اديركل حاجة تنسيك مشاكل الخدمة.............................. ( )
35 - ادور شرـي ( نشرب دورة) بين ما تتكلم وترجع لخدمتك........ ( )
Le Directeur de l'Unité Verre Oran,

Atteste que /)° TICHEZZA N'HAMED

Né (e) le: 12.11.1951 à AHFIR

A effectué (e) un stage: Pratique

portant sur le thèmes Stress professionnel et stratégies
d'adaptation et de gestion.

Cette présente attestation lui est délivrée pour servir
et valoir ce que de droit.

P/LE DIRECTEUR

Avenue des Martyrs de la Révolution - ES-SENIA (ORAN)

Tél.: 36-20-45 à 49  B.P. 33 Es-Senia  Télex : 22.485  R. C. 83 B 000006 Oran
Je vous prie de bien vouloir permettre à Monsieur TICHEZZA M. HAMED, enseignant à l'Institut des sciences sociales, département de psychologie, de effectuer des travaux de recherche dans votre établissement, et ce dans les cadres de sa recherche en vue de la réalisation d'une étude sur le terrain portant sur Stress professionnel et stratégies d'adaptation et de gestion.

et qui visa un objectif exclusivement universitaire convaincons que cette démarche bénéficiera de votre bienveillance, je vous prie Monsieur d'agréer l'expression de nos sentiments les meilleurs.