The Study of Burnout as a Function of the Effort-Reward Model and Social Support Among Doctors in Pakistan

by
Shagufta Aziz

Submitted In Partial Fulfillment of the Requirements for the Degree of Master of Philosophy (M.Phil.) in Occupational & Organizational Psychology

Department of Psychology
School of Human Sciences
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APPROVED BY

SUPERVISOR

INTERNAL EXAMINER

EXTERNAL EXAMINER
ACKNOWLEDGEMENTS

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DEDICATION

This thesis is dedicated to my loving husband Murtaza and my sweet kids Sana and Shazeb, who shared every moment of my dream, come true
ABSTRACT

The main purpose of this study was to investigate the role of the extrinsic component of the Effort-Reward Imbalance Model (ERI_Siegrist, 1996), i.e., high effort and low reward in burnout, among the doctors in Pakistan. The study also examined the effect of effort-reward imbalance on psychosomatic health complaints and general physical health. Moreover, the study investigated: (a) the main effects of social support on burnout, and (b) the potential moderating effect of three sources of social support (supervisor, co-workers, and family) on the relationship between effort-reward imbalance and burnout.

The study sample comprised of 250 doctors (104 females and 146 males) working in different hospitals of Pakistan. The mean age of the participants was 34.18 years. About sixty percent of the doctors had done their medicine degree (MBBS), whereas, 40.4 percent of the doctors had also specialized (Fellowship_FRCS). On average, doctors worked for nine and a half hours (range=8 to 15 hours) per day. The mean tenure of their jobs was 6.11 years ranging from 2 to 12 years.
Data were collected by questionnaires comprising of the Effort Scale, the Reward Scale, the Social Support Scales, the Psychosomatic Health Scale, the Physical Health Scale, and the MBI-GS Scale. All scales were found very reliable for the present sample with Cronbach’s alphas ranging from .83 to .91.

The general assumption of the study was that doctors who experience effort-reward imbalance and lack social support are likely to report burnout, psychosomatic health complaints, and poor status of physical health. The findings of the study showed that high effort and low reward had significant positive correlation with burnout dimensions (exhaustion, cynicism, and reduced professional efficacy), high psychosomatic health complaints, and poor physical health. Moreover, social support from supervisor, co-workers, and family had significant negative correlations with burnout dimensions, as was hypothesized.

The step-wise hierarchical regression analyses indicated that interaction of high effort and low reward significantly predicted exhaustion and cynicism, whereas the results for professional efficacy, psychosomatic health complaints, and poor physical health were not
found significant. The hierarchical regression analyses regarding the social support indicated that the significant interaction terms were supervisor support x reward for low cynicism and co-worker support x reward for high professional efficacy. A three-way interaction term of family support x effort x reward was found significant for exhaustion and cynicism. Thus, the result supported the hypothesis that family support moderated the relationship between effort-reward imbalance i.e., high effort and low reward and two burnout dimensions i.e., exhaustion and cynicism.

Overall, the findings of the present study lend partial support to the robustness of the ERI model and the hypotheses of the study, among Pakistani doctors. The results are discussed in terms of organizational interventions.
# TABLE OF CONTENTS

- **APPROVAL**: II
- **ACKNOWLEDGEMENTS**: III
- **DEDICATION**: VI
- **ABSTRACT**: VII
- **LIST OF TABLES**: XII
- **TABLE OF FIGURES**: XIV

## INTRODUCTION

1. **LITERATURE REVIEW**

   - Definition of Burnout: 11
   - Correlates of Burnout: 18
   - The Theoretical Models of Burnout: 22
     - Individual Approaches: 23
     - Organizational Approaches: 26
     - Interpersonal Approaches: 33

   - Effort-Reward Imbalance Model of Burnout: 42

   - Review of Pakistani Studies on Burnout and Job Stress: 54

   - Social Support: 60

   - Burnout and Psychosocial Aspect of Doctor’s Work: 69

   - Hypotheses of the Study: 75

## METHOD

- Sample: 81

## Measures

- Demographic Variables: 82
- Burnout: 83
- Psychosomatic Health Complaints: 87
- Physical Health: 87
- Social Support: 88
- Effort-Reward Imbalance Model Variables: 89
Procedure ................................................. 92
Data Analysis ............................................. 93
RESULTS ................................................................ 96
DISCUSSION ................................................................ 125
Effort-Reward Imbalance and Strain indicators: .... 126
Prediction of Burnout from Social Support Variables:.. 132
CONCLUSION ................................................................ 136
REFERENCES ..................................................... 141
# LIST OF TABLES

Table 1: Distribution of Demographic Variables (N=250). 82

Table 2: Principle Component Analysis of MBI-GS scale with Varimax Rotation ........................... 86

Table 3. Descriptive Statistics of the Key Variables of the Study .............................................. 96

Table 4: Mean Differences on Psychosocial Variables between High and Low Risk (Based on Effort-Reward Ratio_ERI) Groups .............................................. 98

Table 5: Correlations between Burnout Dimensions and the Key Variables of the Study ..................... 101

Table 6: Regression on Exhaustion of Effort and Reward ............................................................... 104

Table 7: Regression on Cynicism of Effort and Reward ................................................................. 105

Table 8: Regression on Professional Efficacy of Effort and Reward ............................................... 106

Table 9: Regression on Psychosomatic Health Complaints of Effort and Reward ............................. 107

Table 10: Regression on Physical Health of Effort and Reward ....................................................... 108

Table 11: Regression on Exhaustion of Supervisor Social Support, Effort, and Reward ...................... 110

Table 12: Regression on Cynicism of Supervisor Social Support, Effort, and Reward ....................... 112
Table 13: Regression on Professional Efficacy of Supervisor Social Support, Effort, and Reward ..... 114
Table 14: Regression on Exhaustion of Co-worker Social Support, Effort, and Reward.......................116
Table 15: Regression on Cynicism of Co-worker Social Support, Effort, and Reward.......................118
Table 16: Regression on Professional Efficacy of Co-worker Support, Effort, and Reward..................120
Table 17: Regression on Exhaustion of Family Support, Effort, and Reward.................................122
Table 18: Regression on Cynicism of Family Support, Effort, and Reward................................. 124
TABLE OF FIGURES

Figure 1: Plot of Significant Interaction Between Effort and Reward in the Prediction of Exhaustion ..........104
Figure 2: Plot of Effect of Interaction of Supervisor Support and Reward on Cynicism ....................113
Figure 3: Plot of Close to Significant Effect of Interaction of Supervisor Support and Reward on Professional Efficacy .............................115
Figure 4: Plot of Close to Significant Effect of Interaction of Co-worker Support and Reward on Exhaustion ........................................117
Figure 5: Plot of Interaction Effect of Co-worker Support and Reward on Professional Efficacy ......121
INTRODUCTION

The recognition of the adverse effects of occupational stressors on all parties including employees, employers, and organizations was documented in the joint ILO/WHO Committee on Occupational Health in 1984. The report entitled *Psychosocial Factors at Work: Recognition and Control* was published as the first policy document for activities going on globally in this area (ILO, 1986, and later a major report on *Preventing Stress at Work* was published (ILO, 1992). Similarly, another report on *Work Related Stress* (European Commission, 1997) emphasized the need to reduce the ill effects of stress on mental and physical health.

On the basis of the series of consultation, very strong recommendations were made to conduct research on work stress and health, and to provide education and training on the relevant issues. Basically, these are the efforts made in the Western world to minimize the costs of adverse effects of work stress in terms of health and economy. Such endeavors culminated into a series of studies. The objective of the studies was to develop a “European Social Model” based on a self managed team comprising of a committed, trained, and multi-skilled
people. According to the report of the World Health Organization (WHO_2001), mental health problems and stress-related disorders are 'the biggest overall cause of premature death in Europe', underlining that such problems are 'common, cause human suffering and disability, increase the risk of social exclusion, increase mortality, and have negative implications for national economies' (c.f., Levi, 2001). This points to the urgent need to carry out research in order to design preventive measures, to promote healthy job set up, and to restructure the organizations.

On the other hand, the scenario in the developing countries is different, as there, efforts to ameliorate the work-related stress are barely noticeable. For example, in Pakistan there is a strong need to develop and implement a national research agenda to cater for the needs of the employees who, on the one hand, are facing the challenges of the modern technological development and on the other hand, are still working within the conservative and conventional work paradigms. Although there is a long list of topics and subjects that are identified by the WHO for research in Pakistan. But such research agenda is not followed as such (Farooq, 2003) because of the various reasons including limited
resources available for research and a lack of scientific and methodological rigour to carry out such research. A report on the development of mental health services (Goldberg, Mubbashar, & Mubbashar, 2000) has documented that in the most developing countries (and Pakistan is no exception to that) a low national priority is accorded to the planning and research on health, in general and mental health, in particular. However, a concern has been raised to consider the scale and scope of the health sector as an investment rather than an expense.

Moreover, it is considered important for the national need to produce competent health care workers including physicians, nurses, and paramedics (Bhutta, 2004), who are able to function in the global market. To enable the health care workers to do their jobs more efficiently it is required to examine work related factors contributing to their mental and physical health. Nevertheless, in the developed countries job stress has long been recognized as a significant factor contributing to the adverse health of the workers, but it has rarely been studied systematically as a factor affecting the employees’ well being in the developing countries (Jamal & Preena, 1998, Khuwaja, Qureshi, Andrades, Fatimi, Khuwaja, 2004). There is a dire need at the national and regional levels to
conduct research so that work-related stress and its outcomes in terms of physical and mental morbidity could be prevented or counteracted by job redesign. For example, by taking care of both over- and under-workload, by improving social support networks, and by providing reasonable rewards for the efforts invested by employees.

The research in the West has shown that work-related stress affects employee health whether general, mental or physical including psychosomatic health complaints (Godin & Kittel; Kahn & Byosiere, 1992; van Vegchel, De Jonge, Meijer, & Hamers, 2001). Moreover, previous research noted that the work stressors lead to organizational ill effects such as burnout, job dissatisfaction, high absenteeism, poor job performance, low organizational commitment, and high turnover (Baba, Jamal, & Tourigny; Bakker, Killmer, Siegrist, & Schaufeli, 2000; 1998; Westman & Eden, 1997). Though job stress and burnout has been a focus of a large number of empirical studies in the developed countries (Kivimäki, Head, Ferrie, Shipley, Vahtera, & Marmot, 2003; Kompier & Cooper, 1999; Niedhammar, Tek, Starke, & Siegrist, 2004; Peters & LeBlanc, 2001), only a few studies have been done in the developing countries (e.g., Haque & Sohail, 1997;
Khuwaja, Qureshi, Andrades, Fatimi, & Khuwaja, 2004; Niaz, Hassan, & Ali, 2003). Job stress and well being models are generally developed and tested in the developed countries. The validation of such models in the developing countries is very rare. In a way, the present study attempts to contribute to the international literature on job stress and burnout by examining effort-reward model among employees belonging to the developing country.

The adverse effects of psychosocial factors at work on one's well being has been widely recognized (Karasek & Theorell, 1990; Siegrist, 1996; Cooper, 1998). In addition to the undesirable psychological and physical health outcomes, it has been noticed that unhealthy work conditions can also lead to substantial financial costs for the organizations (Cooper & Cartwright, 1994; Maes, Verhoeven, Kittel, & Schotten, 1997; Paoli, 1997). It is therefore, not only desirable for the individual, but also for the organization, and the community to create better work environment by implementing healthier work conditions.

Given the importance of the role that work plays in the development of one's sense of identity and self worth, it
is not surprising that the study of work conditions and work related stressors have attracted attention of occupational health researchers even more than before. Generally, one’s occupation is not only considered a prerequisite of one’s economic livelihood but it is also important for one’s personal growth and development. Moreover, one’s work is also important for defining one’s core social role including participation in social networks which further enhances one’s sense of self worth (Siegrist, Starke, Chandola, Godin, Marmot, Niedhammar, & Peter, 2004).

In recent years, several important developments have changed the nature of work to a greater extent (Marmot, Siegrist, Theorell, & Feeney, 1999). In the current labor market, the socio-economic factors like economic recession and globalization, downsizing, and competitive work environment potentially produce stress for the worker. A large-scale survey of European workers (Paoli, 1997) showed that psychosocial workload has increased sharply between 1991 and 1996. Today for many employees in general, and employees in health care in particular, work incorporates more psychological and emotional demands than physical demands (DeJonge, Mulder, & Nijhuis, 1999). These increased demands, in turn may be
translated into the deleterious health related effects such as burnout, psychosomatic health complaints, absenteeism, and even disability (Schaufeli & Enzmann, 1998). Previous research has suggested that the relationship between job demands and ill health effects is particularly found in the health care sector (van der Giezen, 2000). For instance, high workload in the health care profession is not adequately compensated by occupational rewards such as salary and promotion prospects (Siegrist, 1999). One of the theoretical frameworks to understand the relationship between the work-related psychosocial demands and employees well-being is the Effort-Reward Imbalance Model (ERI_Siegrist, 1996). According to the ERI model efforts spent at work is part of a socially organized exchange process to which society at large contributes in terms of occupational rewards like money, esteem, and career opportunities. The lack of reciprocity between efforts (costs) and rewards (gains) may lead to strain reactions such as burnout, psychosomatic health complaints, poor physical health, and sickness absence (De Jonge, Bosma, Peter, & Siegrist, 2000; Peter & Siegrist, 1997). The present study was designed mainly to elucidate the role of extrinsic component of the ERI model i.e., high effort and low reward in prediction of burnout and other strain
reactions i.e., psychosomatic health complaints and physical health among doctors working in the Pakistani hospitals. Moreover, the study examined: (a) the main effects of social support on burnout, and (b) the potential moderating effect of three sources of social support (supervisor, co-workers, and family) on the relationship between effort-reward imbalance and burnout among the Pakistani doctors.

This study is first of its nature and departs from the previous work in several ways: (a) it explores the ERI model of burnout among Pakistani doctors, (b) in addition to the ERI, the role of social support from various sources have also been examined to predict the development of burnout, and (c) it contributes to the international research on the ERI model and burnout. Therefore, it is hoped that this study will provide new insights into the prevention and treatment of work related strain reactions like burnout among health care professionals in Pakistan.
LITERATURE REVIEW

Over the past three decades, burnout has become a catchword for different types of psychological and physical conditions associated with dissatisfaction, exhaustion, frustration, and anger directed out to one’s work in particular, or life, in general. The word is used as a verb, ‘I burned out or I am burning out’, as a noun or adjective, ‘I am experiencing burnout’ or ‘he/she is a burnout case’.

Although Bradley (1969) was the first to mention the term ‘staff burnout’ in the article based on a community based programme for juvenile delinquents run by probation officers. However, Herbert Freudenberger is regarded as the pioneer of the burnout syndrome. Freudenberger (1974) as an unpaid psychiatrist working in a New York free clinic for drug addicts described the burnout syndrome, which his colleagues, young and motivated volunteers, and he himself experienced during their work. He observed a gradual loss of energy, motivation, and commitment along with varying degrees of mental and physical symptoms. He then labelled this state of exhaustion as burnout, a term that was being used casually for the effects of chronic drug abuse. Freudenberger (1974) used the dictionary
definition of burnout to describe the phenomenon of burnout i.e., to fail, wear out, or become exhausted by making excessive demands on energy, strength or resources. According to Freudenberger (1974) the phenomenon of burnout can be observed in any person in the society. However, it becomes more noticeable in the workers in service sectors especially, the health care professionals as they face prolonged pressures of working with emotionally needy and demanding individuals (Kahill, 1988). Nevertheless, the service providers struggle in at least three fronts i.e., facing the ills of the society, attending to the needs of the individuals who seek help from them, and with their own personality needs.

Around the same period, a social psychologist Christina Maslach (1976) focussed on the state of emotional exhaustion and a gradual loss of motivation and how the human service providers cope with it. Maslach and her team adopted the term burnout as was being colloquially used by California Poverty Lawyers for the state of gradual depletion of energy, detached attitude from people at work and a lack of sense of accomplishment.

Generally, burnout is conceptualized as a process that can occur in any occupation in which people are
psychologically engaged in the job. Burnout, when it occurs, is characterized by chronic fatigue at work; attempts to distance oneself psychologically from one’s work; and deteriorations in individual’s subjective evaluation of his or her effectiveness or productivity at work (Leiter & Schaufeli, 1996; Maslach & Leiter, 1997).

**Definition of Burnout**

The manifestations of burnout include a general lack of energy, physical and cognitive symptoms of stress, negativism, emotional withdrawal, and a reduced sense of accomplishment or perceived professional efficacy. Moreover, it is widely agreed upon that burnout is an evolving phenomenon. The process of burnout incorporates an emphasis of dysphoric symptoms such as mental and emotional exhaustion, depressed mood and fatigue; and behavioural symptoms. Several authors have conceptualised burnout in terms of stages (e.g., Edelwich & Brodsky, 1980; Golembiewski, Munzenrider, Stevenson, 1986; Hallsten, 1993). Edelwich and Brodsky (1980) argued that organizational and work setting conditions lead to burnout. These conditions include too much work, too many hours, too little pay, not being appreciated by the clients, management, supervisor or colleagues, and bad office politics.
According to Edelwich and Brodsky (1980) burnout occurs as a result of four stages namely enthusiasm, stagnation, frustration, and apathy. The enthusiasm stage is characterised by an initial period of high hopes, high energy, and unrealistic expectations by the workers. The second stage of stagnation sets in once the realities of the job are realised. One strives to meet one’s own personal needs regarding money, working hours and career development. If these needs are not fulfilled then it leads to the third stage of frustration. During this stage workers begin to question their effectiveness to do a job as well as the values of a job. Emotional, physical, and behavioural problems occur, thus setting a stage for apathy. The stage of apathy occurs when a person is chronically frustrated on the job, yet needs the job to survive thus taking the form of progressive emotional detachment. The last stage of burnout has been explained as one of apathy, despair, and exhaustion. The term ‘severe burnout’ refers to the final phase in the process, when it has become intensely debilitating.

Initially, burnout was defined in terms of the symptoms. This approach, on the one hand created an exhaustive list of symptoms and, on the other hand it tended to overlook
the dynamic process of the burnout phenomenon. Later, these drawbacks were overcome by either defining burnout in terms of the most characteristic core symptoms called as state definitions, or by taking in account the dynamic nature of the process of the syndrome as described in the process definitions. Given the fact that state definitions incorporate the end state of the burnout process, one can argue that both of these definitions complement each other. Broadly, burnout has been described as a process "to deplete oneself; to exhaust one's physical and mental resources; to wear-out by excessively striving to reach some unrealistic expectations imposed by oneself or by the values of society" (Freudenberg & Richardson 1980, p.16).

State Definitions of Burnout: The state definitions describe burnout as a negative mental condition. These include the most frequently cited definition of burnout by Maslach and Jackson (1986) who conceptualized burnout as a multidimensional syndrome:

Burnout is a syndrome of emotional exhaustion, depersonalization, and reduced personal accomplishment that can occur among individuals who do 'people work' of some kind. (p.1)
Arguably, the reason for the widespread recognition of this definition could be that the most validated and universally used questionnaire the MBI, incorporates the three dimensions that are described in this definition (O’Driscoll & Coopers, 1996). Maslach model of burnout refers to emotional exhaustion as draining of one’s emotional resources, which may also lead to physical exhaustion and cognitive “wear out”.

The model characterizes the second component i.e. depersonalization as distancing oneself from the recipients of one’s services, or even co-workers. On the one hand this detachment may help to cope with the work related emotional arousal, but on the other hand can lead to the development of negative, callous, and cynical approach towards others at work (e.g. clients, co-workers) or even towards the work itself (Jackson, Schwab, & Schuler, 1986).

The third component of burnout is referred as a reduced sense of personal accomplishment. This is a tendency to appraise one’s performance negatively, thus leading to feelings of incompetence and lowered professional efficacy (Schaufeli, Leiter, Maslach, Jackson, 1996).
Later, Maslach and her colleagues generalized the definition and the measure of burnout (the MBI-General Survey) beyond human service occupations. This new perspective retains emotional exhaustion dimension, although it also takes into account the exhaustion factor beyond those related to people at work.

Cynicism substitutes the dimension of depersonalization, it refers to distant or detached attitude towards work in general, which may or (may not) include the people related to work. One’s distant attitude lowers one’s ability to develop a positive coping mechanism in solving work related problems as well as depletes the energy available for work performance. Cynicism is positively correlated with emotional exhaustion. The third dimension of personal accomplishment is substituted by a similar but broader construct of professional efficacy. This construct is characterized by both social and non-social aspects of professional accomplishment and is an explicit measure of an individual’s evaluation of effectiveness at work (Leiter & Schaufeli, 1996).

Process Definitions of Burnout: The burnout syndrome has been defined in terms of a dynamic process. Generally, these definitions specify burnout in terms of three stage
process i.e., as an increasing disillusionment, as psychological erosion, and finally as a process of burning out.

Cherniss (1980a, p.5) was among the first proponents of a process definition. According to him:

Burnout refers to a process in which the professional attitudes and behaviours change in negative ways in response to job strain.

As a three stage process, Cherniss (1980b, p.17) describes the burnout process as:

The first stage involves an imbalance between resources and demands (stress). The second stage is the immediate, short term emotional tension, fatigue and exhaustion (strain). The third stage consists of a number of changes in attitude and behaviour, such as a tendency to treat clients in a detached and mechanical fashion, or a general preoccupation with gratification of one’s own needs (defensive coping).

Burnout is also defined as psychological erosion which is caused by an imbalance between personal and environmental factors (Etzion, 1987). Etzion argues that burnout is a slow developing process that goes unnoticed to a certain time. This may lead to a sudden and an unexpected feeling of exhaustion.
Later, Maslach and Leiter (1997) have regarded burnout as 'the erosion of soul':

> It represents as erosion in values, dignity, spirit, and will an erosion of the human soul. It is a malady that spreads gradually and continuously over time, putting people into a downward spiral from which it is hard to recover. (p.17)

To conclude the state definitions vary in terms of scope, and dimensions of burnout but they share a few common elements. Firstly, emotional exhaustion is specified as the core of the burnout syndrome. Secondly, burnout is generally work-related. Thirdly, burnout generally develops in normal individuals who do not have any psychopathology and whose effectiveness and performance at work had remained adequate before. On the other hand, according to the process definitions, burnout process develops as an imbalance between individual's high expectations and ability to cope with the job related stressors. Burnout is a reaction to chronic or situational demands of the job, which progressively leads to the development of emotional exhaustion, followed by a negative job related attitude like detachment and a feeling of lowered professional effectiveness (Westman & Eden, 1997; Zohar, 1997).
According to Schaufeli and Enzmann (1998) the working definition of burnout incorporates the burnout symptoms as well as crucial elements of both state and process definition:

Burnout is a persistent, negative, work-related state of mind in 'normal' individuals that is primarily characterized by exhaustion, which is accompanied by distress, as sense of reduced effectiveness, decreased motivation, and the development of dysfunctional attitudes and behaviours at work. This psychological condition develops gradually but may remain unnoticed for a long time by the individual involved. It results from a misfit between intentions and reality in the job. Often burnout is self-perpetuating because of inadequate coping strategies that are associated with the syndrome (p.36).

Correlates of Burnout

Burnout has been found to correlate with different self-reported measures of personal dysfunctioning, including physical exhaustion, insomnia, increased use of alcohol and drugs, work place problems, and personal problems
like marital and family problems (Maslach & Jackson, 1986; Demerouti, Sabine, Bakker, & Euwema, 2004).

The role of burnout in deterioration of productivity has been documented in a variety of contexts and settings (Griva & Joekes, 2003; Kalimo, Pahkin, Mutanen, & Toppinen-Tanner, 2003; Kirk-Brown & Wallace, 2004). In such settings various sources of stress leading to burnout have been identified (Dreu, Van Dierendonck, Dijkstra, 2004; McManus, Winder, & Gordon, 2002; Noor, 2002; Rutter, Herzberg, & Paice, 2002; Taris, Van Horn, Schaufeli, & Schreurs, 2004). The key job demands related to burnout include workload, work pressure, role conflict, role ambiguity, and interpersonal conflict. The major outcomes in terms of behavior and attitude as identified in the previous research include job satisfaction, job involvement, organizational commitment, turnover intention, and psychosomatic health complaints (Dolan & Renaud, 1992, Godin & Kittel, 2004; Kahill, 1988; Lee & Ashforth, 1993, 1996; Janssen, Schaufeli, & Houkes, 1999; Joksimovic, Starke, van dem Knesebeck, & Siegrist, 2002).

Research on burnout has focused more closely on professions like health care, teaching, and social work.
Several researches have found a positive correlation of burnout to role ambiguity, role conflict, and indices of workload in professionals, such as social workers, correctional officers, personnel workers, nurses, and teachers (Himle & Jayaratne, 1990; Taris, van Horn, Schaufeli, & Schreurs, 2004; Schaufeli & Peeters, 2000; Van Veghel, De Jonge, Meijer, & Hamers, 2001).

As regards, other job characteristics there is some evidence for a positive, but weak, association of monotony, lack of feedback, lack of participation in decision making, lack of responsibility, poor opportunity for skill use and poor physical work conditions to burnout (Dolan & Renaud, 1992; Friedman, 1991; Leiter, 1993; O'Driscoll & Cooper, 1996; Richardsen, Burke, & Leiter, 1992).

Emotional exhaustion is regarded as the most important component of burnout (Maslach, 1982). It is directly affected by high levels of work demand (Shirom, 1989). For example, quantitative work overload, insufficient time and manpower at work to accomplish the job are important predictors of emotional exhaustion. The demands of interpersonal relationships might affect the levels of
emotional exhaustion, both qualitatively and quantitatively (Jackson, Schwab & Schuler, 1986). Any profession, which involves interpersonal interactions particularly, intense and emotionally charged is more vulnerable to burnout (Shirom, 1989). For example, human resource managers and health care professionals who encounter high levels of interpersonal interactions are more susceptible to burnout (Schaufeli & Enzmann, 1998).

Depersonalization is characterized as a response to different job factors or work environment that is perceived as bureaucratic and impersonal, and gives non-contingent punishment (Cordes & Dougherty, 1993; Jackson, et al., 1986). It is conceptualized as having a detached, and emotionally calloused behavior toward people such as clients, co-workers, subordinates, or professional and organizations.

If efforts of an individual are not acknowledged, does not give expected pay-off, and/or are ineffective, it leads to feelings of diminished personal accomplishment (Jackson, et al., 1986). Factors like low competence or performance, lack of performance-contingent incentives, and unmet organization expectations also contribute to decrease in accomplishment (Burke, Shearer, & Deszca,
Several studies suggest that the consequence of resource depletion include behavioral coping responses; lack of organizational commitment, turnover intentions; job involvement and job satisfaction (Burke & Richardson, 1993; Kahill, 1988).

In sum, various job and organizational characteristics including work load, lack of autonomy and variety, role conflict, role ambiguity, bureaucracy, insufficient resources, lack of social support, and lack of positive incentives have been found to lead to the development of burnout (Dignam, Barrera, & West, 1986; Keinan & Melamed, 1987; Pines & Aronson, 1988). Burnout is associated with negative outcomes for the individual and for the organization. The consequence of burnout can be deterioration in the quality of care or services provided by the professionals (Leiter & Maslach, 1988; Maslach, 1993).

The Theoretical Models of Burnout

Various conceptual models of burnout have been proposed (Schaufeli, Maslach, & Marek, 1993) based on individual, interpersonal, and organizational approaches. Theoretical approaches of burnout vary in their explanation of burnout. These approaches view burnout, as an emotional
overload (Maslach & Schaufeli, 1993), as a crisis in self-efficacy (Cherniss, 1980a), as a disturbed action pattern (Burisch, 1993), as a lack of social competence (Harrison, 1983), as a lack of reciprocity in interactions at the interpersonal and the organizational levels (Schaufeli, van Dierendonck & van Gorp, 1996), and as a lack of coping resources (Hobfoll & Freedy, 1993). Primarily, the proposed theories are based on a three-dimensional model of burnout, as was originally formulated by Maslach and her colleagues.

**Individual Approaches**

Individual approaches focus on the symptoms and process within the person. According to individual theoretical approach, the burnout develops when 'over committed' or 'super achiever' individuals try hard to live up to their idealized self-images. In doing so, they typically use inadequate coping strategies which, in turn lead to depletion of emotional resources. Burnout occurs because of a lack of appropriate coping resources and because of not achieving the expected rewards. Thus, a mismatch exists between intentions of the individual and reality of the work.
Pines, who developed a motivational approach to burnout (Pines & Aronson, 1988) explains the phenomenon as:

In order to burnout, one has first to be 'on fire'.
A person with no such initial motivation can experience stress, alienation, depression, an existential crises or fatigue, but not burnout.
(Pines, 1993, p.41)

According to Schaufeli and Enzmann (1998), a general theory of stress termed as Conservation of Resources (COR) is considered as an individual theoretical approach. The COR theory was applied to conceptualize burnout as a response to stressful work conditions (Hobfoll & Freedy, 1993; Hobfoll & Shirom, 1993; Shirom, 1989). It defines burnout as '... a process of wearing out and wearing down of a person's energy, or the combination of physical fatigue, emotional exhaustion and cognitive wear-out that develops gradually overtime' (Hobfoll & Shirom, 1993, p.50). This theory posits stress occur when resources are threatened (e.g., job security, role ambiguity, role conflict, work load), are lost (e.g., unemployment, interpersonal conflict), are inadequate (e.g. social support, autonomy); or one does not receive an expected pay-off for ones efforts (e.g., obstruction in promotion despite working hard, reward). According to
the COR theory, the loss of, rather than gain of resources is more likely to produce burnout. An attempt to regain resources or to prevent the loss of resources can be so emotionally exhausting that it leads to the depletion of emotional resources, resulting in burnout (Hobfoll & Freedy, 1993).

Job demands and lack of resources are potential sources of stress in the stress-strain-coping process (Lazarus & Folkman, 1984). Emotional exhaustion as a form of strain is directly influenced by these variables, whereas, a defensive coping response of depersonalization and a self-evaluative component of personal accomplishment are indirectly influenced through emotional exhaustion (Leiter & Maslach, 1988).

On the other hand, resources are perceived as means for overcoming the need for defensive coping i.e., depersonalization and that enhances one’s sense of professional efficacy. Important resources for individuals working in different organizations include (a) social support from supervisors, co-workers, and family, community bond, and team cohesion, (b) job enhancement opportunities such as having more control over work demands, participation in decision-making,
opportunity to work with autonomy, and (c) reinforcement contingencies based on a reward system that recognizes effort and skill (Lee & Ashforth, 1996).

Organizational Approaches

Organizational approaches focus on negative work-related factors that affect the individual as well as the organization. This approach is more descriptive in nature. Several researchers (Cox, Kuk, & Leiter, 1993; Cherniss, 1995; Büssing & Glaser, 1999) noted that generally different aspects of organizational behaviour or organizational health are important determinants of burnout.

Cherniss (1980a) presented a reality shock model of burnout suggesting that individuals whose ideals and expectations clash with the organizational reality lose their sense of mission and tend to withdraw psychologically from their recipients and from their work. Cherniss conducted research among novice professionals in the fields of teaching, law, nursing, mental health and public health. The sources of stress at work are especially typical for the novice professionals and these include doubts about one's competence,
difficult recipients, bureaucracy, lack of autonomy, and lack of collegiality. If these sources of stress are dealt with adequately by active problem solving, then a positive feedback loop is formed that may lead to the enhancement of professional self-efficacy. However, if stressors are not dealt with adequately because of the negative attitude towards work then a negative feedback loop emerge that may lead to burnout. Several cross-sectional studies have supported the propositions of the model (e.g., Burke & Greenglass, 1989).

Originally, Leiter and Maslach (1988) proposed a three dimensional model of burnout which was later modified by Leiter (1991, 1993) based upon structural equation modelling. Leiter and Maslach argued that emotional exhaustion develops first in the sequence leading to depersonalization and then to a reduced sense of personal accomplishment. Conversely, individuals who frequently face problems that require expression of emotions may suffer from emotional fatigue if the frequency of problems is not reduced. This in turn leads them to a feeling that they have not much to give, thus resulting in a feeling of emptiness. In order to cope with the feeling of emptiness, individuals may become psychologically distanced to reduce the demands on their
emotional energies. Individuals depersonalize their relationships by becoming callous, cynical, or detached from the situation and the individuals with whom they interact, which provide them a type of emotional buffer. Subsequently, they develop a reduced feeling of diminished personal accomplishment as they spend less time and energy in their jobs. However, in the modified version of the model, Leiter (1993) argued that reduced personal accomplishment develop in parallel with the emotional exhaustion rather than resulting from depersonalization.

Another organizational approach proposed by Golembiewski and Munzenrider (1988) view burnout as a virulent process that develops progressively in eight phases. Golembiewski and colleagues adopted the Maslach's three dimensional model of burnout, but they argue that the burnout grows from depersonalization to sense of reduced personal accomplishment, and from decrease in personal accomplishment to emotional exhaustion (Golembiewski, Boudreau, Munzenrider, & Lou, 1996; Golembiewski & Munzenrider, 1988). Although detachment is quite common, and perhaps a prerequisite for effective performance in some professions, particularly related to health, it leads to depersonalization if it exceeds beyond a certain
point. Subsequently, it interferes with performance, thus influencing one’s sense of accomplishment. The reduced sense of personal accomplishments if becomes chronic, will culminate in emotional exhaustion.

Acute burnout may occur because of a sudden stress resulting from personal trauma. Whereas, chronic onset may result from work related or non-work related factors. However, research addressing the causal order of the three dimensions of burnout is yet not much conclusive. Although, the proposition of progressive phases of burnout as explained by both models was supported by findings of a few studies (e.g., Golembiewski & Munzenrider, 1988; Golembiewski, Boudreau, Munzenrider, & Luo, 1996), yet there is a need of a longitudinal design, to examine the inter-temporal sequence of the components (Golembiewski, Munzenrider, & Stevenson 1986; Lee & Ashforth, 1993; Leiter & Maslach, 1988).

In a similar vein, using causal modelling, Leiter (1991) found that emotional exhaustion and depersonalization are related, but personal accomplishment is a mutually exclusive factor. In a later study (Bakker, Schaufeli, Sixma, Bosveld, & Van Dierendonck, 2000) among general practitioners, findings supported the Leiter and Maslach
model across a time span of five years. In their study among human service professionals, Van Dierendonck, Schaufeli, and Buunk (2001) suggested a model contrary to that of the Leiter and Maslach model (1988) and Golembiewski, et al. model (1996). They found that a sense of diminished personal accomplishment leads to depersonalization, which in turn is followed by emotional exhaustion.

Another study (Van Dierendonck, Schaufeli, & Buunk, 2001), which examined the causal relationships using the secondary data among the three burnout dimensions showed that the Leiter and Maslach (1988) model fits better to the data than the Golembiewski et al., (1986) model. However, they found that the fit of an alternative model (Van Dierendonck et al., 2001) which proposed that personal accomplishment synchronously lead to depersonalization which in turn influence emotional exhaustion, is superior. These findings suggest that the early detection of a burnout process should focus on changed attitudes towards one’s own competence (reduced personal accomplishment) and towards recipients (depersonalization) before exhaustion sets in and burnout develops with full intensity. One could argue that the difference found in causal relationships may be due to
the fact that burnout process works differently in the short-term period, like one year or less and the long-term period, like five years (Van Dierendonck et al., 2001).

Alternative models of burnout based on the moderate to high correlations between emotional exhaustion and depersonalization, were proposed (Koeske & Koeske, 1989; Wolpin, Burke, & Greenglass, 1991). For example, a two-factor model based on emotional exhaustion / depersonalization and personal accomplishment has been recovered (Dignam, Barrera & West, 1986). In response to another proposal that burnout is a unitary concept (Meier, 1984), it was argued that a one-factor model of burnout leads to a loss of information, since the robustness and complexity of the phenomenon is represented by the differential patterns of correlations among its components and other variables (Maslach & Jackson, 1984; Maslach, 1993).

In their latest version of the model, Maslach and Leiter (1997) have described burnout as a mismatch between person and job. They argue that burnout is located at one end of the continuum opposite to engagement along with
its three dimensions namely energy, involvement, and efficacy.

Maslach and Leiter (1997) have expanded their interpersonal approach to include non-human service professionals, as well. They suggest that burnout can occur in any occupational field resulting from a chronic imbalance between the demands of the job and what employees need to cope with these demands as well as what they get in return. They have redefined three dimensions of burnout in a more general way: (a) exhaustion is extended to include the physical exhaustion besides the emotional aspect; (b) cynicism is described as an indifferent and distant attitude towards one’s work in an effort to cope with the exhaustive demands; and (c) professional self-efficacy refers to a sense of loss of confidence in one’s ability to perform adequately at work and encompasses both the social and non-social aspects of occupational accomplishment. When workplace conditions do not support one’s professional goals, exhaustion and cynicism increase while one’s sense of professional efficacy decreases (Maslach & Goldberg, 1998; Maslach & Leiter, 1997). The 16-item instrument MBI-GS (Maslach Burnout Inventory-General Survey, Schaufeli, et al., 1996) is designed to cover these three dimensions of the
burnout. This measure has been used to measure the burnout in both the human and non-human service professions.

Additionally, Maslach and Leiter (1997) identified six types of mismatches between person and job as potential precursors of burnout i.e., work overload, lack of control, lack of reward, lack of community, lack of fairness, and value conflict.

To conclude, the organizational approaches have identified several organizational factors such as quantitative and qualitative job demands, lack of control, lack of rewards, a mismatch between personal and organizational values, and lack of social support as significant sources of burnout. Moreover, it is noted that burnout has a negative effect not only on individuals but also the organization’s well being.

**Interpersonal Approaches**

*Interpersonal approaches* emphasize on the demanding interpersonal relationships with others at work. The interpersonal theories assume that demands arising from the interpersonal relationship between professional caregivers and recipients lead to a depletion of the
emotional resources of the caregivers. Moreover, the lack of positive feedback in the organizational context reduces one’s social competence (Harrison, 1983) and professional efficacy (Cherniss, 1993). Hence, a negative feedback loop of failure to work harmoniously with others at work, to cope with social and political factors within the organization results in poor motivation and eventually may lead to burnout.

In a similar vein, Maslach (1993) who has presented a three dimensional model of burnout argues that the dimension of emotional exhaustion is regarded as the stress component, whereas, the dimension of depersonalization represents the interpersonal relations component, and the dimension of reduced personal accomplishment is a self-evaluative component.

According to Maslach (1993) burnout is assumed to be an individual stress experience that originates in the context of interpersonal relationship at work and it involves the person’s attitude towards other and the self:

- Emotional exhaustion refers to feeling of being emotionally overextended and drained by one’s
contacts with other people (Maslach & Jackson, 1984, p.134).

The three factors sequential model of burnout (Maslach, 1982) delineates that to cope with the qualitative demands (e.g. interpersonal conflict) and quantitative job demands (e.g. workload) as well as to perform efficiently, professionals may adopt detached and distant attitude towards recipients. Because of the dysfunctional nature of this coping strategy, further deterioration occurs in the relationships with recipients thus gradually leading to a diminished feeling of personal accomplishment.

Various studies have reported that work related demands (such as, work overload, interpersonal conflict, work pressure) are more strongly related to emotional exhaustion than the other two dimensions. Whereas, lack of resources (such as, lack of social support, lack of autonomy and control) are more strongly linked to depersonalization and diminished personal accomplishment than emotional exhaustion (Lee & Ashforth, 1993; Cordes, Dougherty, & Blum, 1997).
Buunk & Schaufeli (1993) formulated a burnout model based on social exchange theory. They referred the burnout process in terms of a lack of reciprocity from 'recipients' to the 'caregivers'. They noted (1998) that reciprocity is a building block establishing social relationships and is significant for the individual's psychological well-being. Studies among different professional like general practitioners (Van Dierendonck, Schaufeli, & Sixma, 1994; Bakker, Schaufeli, Sixma, Bosveld, & Van Dierendonck, 2000), general hospital nurses (Schaufeli & Janczur, 1994) and critical care nurses (Schaufeli & LeBlanc, 1997) reported a positive relationship between lack of reciprocity at the interpersonal level and three dimensions of burnout.

Later, Schaufeli, Van Dierendonck and Van Gorp (1996) proposed a dual-level social exchange model of burnout. In this model, they incorporated the lack of reciprocity at both the interpersonal and the organizational level. The organizational conditions like lack of control, lack of skill enhancement opportunity, pay inequity, lack of social support lead to negative outcomes, and are precursors of burnout.
Another theoretical model, the Effort-Reward Imbalance model (ERI_Siegrist, 1996) added to the validity of the dual exchange model. This model proposed that greater the imbalance between the effort put in the job and the rewards received in return, greater are the chances of developing burnout (Bakker, Killmer, Siegrist & Schaufeli, 2000). Since the present research is designed within the framework of the ERI model, therefore, we have described this model in more detail in the following section.

The models that specifically focus on the workplace factors related adverse physical and psychological health include the job demand-control model (JDC_Karasek, 1979, Karasek & Theorell, 1990) and the effort-reward imbalance model (Siegrist, 1996). These models "have been particularly successful" (Tsutsumi, Ishitake, Peter, Siegrist, & Matoba, 2001a, p. 86). Johnson and Hall (1988) extended the model to include the social support factor namely, the Job Demand Control-Support model(JDC_S). Conversely, this model (Karasek & Theorell, 1990; Karasek, Brisson, Kawakami, Houtman, Bongers, & Amick, 1998) takes into account the role of social support at work in addition to the combined effects of high demand and low control at the workplace as a
potential predictor of high state of job strain with subsequent risk of psychological (e.g., job dissatisfaction, anxiety, depression) and physical (e.g., cardiovascular illness, diabetes, musculoskeletal disorders) morbidity (Kristensen, 1995; Tsutsumi et al. 2001a). Such adverse consequences have been theorised to be reduced by social support from different sources i.e., supervisor and co-workers. The high risk of adverse health outcomes and illness such as cardiovascular diseases (Schnall, Belki, Landsbergis, & Baker, 2000) is expected in workers in a situation of high demand, low control and low social support at work (Theorell & Karasek, 1996).

However, a few of the studies have noted that Karasek’s operationalization of job demands which is based on quantitative demands does not comprehensively justify the complexities of the medical profession. Therefore, attempts (Peeters & Le Blanc, 2001; DeJonge, Mulder, & Nijhuis, 1999) have been made to adopt a multifaceted concept of job demands. For instance, DeJonge, et al. (1999) emphasized the need “to broaden the perspective on job demands in order to capture the complexity of the health care work” (p. 1158). In their study on health care professionals, they incorporated psychological,
physical, and emotional demands to broaden the concept of job demands. They argued that different types of demands interact with job autonomy to predict various aspects of health.

In a similar vein, another study (Peeters & Le Blanc, 2001) based on 816 oncology workers, also distinguished between job demands on three different levels i.e., intrapersonal such as quantitative job demands, interpersonal demands such as emotional demands and organizational demands such as dealing with organizational changes. They also incorporated different sources of social support (colleagues, supervisor, and family) to examine the moderating role of different sources of support in the relationship between job demands and burnout. They found a partial support for the relevance of incorporating different job demands. For example, they found significant main effects of quantitative demands on emotional exhaustion and depersonalization and of organizational demands on emotional exhaustion. However, no significant effect of emotional demands was found on any of the burnout dimensions, a finding similar to an earlier study by De Jonge, et al. (1999). Whereas, the findings of other research (Söderfeldt, Söderfeldt, Muntaner, O’Campo,
Warg, & Ohlson, 1996) indicated that adding emotional demands improved the interpretation of job demands and these were significantly related to worker’s health.

As regards the Job Demand Control model and its extensions, different results have been reported. In a review (Van der Doef & Maes, 1999) of JDC (Karasek & Theorell, 1990) and its expanded version, the JDCS (Johnson, 1989), two hypotheses were reported: (a) the (iso) strain hypothesis which takes into account the high job demands and low job control (low social support) to predict the ill health and (b) the buffer hypothesis which states that job control (and social support) can buffer the potential negative effects of high job demand on physical health. The strain hypothesis was found to be more prevalent in diseases including cardiovascular diseases and musculoskeletal symptoms. Whereas, the buffer hypothesis has gained more support in studies on outcomes like psychosomatic complaints. While a considerable number of studies have found support for the strain hypothesis, evidence for the buffering role of control and social support is not so consistent.

One of the main reasons for different results could be the different way of operationalizing the concepts of job
demands and job controls. However, when conceptualization of job control was matched with the specific job demands, it was found to moderate the relationship between demands and well-being (Van der Doef & Maes, 1999). Therefore, the critiques of the model have argued that job control and social support measures should match the job demands in order to play a moderating role (Cutrona & Russell, 1990; Peeters & Le Blanc, 2001; Wall, Jackson, Mullarkey & Parker, 1996). Moreover, this model has been criticized to be too simplistic (Parkes, Mendham, Von Rabenau, 1994) as the interpretation of the model could be much enhanced by incorporation of other job demands and job control aspects. For example, the explication of the emotional demands, which are highly relevant for the human service professionals, can further enhance the interpretation of the model.

A cross-cultural perspective on the JDCS model based on 12 participating European countries reflects that job demands, job control, and social support from different sources are not comparable in different cultures and countries (Kawakami, Haratani, & Araki, 1992; Kushnir & Melamed, 1991). It was argued (Griva & Joekes, 2003) that economic as well as cultural factors contribute to the varying results regarding the quality of work.
characteristics, job demands, job control, and overall working life, among clusters of European countries.

Effort-Reward Imbalance Model: Theoretical Basis for the Present Study

The nature of the health care services has changed drastically since the early 1990s. One of the most significant changes is an increase in the workload (De Jonge, Vlerick, Büssing, & Schaufeli, 2001). The nature of health care work requires a lot of qualitative and quantitative efforts (Marmot, Siegrist, Theorell, & Feeney, 1999). Although medical professionals deal with high workload in their jobs but they don’t receive the corresponding levels of compensation in terms of occupational rewards such as salary, promotion prospects, and appreciation from patients (Siegrist, 1999). Consequently, this imbalance in efforts and rewards (high cost and low gain) leads to adverse health such as burnout, psychosomatic health complaints, increased cardiovascular diseases, musculoskeletal disorders, and absenteeism due to sickness (Peter, Geißler, & Siegrist, 1998; Schaufeli & Enzmann, 1998; Stansfeld, Bosma, Hemingway, & Marmot, 1998).
To gain insight into the specific relationship between work characteristics and worker's health, a theoretical framework of Effort-Reward-Imbalance Model (ERI-Siegrist, 1996, 1998) was formulated, which also served as a base for the design of the present research. According to the ERI model, work plays a crucial role in fulfilling self regulatory needs such as, self efficacy in terms of good performance, self esteem in terms of recognition, and self integration in terms of being a part of a significant group. The ERI model posits that effort at work is spent as part of a socially organized exchange process (i.e., reciprocity) to which society at large provide occupational rewards in terms of money, esteem, and career opportunities such as job security. However, if imbalance exists between high efforts and low rewards the self regulatory needs are threatened.

The imbalance caused by the reciprocity deficit between "cost" and "gain" is defined as a state of emotional distress that can lead to the arousal of the autonomic nervous system, which in turn activates two stress axes i.e., the sympathetic adreno-modullar and the pituitary-adrenal-cortical system. The prolonged activation of autonomic nervous system has been linked to physical and mental strain reactions including cardiovascular disease,
musculoskeletal disorder, psychosomatic complaints, sickness absence, and burnout (e.g., Bosma, Peter, Siegrist & Marmot, 1998; Calnan, Wainwright, & Almond, 2000). For example, a situation of having a demanding job (e.g., high workload) and achieving at high level without receiving much reward in terms of pay, promotion, or appreciation represents a stressful imbalance. This imbalance may lead to strain reactions. However, the model assumes that besides this imbalance, employees continue their jobs due to: (a) restricted mobility i.e., having a little choice in terms of alternative job, (b) strategic reasons i.e., by doing so their chances of career promotion or rewards improve, and (c) personal pattern of coping i.e., employees characterized by overcommitment tend to exaggerate their efforts and underestimate their rewards (Siegrist, 1998; Siegrist, Starke, Chandola, Godin, Marmot, Niedhammer, & Peter, 2004).

The ERI model differentiates between extrinsic (situational) and intrinsic (personal) components. The model assumes that experienced stress is more comprehensively estimated by the high extrinsic effort and low (extrinsic) reward in combination with a high level of overcommitment. More specifically, extrinsic
component is comprised of effort (such as workload) and the three dimension of reward i.e., money, esteem and career opportunities. The intrinsic component is based on the personality characteristic termed as overcommitment. This is referred to as a pattern of excessive striving with a need of being approved and esteemed. Conceptually, overcommitment is related with the Type A behaviour pattern and negative affectivity. A 'need for control' results in overcommitment and immersion in the job, which may lead to the perception of low rewards. More specifically, overcommitted workers tend to exaggerate their efforts and underestimate their rewards. The research suggest that excessive efforts result from perceptual distortion (e.g. underestimation of challenges and overestimation of one's coping resources), which may be triggered by an underlying motivation to experience esteem and approval (Siegrist, 1996, 1998). The model assumes that highly committed workers tend to respond to the effort-reward imbalance with more strain reactions as compared to the less committed workers.

The ERI model conceptualises the extrinsic effort as the demand component in the DCS model. Whereas, the intrinsic component of the model represents a major point of difference from the DCS model, as the DCS model does not
focus on the individual variables like over commitment. Although there is an overlap between extrinsic effort of the ERI model and the demand concept of the DCS model, yet these models are different in their focus. While the DCS model has focus on the organizational factors, the ERI model incorporates individual components. However, there is evidence that both of these models supplement each other. For instance, a study (Bosma, Peter, Siegrist, & Marmot, 1998) on British civil servants suggested that both decision latitude and effort-reward imbalance independently predict the development of cardiovascular disease.

Earlier, the key components of the ERI model were studied based on the contextual information like administrative data and evaluative information gathered through interviews and questionnaires. However, subsequently, a questionnaire named as ERI Questionnaire (ERI-Q; Siegrist & Peter, 1997) was used predominantly to test the ERI model. The effort scale comprises of six items measuring aspects of workload in terms of physical load, time pressure, responsibility, and working overtime. Reward scale consists of 11 items and is a composite measure based on a three-factor structure i.e., money, esteem, and security/career opportunities. The recent version of
the over commitment contains six items mainly measuring the inability to withdraw from work, with one item measuring irritability (Siegrist, Starke, Chandola, Godin, Marmot, Niedhammer, & Peter, 2004). Whereas, initial version of the overcommitment scale was operationalised as need for control based on factors of vigor and immersion.

Despite a few changes in the operationalisation, the core components of the ERI model remained the same i.e., effort, reward, and overcommitment. Original ERI model (Siegrist, 1996) considers overcommitment as a part of effort. The overcommitted workers tend to underestimate the job demands and challenges and overestimate their own capability. Consequently, they are likely to invest (too) many efforts. Therefore, the efforts spent at work depend on both extrinsic (i.e., demands and obligation of the job) and intrinsic (i.e., overcommitment) efforts. Based on this, the ERI model posits that an imbalance between high extrinsic or intrinsic efforts and low reward may lead to adverse health.

In the later version of the ERI model (Siegrist, 1999) overcommitment is considered as an independent concept. It is presumed to effect the perception of both effort
and reward and thus, effect the workers health indirectly. Moreover, besides the indirect effect, overcommitment has direct effect on employees' health, as being involved all the time in work leads to exhaustion. Based on this consideration, following premises are formulated (Siegrist, 2002): (i) the extrinsic ERI hypothesis—an imbalance between (high) extrinsic effort and low reward increases the risk of poor health, over and above the risks linked with both components; (ii) the intrinsic overcommitment (OVC) hypothesis—a high level of overcommitment that possibly result in too many efforts but not receiving congruent rewards may also increase the risk of poor health (even if extrinsic ERI is not present); (iii) the interaction hypothesis (i.e., ERI x OVC)—interaction of extrinsic component of the ERI and overcommitment may lead to the risk of poor health.

Studies based on the ERI model vary in their design and operationalization of the concept. Although the complete test of the ERI model incorporates all three factors i.e., effort, reward, and overcommitment, however, some studies test only the extrinsic component of the model. A few studies incorporate the concept of overcommitment into the concept of effort while other studies differ in the use of labels for the core concepts. The previous
definition of the model included both extrinsic and intrinsic effort, whereas, the later formulation of the ERI index included only the extrinsic dimension i.e., effort and reward. In the present study also, we have focused on the extrinsic dimension of the model.

Methodological issues related to the ERI studies suggested the need to conduct longitudinal studies in order to understand the causal explanation of the effort-reward imbalance and health outcomes. Moreover, the self report measures lead to the problems like common method variance (Spector, 1992) or biased responses due to negative affectivity (Burke, Brief, & George, 1993). However, several studies have shown these factors are not a major problem (e.g., Bosma, Peter, Siegrist, & Marmot, 1998; Stansfeld, Head, & Marmot, 2000; van Vegchel, deJonge, Meijer, & Hamers, 2001).

With exception of epidemiologic studies such as the Whiteall II study (Kuper, Singh-Manoux, Siegrist, Marmot, 2002; Stansfeld et al., 2000) most of the ERI studies are based on small sample size and specific occupational groups, thus restricting the external validity of the findings. Nevertheless, expected relationships between effort-reward imbalance and health outcomes have been
found in the small but representative samples (e.g., Kivimäki, Leino-Arjas; Luukkonen; Riihimäki, Vahtera, & Kirjonen, 2002; Peter, Siegrist, Hallqvist, Reuterwall, Theorell, 2002; Pikhart, et. al., 2001). A number of studies examined the interaction and co-manifestation of the high effort and low reward or the ratio effort/reward. The findings suggested that the imbalance between high effort and low reward lead to poor health over and above the effects of any single factor (Kivimäki, et al., 2002; Kuper, et al., 2002; Stansfeld et al., 2000; van Vegchel, De Jonge, Bosma, Peter, & Siegrist, 2000).

In sum, the ERI model has been applied and validated over a wide range of occupations with different socio-demographic backgrounds. Besides its applicability in the European region, where this model was formulated, it has been cross-culturally validated in America, Japan, and China (Siegrist, et al., 2004). However, this model has not been studied in the Asian regions like Pakistan. Therefore, in the present study we examined the applicability of the ERI model in the context of the developing country i.e., Pakistan.
Regarding the synergistic effect of the ERI model with the JDC-S model, both models complement each other. Primarily, the DCS model deals with the affect content of the work that can be changed by means of organizational redesign. The ERI model deals with the balance between effort and reward factors within the job situation. Empirical evidence suggests that besides a few similarities (like effort and demand aspects of ERI and DCS models) the two models identify different aspects of occupational stress and are independently linked to different health effects (Bosma, et al., 1998; Tsutsumi, Kayaba, Theorell, & Siegrist, 2001b). However, when the combined effect of two models is examined the predictive power of the health outcomes increase as compared to the use of just one model (e.g., Calnan, et al., 2000; Ostry, Kelly, Demers, Mustard, & Hertzman, 2003).

Initially the ERI model was applied for the study of cardiovascular outcomes, but later on, it was also used to investigate the psychological and behavioural outcomes. For example, a pioneering work by Appels (Appels, Siegrist, & de Vos, 1997; Appels & Schouten, 1991) found a link of high effort and low reward with psychological outcome like exhaustion, which in turn may lead to acute myocardial infarction (AMI). The ERI model
was also reportedly found to predict psychological well-being such as strong negative emotions which are related to impaired well being (cf., Gaillard & Wientjes, 1994).

The empirical evidence of the ERI Model, have supported the link between combination of high effort, and low reward at work with adverse health effects like physical health, psychosomatic complaints, and burnout (for review see Bakker, Killmar, Siegrist, & Schaufeli, 2000; De Jonge, Bosma, Peter, & Siegrist, 2000; Niedhammer, Tek, Starke, & Siegrist, 2004; Peter, et al. 1998; Siegrist, et al. 2004; Tsutsumi, et al. 2001b; van Vegchel, De Jonge, Meijer, & Hamers, 2001). The research has found a link between effort-reward imbalance and burnout. A study based on 204 German female nurses (Bakker, et al., 2000) reported burnout (emotional exhaustion and personal accomplishment) as an outcome of the ERI. Similar results were reported regarding the link between emotional exhaustion and the ERI in a study on 167 Dutch ancillary health workers (van Vegchel et al., 2001).

Arguably, the work life is embedded within the social context that is both the psychological environment at work as well as conditions outside work such as social support from family and friends. Therefore, we also need
to examine the role of social support in development of health related problems. According to the organizational support theory (Eisenberger, Huntington, Hutchinson, & Sowa, 1986), perceived organizational support comprises of procedural fairness, supervisor, and co-worker support, and organizational rewards like pay, promoting job security. The perception of organizational support is in turn related to the favourable outcomes like job satisfaction, positive mood, better performance, low rate of absence. And lower incidence of burnout and psychological complaints (Rhoades & Eisenberger, 2002; Elovinio, Kivimaki, Vahtera, 2002; Kivimaki, et al., 2003). Based on the reciprocity norm (Eisenberger et al., 1980), perception of organizational support increases the affective organizational commitment. This in turn fulfils the workers need for esteem and approval and enhances a feeling of personal worth which may improve their general well being (Stinglhamber & Vandenberghhe, 2003). Besides the work related support, family support also has effect on the job related and psychological outcomes. For example, when the work demands increase and employees have to put in more effort to cope with high workload and long working hours, conflict with the family could arise. On the other hand, employees with caring and supportive
family could possibly invest more efforts and time in their jobs.

The ERI studies on the health care professionals are rather scarce (Bakker et al. 2000; DeJonge, Vlerick, Büsing & Schaufeli, 2001) and to the best of our knowledge there has been no study on the ERI model in Pakistan. Given the importance of explanatory power (Calnan, et al., 2000; Marmot et al., 1999) of the work characteristics of high effort and low reward in the medical profession, the present study was designed to study this model among Pakistani doctors. The present study adds to the international work on the ERI model by examining: (a) the relationship of effort-reward imbalance and strain reactions like burnout, psychosomatic health, and general physical health among medical professionals in the Pakistani context, (b) the interactive role of social support and effort-reward imbalance in the prediction of burnout.

Review of Pakistani Studies on Burnout and Job Stress

Overall, very few studies have been conducted in Pakistan to examine the role of stressor and social support in the job stress and burnout. A review of the empirical research is presented here.
A cross-cultural study (Jamal, 1999a) examined the relationship of job stress and Type A behaviour with employees' well-being among Canadian and Pakistani professors. The average age of Pakistani and Canadian college teachers was 38 years and 42 years, respectively. Employee well-being was operationalized in terms of overall burnout, satisfaction with pay, work, co-workers, supervision, promotion opportunities, and turnover intentions. The result showed that burnout moderately correlated with job satisfaction in terms of work, supervision, and turnover intention, in the Canadian sample. In the Pakistani sample, burnout moderately correlated with satisfaction with pay, work, co-workers, and supervision, and turnover intention. Overall, the findings indicated that job stress and Type-A behaviour were significantly related with burnout, turnover intention, and satisfaction with pay, and nature of work in both countries. The researcher (Jamal, 1999a) concluded that the findings of the study indicated more similarities than differences among Canadian and Pakistani professors and were in line with other relevant studies. Moreover, he emphasized the need to test Western models in the Asian context.
Another study (Jamal, 1999b) based on the same data as in the previously mentioned study (Jamal 1999a) examined a relationship of job stress with overall burnout and its three dimensions (emotional exhaustion, depersonalization, and professional accomplishment), intrinsic motivation, job involvement, and turnover intentions. The results indicated that job stress was significantly correlated with overall burnout and its three dimensions and intrinsic motivation and turnover intentions, in Pakistani and Canadian professors. However, regarding the differences between both samples, overall burnout and emotional exhaustion were more strongly correlated with job stress in the Canadian sample than in the Pakistani sample. This could be because of the more budget cuts and downsizing in the educational sector of Canada than that of Pakistan or because of its paternalistic nature of culture, Pakistani teachers could cope with stress in a better way (Jamal, 1999b).

A study (Haque & Sohail, 1997) based on rather a small sample size, investigated the relationship between homework stress, burnout, and social support from intra- (supervisor, co-workers, and administration) and extra- (family, and friends) organizational sources. The sample
of the study comprised of 74 female nurses, who were approached individually by the researcher. The average age of the nurses was 33 years and they worked in a public hospital. The findings indicated that married nurses perceived significantly more home-work stress and burnout than their non-married counterparts. The results further suggested a significant role of supervisor and co-worker support in the prediction of burnout. However, the family and friend social support was not found significant in the stress-burnout relationship. In a similar vein, this study was extended to include 69 female doctors (Haque & Khan, 2001) for comparison of nurses and doctors on the variables of home-work stress, burnout, and social support. The results suggested significant differences between nurses and doctors on the dimensions of depersonalization and personal accomplishment. Moreover, the organizational sources of support were reported to moderate the relationship between home-work stress and burnout predominantly in nurses.

Another recent study (Niaz, Hassan, & Ali, 2003) conducted on 150 female physicians (family physicians, specialists and house officers) examined the relationship of job stress with perception of mental and physical
health and job satisfaction. The age range of the sample was 25 to 37 years with the job experience of 2 to 11 years. The results indicated that mental stress including feeling of mental fatigue and tiredness was higher among house officers as compared to family physicians and specialists. Overall, physical health was found to be good, but level of mental stress reported by the sample was moderate to high. More stressed physicians took more time-off than their less stressed counterparts. Moreover, the stressed physicians started taking the antidepressants, and smoking, and reportedly were less likely to enjoy their practice.

In a similar vein, Khuwaja, Qureshi, Andrades, Fatimi, and Khuwaja (2004) conducted a study on 182 doctors (106 males and 76 females) around the age of 35 years, working in tertiary care teaching hospitals including both public and private sector. They examined job stress and job satisfaction among male and female doctors. The results showed that nearly half of the sample (48%) rated job stress from high to very high level on a five point Likert type scale. The findings suggested that majority of the doctors were not satisfied with their jobs and overall had low level of satisfaction for workplace characteristics such as workload, pay and benefits,
physical working conditions, adequate resources, autonomy, and relations with colleagues and others at work.

In addition, the findings of the study indicated that the job stress had a bad effect on the mental health of the fifty three per cent of the total sample (79% of female and 57% of male doctors); on the physical health of the forty five per cent of the doctors; and on family life of the sixty six per cent of the total sample. Despite, the limitations of the study regarding the measures employed, the sampling method, and the descriptive level of analyses, this study provides some insight into the work related stress and its effect on the doctors' well-being. The authors (Khuwaja, et al., 2004) have noted the fact that there is no published research on the level of job satisfaction, job stress, and well-being among doctors in Pakistan. They have stressed the need to examine the factors contributing to the job stress of doctors in order to design the preventive strategies.

All studies reported here were based on the cross-sectional data. These studies had several methodological limitations. For example, a few of the studies were based on small sample size, some did not report any information
about the validity or reliability of the measures used, some were based on just the female samples, some used a very basic level of analyses (i.e., just the descriptive statistic). Overall, a few number of studies were found to have examined the relationship between job stress, social support, and burnout. Yet, none of these studies have explored the factorial structure of the burnout measure in the Pakistani context. Moreover, to the best of my knowledge there has not been any study done to examine the role of Effort-Reward Imbalance Model in prediction of burnout among professionals especially the doctors.

Social Support

Social support from significant others plays a significant role in coping with stressful life events, and it can “reduce or eliminate the adverse consequences of these events upon health and well-being” (Buunk & Hoorens, 1992, p. 445). One may argue that under the conditions of stress employees can rely on their supervisors and co-workers for advice, information, understanding (Cobb, 1976), guidance, emotional support and tangible help (Kahn & Byosiere, 1992) in handling difficult tasks. House (1981) has distinguished the types of support as: (a) emotional support characterised by
providing empathy, love, care, and trust, (b) appraisal/approval support incorporates appreciation and the transmission of information that is relevant to self-evaluation, (c) informational support mainly involves providing of information to solve problem, and (d) instrumental support incorporates different sorts of practical help.

A plethora of research has reported the role of social support in the development of burnout. As compared to the job demands or job stress, the correlation of social support with burnout is less, yet a growing number of studies have shown a positive relationship between a lack of social support and burnout (Greenglass, Burke, & Konarski, 1997; Leiter, 1991; Peeters & Le Blanc, 2001; Sargent & Terry, 2000). A meta-analytical examination (Lee & Ashforth, 1996) on the correlates of the burnout has indicated that a lack of supervisor support contributes 14% of the variance in emotional exhaustion, 6% in depersonalization, and 2% in personal accomplishment. However, these findings were not supported in longitudinal studies on social support and burnout (see Dignam, Barrera, & West, 1986). Regarding a lack of social support from the co-workers the amount of explained variance was found to be 5%, 5%, and 2% for
emotional exhaustion, depersonalization, and personal accomplishment, respectively.

Several types of potential effect of social support on one’s well-being has been proposed and tested. The direct or main effect model suggests that social support have desirable effects on well-being regardless of one’s level of stress. For example, the findings of the study (Burke & Greenglass, 1988) based on a path analysis suggested that lack of social support has direct effect on levels of burnout. In a similar vein, House (1977) reported that supervisory support, more than co-workers or family and friends support reduced the adverse effects of stress factors on health outcomes.

In summary, evidence for a main effect model of social support on job related strain has been found. Job-related sources of stress and strain appear to be primarily affected by job related sources of support (supervisors and co-workers) and types of support (like informational, emotional, instrumental) although there is disagreement as to which of these sources and types of support is the most consequential.
The buffering hypothesis posits that individuals experiencing stress will have lower level of occurrence of psychological and physical ill health in case of high social support than if they have low levels of support available. Arguably, a strong relationship exists between stressor and strain when support is low and a weak or no stressor-strain relationship if support is high. Additionally, under low stress conditions, social support does not significantly affect the well-being.

The buffer model proposes an interaction between levels of stress and social support in explaining the development of strain indicators such as burnout. However, the results based on the study of buffer effects of social support are equivocal (Himle, Jayaratne, & Thyness, 1991; Graham & Ramirez, 1997). For example, Constable and Russell (1986) reported that high levels of supervisor support significantly reduced the feelings of emotional exhaustion and buffered negative effects of the job environment (Schmieder & Smith, 1996). Koeske and Koeske (1989) found that social support buffer the relationship of workload with burnout. A national survey conducted in Sweden (Johnson & Hall, 1988) indicated that low levels of social support increased the adverse effect of high job demands on cardiovascular health indicators,
however, the highest cardiac risk was found when active job conditions based on high demand and high control were associated with low support (Kristensen, 1995; Theorell & Karasek, 1996).

Results of both the cross-sectional and longitudinal studies based on the JDC-S model (Parkes, Mendham, & Von Rabenau, 1994; Karasek & Theorell, 1990) showed that high levels of psychosomatic health complaints were related with high strain jobs (i.e., high job demands and low job decision latitude) under conditions of low levels of social support at work. On the other hand, a number of studies have reported no evidence of buffering hypothesis of social support. For example, no significant moderating role of emotional support from co-workers was found to alleviate the occupational stress among human service professionals (Himle, et al. 1991; Shinn, Rossario, March, & Chestnut, 1984).

The mixed results documented so far could likely be due to different definitions of social support, psychometric properties of the measures used, different analytical techniques used, differences in occupational groups studied, differences in occupational tasks, individual's response to job stress, and the cultural differences.
Moreover, researchers noted that buffering hypothesis was supported when the study focused on the specific type and source of social support rather than more global support measure. For example, Himle, et al, (1991) reported that informational and instrumental support by co-workers and supervisors had buffering effects on burnout dimensions related to workload and role conflict. Nevertheless, there is a need to study the moderating role of different sources and types of social support in the stressor-strain relationship.

Some studies have reported the role of different sources of support on burnout. For example, higher level of support from supervisors and administration was related with lower levels of burnout (Constable & Russell, 1986; Dignam, Barrera, & West, 1986). Support from co-workers has been found to be inversely related to burnout (Jayaratne & Chess, 1986; Maslach, 1976). While, other studies found family support to be more effective than the workplace support in reducing the effect of work stress on burnout (Greenglass, 1995). Family support has been found to complement the effects of work related resources available to alleviate burnout among mental health workers (Leiter, 1993). Burke and Greenglass (1988) have suggested the need to incorporate the family
support variable in the study of burnout, as it has been recognised because of the increasing interdependence of the work and home domains. Maslach (1982) reported that marital satisfaction, which can be regarded as an indicator of family support, was correlated with burnout.

In a similar vein, another study (Russell, Altmaier, & van Velzen, 1987) reported a main effect of supervisor support on three dimensions of burnout and interaction effects between job stressors and supervisor support were only found for the dimension of depersonalization. Direct or moderating effects for support from co-worker, spouse, friends, and relative were not observed. Similarly, a study on senior managers (Dolan & Renaud, 1992) found a marginal role of social support in buffering burnout. Support from family and friends were reported to buffer the effect of workload on emotional exhaustion. Greenglass, Fiskenbaum, & Burke (1996) reported significant moderating effects of supervisor support and co-worker support on the dimension of emotional exhaustion and depersonalization.

However, there is still need for more work on the role of different sources of social support in alleviating the impact of job demands on well-being (Peeters & Le Blanc,
Moreover, the paucity of studies on family support apart from the work related support is even more (Peeters & Le Blanc, 2001). In the present study, I have included both the intra-organizational (i.e., social support from supervisor and co-workers) and extra-organizational (i.e., social support from family) aspects of support. This is an attempt to identify the relevance of specific sources of support for the at-risk (effort-reward imbalance) professionals in the development of exhaustion, cynicism, and professional efficacy.

The nature of the doctors' work in terms of dealing with workload and working long hours and at odd hours can presumably have effects on the family life. Therefore, we assume that if their family provides support in terms of understanding of the situation, appreciation of their efforts, and taking care as to relieve their emotional and physical tiredness, then professionals are less likely to suffer from exhaustion and cynicism. Based on the research findings we designed this study to examine both the direct and moderating role of family support in the development of burnout.
Supervisors are in a position to distribute the amount of workload in terms of being flexible with the shifts, alternating working hours, and being appreciative of the efforts spent, and providing rewards accordingly. Conversely, supervisor support will not only have a direct effect on reducing the levels of exhaustion, cynicism, but it will also provide a favourable environment to foster employees' sense of professional efficacy. Therefore, we assume that supervisor support will have the direct effect in prediction of three dimensions of burnout. In addition, we also expect that the supervisor support will buffer the effect of effort and reward on the burnout dimensions.

The amount of work and the emotional experiences faced in hospitals can presumably best be shared with the co-workers, who themselves are passing through the same situation. While co-workers can presumably to an extent compensate unappreciative behaviour of patients as well as of supervisors, they can also share the workload. The good team-work, encouragement, appreciation, and support on part of co-workers can presumably provide favourable environment for the enhancement of ones' sense of professional efficacy. Therefore, we expect that co-worker support will have direct effect in reducing the
levels of exhaustion, cynicism, and low professional efficacy. We also presumed that the co-worker support will buffer the effect of effort and reward on the burnout dimensions. Hypotheses related to social support are mentioned in the section on implications for the study.

**Burnout and Psychosocial Aspect of Doctor’s Work**

Despite the progress of health care services in terms of providing better health care to the patients, the mental and physical health status of their own professionals seems to be deteriorating (Deary, Blenkin, Aguis, Endler, Zealley, & Wood, 1996). It is noted that, the average workplace absenteeism rate in the Dutch health care sector is higher than the national average (Peeters & Le Blanc, 2001). Many factors including the rapidly expanding medical technology, increasing job complexity in the health care sector, resources cut down because of cost-containment programmes, and general increase of average age resulting in increase of chronic patients contribute to the change in the nature of work in the health care sector. Moreover, confrontation with diseases including viral, psychological, and musculoskeletal disorders (e.g., AIDS, SARS, mental fatigue, and RSI)
leads to new challenges faced by the health services. This in turn results in an increasing mental and emotional workload.

Studies based on health care employees in the hospitals provide evidence of their being vulnerable to stress and burnout (Deary, Aguis & Sadler, 1996; Deary, Blenkin, Aguis, Endler, Zealley, & Wood, 1996; Le Blanc, Schaufeli, & Van Heesch, 2001; Schaufeli & Enzmann, 1998). The helping professionals face high workload in terms of emotional demands, time demands, physical exertion, lack of feedback from the service recipients (McAbee, 1991; Peeters & Le Blanc, 2001; van Vegchel, deJonge, Meijer, & Hamers, 2001), everyday contact with pain, suffering, loss, and death, inadequate workplace social support (Edwards, Kornacki, & Silversin, 2002). Therefore, it is relevant to ask not only how stressful work of doctors is and are they a prime candidate for burnout, but also to what extent the demanding characteristics of work are counterbalanced by the inherent rewards of this profession.

Medical professionals are generally involved in an “emotional work” like dealing with the emotional demands of the patients, while controlling the expression of
one's own feelings (James, 1989). This in turn may lead to emotional exhaustion in doctors (Zapf, Seifert, Schmutte, Mertine, & Holz, 2001). However, this aspect of doctors’ work tends to remain under-estimated and under-valued. "...medical students are put through a grueling course and exposed to much younger than their non-medical friends to pain, sickness, death, and perplexity of the soul. And all this within an environment where “real doctors” get on with the job and only with the weak weep or feel distressed. After qualifying, doctors work absurdly hard, are encouraged to tackle horrible problems with inadequate support, and then face lifetime of pretending that they have more powers than they actually have." (Smith, p.ix, a preface to Problem Doctors – van der Wal & Lens, 1997). This quotation on the one hand, elicits the potential sources of stress for doctors, and on the other hand, it motivates researchers to study the possible strategies to alleviate the adverse effects of stress on the well being of doctors.

A number of studies in the West have suggested that workers in the health services are at risk of work stress and consequent strain reactions (Firth-Cozens & Payne, 1999). A study on the employees of National Health Trust (NHS) reported that the prevalence of mental distress is
much higher as compared to the British employees in general (Borrill & Haynes, 1999). Similarly, another research (Appleton, House, & Dowell, 1998) found that 52% of 406 general practice principals reported mental distress based on the General Health Questionnaire (GHQ_12, Goldberg & Williams, 1998). Therefore, one could argue that medical profession provides a relevant domain for the study of stress and burnout.

A study conducted within the paradigm of Demand-Control-Support model (JDC_S, Johnson & Hall, 1988, which is based on the conceptual framework of Karasek’s (1979) Job Demand-Control model reported that demands on medical professionals are found to be increasing with lesser workplace control and social support (De Jonge, Janssen, & van Breukelen, 1996; Peeters & Le Blanc, 2001). The support for the JDC-S model is not yet conclusive. However, Calnan, Wainwright, Forsythe, Wall, and Almond (2001) recommended that Karasek’s model could be supplemented by the propositions of the Effort-Reward Imbalance model (Siegrist, 1996). The perceived inadequacy of occupational rewards in terms of money, esteem, and reciprocity, in relation to efforts spent at work can be potential predictors of the worker’s perception of job strain such as burnout (Arnetz, 2001).
The other factors that put doctors under prolonged stress resulting in burnout have been found to be encountering the violently angry or rude patients who even go to the extent of physical assault of the doctors, or subjecting to vexatious complaints or litigations (Marcovitch, 2002). The difficult relations with co-workers and supervisors add to the emotional demands of the doctors. Additionally, the fact that in the Pakistani culture it is not customary for the female employees to interact or mix up with their male counterparts (Khuwaja, et al. 2004) may restrain the support they could receive from their male supervisors and co-workers and vice versa.

A survey (Quine, 2002) on health professionals indicated that intimidating behaviour of co-workers and staff at the workplace are among the common sources of stress among the junior doctors. At work black, Asian and women doctors reported to be at higher risk of facing the bullying. Women doctors are under added pressure as they struggle to maintain a home-work balance, and they undertake more emotional work as compared to their male counterparts, but are not rewarded accordingly in terms of money, some benefit regarding shift adjustments (Niaz, Hassan, & Ali, 2003; Swanson, Power, & Simpson, 1998; Turner, Tippett, & Raphael, 1994).
Given the fact that doctors continually face emotional demands such as interaction with human suffering, distress, medical emergencies, and death and yet have to perform efficiently, they may adopt techniques of detachment. Maintaining balance between professional detachment and individualized care of the patients is the one of the most needed and desirable skills for the medical profession.

Generally, the demand of the paradoxical nature of the helping profession of medicine is to keep a balance between detaching oneself from people and helping them i.e., maintaining an attitude of genuine concern, as well as, a detached objectivity. When this balance is maintained one’s sense of professional efficacy is enhanced which in turn leads to positive individual (e.g., self-esteem, physical health, and psychological well-being) and organizational (e.g., performance at one’s optimal level, good quality of services, lower absenteeism rates) outcomes (Cherniss, 1993; Harrison, 1983; Maslach & Leiter, 1997). Whereas, if a professional is unable to maintain that balance and adopt poor coping strategy (e.g., excessive professional detachment or development of indifferent attitude towards one’s work,
physical and mental withdrawal) burnout is likely to develop, leading to negative individual (e.g., adverse health effects, more psychosomatic complaints, low self esteem) and organizational (e.g., absenteeism, high job turnover, poor performance) outcomes.

In sum, the job environment of the human services, in the West, as well as, in the Asian countries like Pakistan, is inherent with structurally built-in sources of stress and organizational demands. The demands like high workload, chronically lacking resources, low rewards, potentially foster feelings of burnout in the medical professionals (Farooq, 2003; Khuwaja, et al., 2004; Mubbashar, et al., 2000; Schaufeli & Enzmann, 1998). Arguably, the human services are crucially dependent upon the balance between efforts (e.g., workload like long working hours, high case loads, emotional overload, work pressure) and rewards (resources at work, pay, esteem, feedback from patients), in order to maintain the professionals' motivation to help and perform their duties in an optimal level.

Hypotheses of the Study

Based on the review of literature, one can argue that stress occurs in employees who are in a situation, which
is highly demanding in terms of workload, lack of resources to deal with the demands, and lack of reciprocity in reward for the input of efforts.

A large-scale survey (Paoli, 1997) has indicated that the psychosocial demands for the workers have noticeably increased from 1991 to 1996. The demands posed by the patients in health care sectors, in particular and clients in general, have resulted in an increase of pace of work (Merllié & Paoli, 2000). A large proportion of the potential sources of demands are organizational in nature (Schaufeli & Enzmann, 1998). Organizational demands in the health care sector include stress generating work situation for doctors, which can be physical, psychological, or social in nature. For example, helping people, who suffer pain, are injured, and who have major health problems, although could be personally rewarding, but can also be stressful when patients or their families are not appreciative of the efforts made by health professionals (Bakker, Killmer, Siegrist, & Schaufeli, 2000). In addition, dealing with patient’s emotions in a beneficial manner, is an important professional skill in health care, but this could also lead to stress and burnout in the providers of such services (Omdahl & O’Donnell, 1999).
Arguably, besides the inherent characteristic of doctors’ job of dealing with the patient’s physical and psychological health, increased job demands like workload; long working hours; use of modern technologies; pressures to meet the international standards of health care; unavailability of ample resources; lack of social support from supervisors and co-workers; limited opportunities of advancement of education and training could be the major precursors of burnout. More specifically, the present study attempts to examine the premise that doctors who experience an imbalance between efforts and rewards, and lack social support are likely to report burnout, psychosomatic health complaints, and poor physical health. Nevertheless, the present study is designed within the effort-reward imbalance paradigm; we have also included the role of social support in explaining the direct and moderating effects on strain reactions.

Previous research has suggested a study of the beneficial effects of rewarding experiences in private life, as well as, work environment on work related strains. Siegrist (1996, p.39) have argued "...in a salutogenic perspective, theories on social support (e.g., House, Landis, &
and theories on health-promoting aspects and psychosocial working conditions (e.g., Karasek & Theorell, 1990) still wait for a cross-fertilization." The role of social support in reducing stress is well-recognized (Caplan, Cobb, French, Harrison, Pinneau, 1975; Cohen & Wills, 1985; House, 1981). We have incorporated in the present study social support received, both, at the work and outside the work i.e., family support to enhance the understanding of the relationship between effort-reward imbalance and burnout.

Based on the literature on burnout, doctors work environment, Pakistani studies, social support, and theoretical framework of the Effort-Reward Imbalance Model (Siegrist, 1996), following hypotheses were derived:

1. Burnout dimensions i.e., exhaustion, cynicism, and low professional efficacy will have significant positive correlation with high effort, low reward, psychosomatic health complaints, and poor physical health.

2. Perceived supervisor support will be negatively associated with burnout dimensions of (a)
exhaustion, (b) cynicism, and (c) low professional efficacy.

3. Perceived co-worker support will be negatively associated with burnout dimensions of (a) exhaustion, (b) cynicism, and (c) low professional efficacy.

4. Perceived family support will be negatively associated with burnout dimensions of (a) exhaustion, and (b) cynicism.

5. High risk group (categorized on the basis of the ERI ratio) will be significantly more exhausted, more cynical, and low in professional efficacy and will have more psychosomatic symptoms, and self-reported poor physical health as compared to the low risk group.

6. High effort and low reward will significantly predict (a) exhaustion, (b) cynicism, (c) low professional efficacy, (d) psychosomatic health complaints, and (e) poor physical health.
7. High effort and low reward (effort-reward imbalance) will have significant interaction effect on (a) exhaustion, (b) cynicism, and (c) low professional efficacy, (d) psychosomatic health complaints, and (e) poor physical health.

8. Perceived supervisor support will reduce or buffer the relationship between effort-reward imbalance (high effort, low reward) and burnout dimensions of (a) exhaustion, (b) cynicism, and (c) low professional efficacy.

9. Perceived co-worker support will reduce or buffer the relationship between effort-reward imbalance (high effort, low reward) and burnout dimensions of (a) exhaustion, (b) cynicism, and (c) low professional efficacy.

10. Perceived family support will reduce or buffer the relationship between effort-reward imbalance (high effort, low reward) and burnout dimensions of (a) exhaustion and (b) cynicism.
METHOD

Sample

The study sample comprised of 250 doctors working in different hospitals of Pakistan. The mean age of the participants was 34.18 years \((SD = 3.87, \text{ range } = 29 \text{ to } 42 \text{ years})\). The sample was based on 41.6 per cent of the female doctors and 58.4 per cent of the male doctors. 62.4 per cent of the total sample was married, while 59.2 per cent had children. The sample was based on doctors working in grade\(^1\) 17 to grade 19. 59.6 percent of the doctors had done their medicine degree (MBBS), whereas, 40.4 percent of the doctors had also specialized (Fellowship/FRCS). The mean tenure of their jobs was 6.11 years \((SD = 3.28, \text{ range } = 2 \text{ to } 12 \text{ years})\). On average doctors worked for 9.5 hours \((SD = 9.0, \text{ range } = 8 \text{ to } 15 \text{ hours})\) per day. Table 1 shows the frequency distribution of demographic variables of gender, marital status, children, education, and grade.

\(^1\) Grade indicates the ranking system in Pakistani Govt. job system. Ranking for officer level starts from the grade 17 and the highest grade is 22. Below grade 17 are the grades for the administration/clerical staff.
### Table 1: Distribution of Demographic Variables (N=250)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Frequency (% age)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
</tr>
<tr>
<td>- Male</td>
<td>146 (58.4)</td>
</tr>
<tr>
<td>- Female</td>
<td>104 (41.6)</td>
</tr>
<tr>
<td><strong>Children</strong></td>
<td></td>
</tr>
<tr>
<td>- No children</td>
<td>102 (40.8)</td>
</tr>
<tr>
<td>- One or more children</td>
<td>148 (59.2)</td>
</tr>
<tr>
<td><strong>Marital Status</strong></td>
<td></td>
</tr>
<tr>
<td>- Unmarried</td>
<td>94 (37.6)</td>
</tr>
<tr>
<td>- Married</td>
<td>156 (62.4)</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
</tr>
<tr>
<td>- MBBS</td>
<td>149 (59.6)</td>
</tr>
<tr>
<td>- FRCS</td>
<td>101 (40.4)</td>
</tr>
<tr>
<td><strong>Grade</strong></td>
<td></td>
</tr>
<tr>
<td>- 17</td>
<td>127 (50.8)</td>
</tr>
<tr>
<td>- 18-19</td>
<td>123 (49.2)</td>
</tr>
</tbody>
</table>

### Measures

The questionnaire design was used to measure responses on different variables of the study. The questionnaire used in the study consisted of five sections measuring different variables of the study.

### Demographic Variables:

The first part of the questionnaire pertains to the demographic and job related information such as age,
gender, marital status, number of children, education, grade level, tenure of job, and daily work hours.

**Burnout:**

The variable of burnout was measured by the Maslach Burnout Inventory-General Survey (MBI_GS; Schaufeli, Leiter, Maslach, & Jackson, 1996). The MBI_GS is a derivative of the original burnout inventory (MBI) developed by Maslach & Jackson (1986). The MBI_GS measures the components of exhaustion, which is parallel to emotional exhaustion in the MBI; cynicism is parallel to depersonalization in the MBI; and professional efficacy is parallel to personal accomplishment in the MBI. "The consistency across nations, organizations, and occupational groups indicates a continuity of MBI_GS with burnout as measured by the MBI_HSS among human service providers." (Maslach, Jackson, & Leiter, 1996, p. 26)

The MBI_GS assesses individual’s responses on a continuum from engagement to burnout. This 16 items questionnaire (MBI-GS) is based on a three-factor structure of burnout i.e., Exhaustion (Ex), Cynicism (Cy), and Professional Efficacy (PE). The exhaustion subscale (5 items) is generic and measures feelings of fatigue but without reference to people as a source of these feelings. A
sample item is “I feel emotionally drained from my work”. The subscale of cynicism (5 items) refers to indifference or a distant attitude towards work as a way of coping with exhausting demands, for example, “I have become less interested in my work since I started this job”. The professional efficacy subscale (6 items) measures respondent’s expectations of the continued effectiveness at work with reference to satisfaction with past and present accomplishments. A sample item is “I have accomplished many worthwhile things in this job”. High degree of burnout is based on high score on exhaustion and cynicism and low score on professional efficacy.

The items are rated on a 7-point scale ranging from 0 ‘never’ to 6 ‘every day’. The average score was computed based on the 0 to 6 frequency ratings across the items within each of the scales. The Cronbach’s alpha for exhaustion was $\alpha = .84$; for cynicism was $\alpha = .87$; and for professional efficacy was $\alpha = .90$. This indicates that these scales are reliable measures for the present sample.

So far, to the best of my knowledge no study in Pakistan has examined the factor structure of the MBI_GS. In order to examine the factorial validity of the Maslach Burnout
Inventory (MBI_GS), we performed Principle Component Analysis. The Varimax rotation was done to obtain a simple structure. Three factors i.e., exhaustion, cynicism, and professional efficacy were extracted in the sample of Pakistani doctors, on the basis of the Eigen values greater than 1 and the Scree plot diagram (see table 2). All items had high factor loadings and high communalities. First factor was professional efficacy, which explained 26.14% of the total variance; second factor was cynicism, which explained 20.94% of the total variance, and the third factor was emotional exhaustion, which explained 19.69% of the total variance. The Eigen values were 4.18, 3.35, and 3.15 for the three factors, respectively. Besides the order of the factors, the three factorial structure of the original burnout model (MBI_GS, Schaufeli, et al., 1996) was retained for the sample of the Pakistani doctors.
Table 2: Principle Component Analysis of the MBI-GS Scale with Varimax Rotation

<table>
<thead>
<tr>
<th></th>
<th>Prof. Efficacy</th>
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<th>Exhaustion</th>
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<tr>
<td>ex1</td>
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</table>

Eigen Val. 4.18 3.35 3.15

% of Var. 26.14% 20.94% 19.64%

Total Var. = 66.78%
Psychosomatic Health Complaints:

To measure the psychosomatic health complaints, a ten items scale was developed by the researcher, mainly derived from the Occupational Stress Indicator (OSI, Cooper, Sloan, & Williams, 1988). The respondents had to rate the frequency of occurrence of a psychosomatic complaint experienced during the last six months, on a 5-point Likert type scale with 1 as 'never' and 5 as 'very frequently'. This scale included complaints like headaches, dizziness, shortness of breath, decrease in appetite, sleeping problems, panic attacks, and feeling tense and nervous. High score indicates experience of more psychosomatic health complaints. The Cronbach's alpha was .83 for the present study.

Physical Health:

A self-report measure comprising of one item was used to assess the one's general physical health. The respondents had to rate the item based on their experience of physical health during the last six months, on a 5-point scale with 1 as 'very poor' and 5 as 'very good'. The item was formulated as "how do you rate your general physical health?" In analogy with the psychosomatic health complaint scale, this item was reversed scored, so that the high score indicated a self-report of poor
physical health. It has been found previously that this indicator was strongly related with the presence of diseases (Goldberg, Gueguen, Schmaus, Nakache, & Goldberg, 2001).

Social Support:

A self-report instrument, mainly based on the four types of the support, as suggested by House (1981) was used to measure social support received from supervisor, co-workers, and family. The instrument was developed by the researchers, in line with Peeter, Buunk, & Schaufeli (1995). A similar four items scale for the three different sources of support was derived to measure social support. For the emotional support the item is "my supervisor/co-worker/family are warm and friendly"; for the appraisal support the item is "my supervisor/co-worker/family shows approval when I have done well"; for the informational support the item is "if necessary, my supervisor/co-worker/family give(s) information when I need it; and for the instrumental support the item is "if necessary my supervisor/co-worker/family help(s) me with a difficult task". All items were rated on a scale ranging from 1 as 'not true' to 4 as 'very true'. The score for each source of social support was a sum of the response for the four items. A higher score indicated a
higher level of support perceived. In the present study only sources of social support were studied and not the types of social support. The Cronbach's alpha for the social support for supervisor scale was .85; for the co-worker scale was .86; and for the family scale was .87. Thus, indicating that these scales are reliable measures of social support for the present sample.

**Effort-Reward Imbalance Model Variables:**

The proxy measures were used to assess the extrinsic component, i.e., effort and reward of the Effort-Reward imbalance model.

**Effort**

The extrinsic effort component of the model was operationalized as workload for the present study. In their study on effect of high effort-low reward on myocardial infarction, Appels, Siegrist, and de Vos (1997) operationalized workload as effort. The variable of effort was measured with 8 items scale (Roe & Zijlstra, 2000) in the present study. The proxy measure of effort assessed the quantitative and qualitative demands encountered at work such as working under time pressure, high work pace, strenuous work, and job complexity. Scale items such as: 'you have to work faster
than you can'; 'you think that your work is demanding' were included in the measure. The responses were rated on a 5-point Likert type scale with 1 'completely disagree' to 5 'completely agree'. A total score is based on the sum of 8 items, which varies from 8 to 40. The higher score indicates more input of effort at work. The Cronbach's alpha ($\alpha = .83$) of the workload scale showed that this is a reliable measure for the present study.

**Reward**

The six items scale (Roe & Zijlstra, 2000) was used to assess the global aspect of the reward variable. This scale pertains to appraisal and appreciation of one's effort, esteem, and job prospects. These items were rated on a 5-point Likert type scale, with 1 as 'completely disagree' to 5 as 'completely agree'. Conversely, the rating is done in analogy to the variable of effort. A sum score of these ratings is computed based on the six items, which ranges between 6 and 30. The lower the score, the fewer the occupational rewards are perceived by the respondents. The sample items are "you have good prospects in your job", "there is a good balance between the efforts you put in work and the rewards you get from your job". The Cronbach's alpha ($\alpha = .91$) for the Reward:
Scale indicated that it is a reliable measure for the present sample.

Based on the theoretical assumption that the imbalance between effort and reward is what matters the most, this information is required to be analysed as exhaustively as possible. The imbalance was constructed by using the main recommended formulation of the ERI model (Siegrist & Peter, 1996; Siegrist, 2002). A ratio was computed, for each respondent, between extrinsic effort and extrinsic reward using the formula: \( e/(r \times c) \), where ‘e’ is the sum score of the Effort Scale, ‘r’ is the sum score of the Reward Scale, and ‘c’ is the correction factor for different number of items in the nominator (effort scale) and the denominator (reward scale) i.e., 8/6 or 1.33.

The construction of the ratio, presumably, evaluates the imbalance between high effort and low reward experienced at workplace. The strain outcomes elicited by the imbalance due to the experience of non-reciprocal exchange may bypass the conscious awareness. “Thus, the ratio may capture part of the strain reactions that would be missed if the measurement of imbalance were based exclusively on subjective evaluation (that is, asking the respondent if reciprocity exists)” (Siegrist, et al.,
2004, p.1487). As a result, a threshold of 1.0 differentiates between a higher risk group (high effort-low reward) or the critical condition (values > 1.0) and a group at a lower or no risk condition (values < 1.0). In the present study, three formulations of the ERI model were examined. First, based on the distribution of the ERI ratio, as suggested by Niedhammer, Tek, Starke, & Siegrist, (2004), it was dichotimized at the median (i.e., .87 for the present sample). The median split variables were used to study the effects of high and low risk conditions on strain and health outcomes. The values > .87, indicated the high-risk group and values ≤ .87 indicated the low-risk group. This binary variable formulation was used as a summary measure of the extrinsic component of the model. Second, two sum scores of effort and reward scales were used for estimation of their separate effects on the outcome variables. Third, the interaction terms (based on mean centred values) of high effort and low reward were computed to examine the combined effect on dependent variables.

**Procedure**

The questionnaires were distributed to five different hospitals of Pakistan. After a brief introduction to the purpose of the study and assurance of confidentiality and
anonymity of responses, the researcher and research assistant gave self-report questionnaires to the administration clerk. He/she was requested to give the questionnaire to the doctors falling between grade 17 to grade 19. However, the participation was voluntary. A total of 325 questionnaires were distributed. Of these, 277 questionnaires were returned. The clerk mailed the questionnaires to the researcher in a pre-paid parcel, after three weeks time period. In between one reminder was also sent to the hospitals. Out of the total returned questionnaires, 27 questionnaires were discarded because of the missing responses or marked inconsistencies in the responses. Therefore, 250 doctors were included in the final sample of the study.

Data Analysis

Descriptive analysis was done for all the demographic and psychosocial variables of the studies. Mean values, standard deviations, minimum to maximum range of scores were calculated for each scale used to measure the variables of the studies. Cronbach's alpha coefficients (Nunnally, & Bernstein, 1994) were calculated for each scale to assess its internal consistency. In order to examine the factorial validity of the MBI-GS among the Pakistani doctors, the scale was subjected to the
Principal Component Analysis (Kim & Mueller, 1978). Number of factors was extracted based on the Eigen values of more than 1.0 and by examining the Scree plot. The Varimax rotation method was used to obtain a simple factorial structure (see Table 2).

Pearson's product moment correlation coefficients (Klienbaum & Kupper, 1978) were calculated to explore the associations between the psychosocial variables of the study i.e., effort, reward, supervisor support, co-worker support, family support and the burnout dimensions, psychosomatic health complaints, and self-reported physical health. T-test analyses were performed to examine the differences in mean scores on different psychosocial variables between the two groups formed on the basis of the Effort-Reward imbalance ratio.

Furthermore, hierarchical regression analyses were done to study the model based on the best predictors of the burnout dimensions, psychosomatic health, and the physical health. Specifically, hierarchical moderated step-wise regression (Aiken & West, 1991) was used to determine if the interaction between effort and reward predicted the dependent variables. In order to control the possible confounding effects, age, gender, number of
children, and marital status were entered, in the first step. In Step 2, reward and effort were entered and in Step 3, the interaction term between reward and effort was entered. Independent variables were mean centred prior to entry into the multiple regression equation. In a separate analysis, social support variables were entered in Step 4 to examine their direct, two-way (i.e., social support and effort; social support and reward), and three-way (i.e., social support, effort, and reward) interaction effects. Significant interactions were plotted. High and low scores for effort and reward were formed where high scores were above 1 standard deviation from the mean and low scores were below 1 standard deviation from the mean.
RESULTS

The result section comprises of tables and description of the results. Table 3 indicates the mean, standard deviation, and reliability coefficients (Cronbach’s alpha) of the independent variables i.e., effort, reward, social support, and the dependent variables i.e., burnout dimensions (emotional exhaustion, cynicism, and professional efficacy), psychosomatic health complaints, and self-reported physical health.

Table 3. Descriptive Statistics of the Key Variables of the Study

<table>
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<tr>
<th>Scales</th>
<th>Mean</th>
<th>SD</th>
<th>Alphas (α)</th>
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<td>.84</td>
</tr>
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<td>Cy</td>
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<td>.90</td>
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<td>.83</td>
</tr>
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<td>-</td>
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<tr>
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<td>.87</td>
</tr>
</tbody>
</table>

Note: N = 250
The Cronbach’s alphas with coefficients ranging from .83 to .91 show that all scales were very reliable. Since, the Physical Health Scale was based on a single item therefore, no reliability coefficient was generated for that.

Table 4 shows the result of independent sample t-tests to examine the mean differences between high- and low-risk groups on the burnout dimensions, psychosomatic health complaints, and self-reported physical health. The high- and low-risk groups were formed on the basis of the cut-off points at the median value (i.e., .87) of the effort-reward imbalance ratio (as mentioned in the method section). High-risk group was defined as the one with the median values greater than .87 and the low risk group as the one with the median value equal to or below .87. The table 4 shows that doctors, who were categorized in the high-risk group were significantly more emotionally exhausted \((t = 9.92, df = 248, p < .0001)\), high in cynicism \((t = 6.37, df = 248, p < .0001)\), and low in professional efficacy \((t = 3.53, df = 248, p < .0001)\), as compared to the doctors in the low-risk group. Moreover, high-risk group, compared with a low-risk group, had more psychosomatic health complaints \((t = 4.82, df = 248, p < .0001)\), and rated low on the physical health \((t = 4.75, df \)
The findings support the research hypothesis (hyp 5) that the high-risk group is significantly different from the low-risk group in terms of burnout dimensions, psychosomatic health complaints, and poor physical health.

Table 4: Mean Differences on Psychosocial Variables between High and Low Risk (Based on Effort-Reward Ratio_ERI) Groups

<table>
<thead>
<tr>
<th>Variable</th>
<th>ERI</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>t</th>
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<td>14.31</td>
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<tr>
<td></td>
<td>&lt; .87</td>
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*p < .0001 (two tailed), df = 248.

Ex = Exhaustion, Cy = Cynicism, Pe = Professional Efficacy, PsyS = Psychosomatic Health, PH = Physical Health

Hypotheses 1 through 5 look at the relationship between psychosocial variables of the study. Pearson’s product
moment correlations were calculated to examine the relationship between burnout dimensions, effort, reward, psychosomatic health, physical health, and social support variables. Table 5 shows that these hypotheses were supported. As suggested by the burnout model (Maslach, Jackson, & Leiter, 1996) emotional exhaustion correlated strongly with cynicism ($r = .48, p < .0001$) than with professional efficacy ($r = -.32, p < .0001$). The variable of effort was significantly and positively correlated with emotional exhaustion ($r = .48, p < .0001$), moderately and positively correlated with cynicism ($r = .27, p < .0001$). However, it had non-significant correlation with professional efficacy. Moreover, effort had a moderate positive correlation with psychosomatic health complaints ($r = .30, p < .0001$) and poor physical health ($r = .33, p < .0001$). The Reward Scale had a significant negative correlation with exhaustion, cynicism, and reduced professional efficacy (ranging from $r = -.48$ to $-.42, p < .0001$), moderate negative correlation with the psychosomatic health ($r = -.29, p < .0001$), and the physical health ($r = -.24, p < .0001$).

As regards the correlation of social support with burnout dimensions, supervisor support had more strong negative correlation with cynicism ($r = -.48, p < .0001$) and
positive correlation with professional efficacy ($r = .34$, $p < .0001$). Co-worker support had a significant negative correlation with exhaustion ($r = -.39$, $p < .0001$) and cynicism ($r = .49$, $p < .0001$) and positively correlation with professional efficacy ($r = .31$, $p < .0001$). Family support was more strongly and negatively correlated with exhaustion ($r = .42$, $p < .0001$) than cynicism ($r = -.38$, $p < .0001$) and professional efficacy ($r = .25$, $p < .0001$).
Table 5: Correlations between Burnout Dimensions and the Key Variables of the Study

<table>
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<th>Eff</th>
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<td>.27**</td>
<td>.29**</td>
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Note: N= 250; *p<.01;  **p<.001 (two-tailed).
In order to test hypotheses 6 through 10, we performed hierarchical multiple step-wise regression analysis. In order to avoid the problem of multicollinearity, all independent variables were centred around their means. In the first step control variables, in the second step effort and reward variables, and in the third step interaction term of effort and reward were entered. Separate regression analyses were performed for each of the dependent variables i.e., three burnout dimensions, psychosomatic health complaints, and physical health. As regard the social support variables, we entered two-way and three-way interaction terms of each variable of supervisor support, co-worker support, and family support with effort and reward. The interaction term of effort and reward and social support was entered in the fourth step.

Table 6 shows the prediction of exhaustion from effort and reward. The only Step 1 variable found to be significant was gender ($B = -0.22$, $t = -4.42$, $p < .01$). Both of the Step 2 variables were significant (reward: $B = -0.33$, $t = -6.51$, $p < .01$; effort: $B = 0.36$, $t = 7.19$, $p < .01$). Interestingly, the interaction between reward and effort is also significant ($B = -0.11$, $t = -2.26$, $p = .03$) although in terms of change in $R^2$, it adds less than 1% to
the explanation of the variance in exhaustion. The findings show that our hypotheses regarding significant main (hypothesis 6a) and interaction (hypothesis 7a) effects of effort and reward on exhaustion were supported. The significant interaction effect of effort and reward on exhaustion is graphically represented in Figure 1. It shows that exhaustion is negatively related to reward but that the relationship is stronger when there is more effort. In other words, exhaustion is greater when effort is high and reward is low.
Table 6: Regression on Exhaustion of Effort and Reward

<table>
<thead>
<tr>
<th>Step 1</th>
<th>Beta (Std)</th>
<th>T</th>
<th>Sig</th>
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<th>Adj $R^2$</th>
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Step 2

| RewMC  | -.331      | -6.510 | .000    |       |           |
| EffMC  | .359       | 7.186 | .000    | .44   | .42       |

Step 3

| RewMC EffMC | -.108      | -2.256 | .025    | .45   | .43       |

Gen=Gender, Child=Have Children, MS=Marital Status, Rew=Reward, Eff=Effort

MC stands for Mean Centred.

Figure 1: Plot of the Significant Interaction Between Effort and Reward in the Prediction of Exhaustion
Table 7 presents the results of the prediction of cynicism from reward and effort. Gender ($B = -.23, t = 4.08, p < .0001$), reward ($B = -.37, t = 6.45, p < .0001$), and effort ($B = .15, t = 2.66, p < .008$) are significant, but the interaction term is not significant. The findings show that our hypothesis regarding significant main effect (hypothesis 6b) was supported but the interaction effects (hypothesis 7b) of effort and reward on cynicism was not supported.

Table 7: Regression on Cynicism of Effort and Reward

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Step 3

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Gen=Gender, Child= Have Children, MS= Marital Status, Rew= Reward, Eff= Effort
MC stands for Mean Centred

Table 8 presents the results of the prediction of professional efficacy from reward and effort. The control
variable of gender \((B = .22, t = 3.67, p < .0001)\) was found significant. The step 2 showed that reward \((B = .396, t = 6.58, p < .0001)\) significantly predicted professional efficacy but effort and the interaction term between reward and effort were not found significant. The findings suggest that our hypothesis regarding significant main effect (hypothesis 6c) was partially supported but the interaction effects (hypothesis 7c) of effort and reward on professional efficacy was not supported.

Table 8: Regression on Professional Efficacy of Effort and Reward

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*Gen=Gender, Child= Have Children, MS= Marital Status, Rew= Reward, Eff= Effort

MC stands for Mean Centred
Table 9 presents the results of the prediction of psychosomatic health complaints from reward and effort. The regression results show that reward ($B = -.22$, $t = 3.47$, $p < .001$) and effort ($B = .25$, $t = 3.92$, $p < .0001$) significantly predicted psychosomatic health but the interaction term between reward and effort were not found significant. The findings suggest that our hypothesis regarding significant main effect (hypothesis 6d) was supported but the interaction effects (hypothesis 7d) of effort and reward on psychosomatic health was not supported.

**Table 9: Regression on Psychosomatic Health Complaints of Effort and Reward**

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Gen=Gender, Child= Have Children, MS= Marital Status, Rew= Reward, Eff= Effort
MC stands for Mean Centred
Table 10 presents the results of the prediction of self-reported physical health from reward and effort. The regression results show that reward ($B = -.16, t = 2.47, p < .01$) and effort ($B = .285, t = 4.59, p < .0001$) significantly predicted physical health but the interaction term between reward and effort were not found significant. The findings suggest that our hypothesis regarding significant main effect (hypothesis 6e) was supported but the interaction effects (hypothesis 7e) of effort and reward on psychosomatic health was not supported.

Table 10: Regression on Physical Health of Effort and Reward

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Gen=Gender, Child= Have Children, MS= Marital Status, Rew= Reward, Eff= Effort
MC stands for Mean Centred
Table 11 presents the results of the prediction of exhaustion from three-way interaction of effort, reward, and supervisor support. The control variables of age, gender, and marital status were found significant. The step 2 showed that effort and reward significantly predicted exhaustion but supervisor support did not. The third block of a regression analysis indicates that two-way interaction term of only effort x reward was significant and no two-way or three-way interaction terms involving supervisor support was found significant. Therefore, the findings suggest that our hypothesis (hypothesis 8a) regarding the moderating role of supervisor support in predicting the relationship between effort-reward imbalance and exhaustion was not supported.
Table 11: Regression on Exhaustion of Supervisor Support, Effort, and Reward

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Step 3

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Step 4

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Gen=Gender, Child= Have Children, MS= Marital Status, Rew= Reward, Eff= Effort; SS= Supervisor Support
MC stands for Mean Centred

Table 12 presents the results of the prediction of cynicism from three-way interaction of effort, reward, and supervisor support. The control variable of gender, number of children, and marital status were found significant. The step 2 shows that effort, reward, and
supervisor support were significant predictors of cynicism. The third block of a regression analysis indicates that two-way interaction term of reward and supervisor support \((B = .15, t = 2.74, p < .01)\) was significant. The figure 2 shows the graphical representation of this significant interaction effect. The step 4 analysis shows that the three-way interaction term of effort \(x\) reward \(x\) supervisor support was not found significant, thus leading to the rejection of hypothesis 8b.
Table 12: Regression on Cynicism of Supervisor Support, Effort, and Reward

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Gen=Gender, Child= Have Children, MS= Marital Status, Rew= Reward, Eff= Effort; SS= Supervisor Support

MC stands for Mean Centred
Table 13 presents the results of the prediction of professional efficacy from three-way interaction of effort, reward, and supervisor support. The control variable of gender was found significant. The step 2 shows that reward and supervisor support were significant predictors of professional efficacy. The third step of regression analysis indicates that two-way interaction term of reward and supervisor support \( (\beta = -0.11, t = 1.92, p < 0.05) \) was significant. The graphical representation (fig 3) of close to significant interaction of reward and supervisor support shows that professional efficacy was high when reward and supervisor support was high. However, the hypothesis 8c regarding the moderating role of supervisor support in predicting professional efficacy from three-way interaction of effort, reward, and supervisor support. The control variable of gender was found significant. The step 2 shows that reward and supervisor support were significant predictors of professional efficacy. The third step of regression analysis indicates that two-way interaction term of reward and supervisor support \( (\beta = -0.11, t = 1.92, p < 0.05) \) was significant. The graphical representation (fig 3) of close to significant interaction of reward and supervisor support shows that professional efficacy was high when reward and supervisor support was high. However, the hypothesis 8c regarding the moderating role of supervisor support in predicting
professional efficacy from effort and reward was not supported.

Table 13: Regression on Professional Efficacy of Supervisor Support, Effort, and Reward

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Gen=Gender, Child=Have Children, MS=Marital Status, Rew=Reward, Eff=Effort; SS=Supervisor Support
MC stands for Mean Centred
Table 14 presents the results of the prediction of exhaustion from three-way interaction of effort, reward, and co-worker support. The control variables of gender and marital status were found to be significant. The step 2 shows that besides effort and reward, co-worker support \( (B = .15, t = 2.74, p < .01) \) also significantly predicted exhaustion. A two-way interaction of co-worker support and reward was found close to significance (see fig 4). This indicates that exhaustion is highest when reward and co-worker support is low. However, three-way interaction term involving co-worker support did not significantly predict exhaustion, thus hypothesis 9a was not supported.
Table 14: Regression on Exhaustion of Co-worker Social Support, Effort, and Reward

<table>
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Step 3

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Step 4

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Gen=Gender, Child= Have Children, MS= Marital Status, Rew= Reward, Eff= Effort; CS= Co-worker Support; MC stands for Mean Centred
Table 15 presents the results of the prediction of cynicism from three-way interaction of effort, reward, and co-worker support. The control variable of gender, number of children, and marital status were found significant. The step 2 shows that reward and co-worker support ($B = -0.38$, $t = 6.89$, $p < .0001$) were significant predictors of cynicism. However, no two-way interaction term or three-way interaction term involving co-worker support was found significant, thus leading to the rejection of hypothesis 9b.
Table 15: Regression on Cynicism of Co-worker Social Support, Effort, and Reward

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Gen = Gender, Child = Have Children, MS = Marital Status, Rew = Reward, Eff = Effort, CSM = Co-worker Support; MC stands for Mean Centred

Table 16 presents the results regarding the prediction of professional efficacy from three-way interaction of effort, reward, and co-worker support. The control variable of gender was found significant. The step 2 shows that reward and co-worker support ($B = .38, t =$
6.35, \( p < .0001 \) were significant predictors of professional efficacy. The third step of regression analysis indicates that two-way interaction terms of effort and reward and of reward and co-worker support \( (B = -.15, \ t = 2.51, \ p < .01) \) were significant. The graphical representation (fig 5) of significant interaction of reward and co-worker support shows that professional efficacy was high when reward and co-worker support was high. However, the hypothesis 9c regarding the moderating role of co-worker support in predicting professional efficacy from effort and reward was not supported.
### Table 16: Regression on Professional Efficacy of Co-worker Support, Effort, and Reward

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*Gen=Gender, Child= Have Children, MS= Marital Status, Rew= Reward, Eff= Effort; CS= Co-worker Support; MC stands for Mean Centred*
Table 17 presents the results of the prediction of exhaustion from three-way interaction of effort, reward, and family support. The control variables of age and gender were found to be significant. The step 2 shows that besides effort and reward, family support \( (B = -0.19, t = 3.54, p < 0.0001) \) significantly predicted exhaustion. A two-way interaction of effort and reward was found significant. Interestingly, a three-way interaction term of family support, effort, and reward was found to significantly \( (B = -0.14, t = 2.47, p < 0.01) \) predict exhaustion, thus hypothesis 10a was supported. This finding suggests that high family support significantly buffers the relationship of effort-reward imbalance and emotional exhaustion.
Table 17: Regression on Exhaustion of Family Support, Effort, and Reward

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<tr>
<th>Step</th>
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Gen = Gender, Child = Have Children, MS = Marital Status, Rew = Reward, Eff = Effort; FS = Family Support
MC stands for Mean Centred

Table 18 presents the results of the prediction of cynicism from three-way interaction of effort, reward, and family support. The control variables of gender and marital status were found significant. The step 2 shows that effort, reward, and family support (B = -.22, t =
3.69, \( p < .0001 \) were significant predictors of cynicism. However, no two-way interaction term was found to be significant. The step 4 analysis shows that the three-way interaction term of family support, effort, and reward was significant \( (B = -.25, t = 4.01, p < .0001) \), thus leading to the support of hypothesis 10b. This finding suggests that family support buffers the relationship between high effort \( \times \) low reward and cynicism.
Table 18: Regression on Cynicism of Family Support, Effort, and Reward

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Gen = Gender, Child = Have Children, MS = Marital Status, Rew = Reward, Eff = Effort; FS = Family Support
MC stands for Mean Centred
DISCUSSION

The aim of the present study was to evaluate the effect of the Effort-Reward Imbalance Model (Siegrist, 1996, 1998) on strain outcomes i.e., burnout, psychosomatic health complaints, and self-reported physical health among health professionals in Pakistan. More specifically, the study was designed to elucidate the role of occupational demands i.e., high efforts spent at work and low reward, in burnout, psychosomatic health complaints, and general physical health status among doctors working in the Pakistani hospitals. Moreover, we incorporated social support received from three sources i.e., supervisor, co-workers, and the family, to examine the main effects on burnout, as well as the interactive effects with effort and reward in the prediction of burnout.

Based on the previous research, in general, we expected that doctors who experience an imbalance between efforts spent at work and rewards obtained (e.g., Bakker, et al., 2000; DeJonge, et al., 2000; Peter & Siegrist, 1997) and lack social support (e.g., Frese, 1999; Karasek & Theorell, 1990) are likely to develop burnout and
psychosomatic complaints, and poor status of physical health.

Effort-Reward Imbalance and Strain Indicators:

We predicted that high effort and low reward would be positively related to emotional exhaustion, cynicism, psychosomatic health complaints, and poor physical health and negatively related to professional efficacy. Findings based on the t-test and correlation analyses indicated that our hypotheses were supported among the doctors working in the Pakistani hospitals. The t-test analyses based on the effort-reward imbalance ratio indicated that the high-risk group was more emotionally exhausted, reported more cynicism, and was low on professional efficacy as compared to their low-risk counterparts. Moreover, doctors who were categorised as a high-risk group reported more psychosomatic health complaints and had poor self-reported physical health as compared to the low-risk group. These results are in line with the previous findings (e.g., Bakker, Killmer, Siegrist & Schaufeli, 2000; Niedhammer, et al., 2004; Van Vegchel, De Jonge, Meijer, & Hamers, 2001; Tsutsumi, et al., 2001b). One possible explanation for these findings could be that medical professionals are highly motivated to do their jobs well. They put a lot of mental and physical
effort (like working for long hours, coping with high workloads) and believe that in return they will receive congruent rewards (like respect, esteem, appreciation, and support). If their expectations are not met in reality, feeling of being emotionally drained and detached attitude towards their work (cynicism) could occur (Buunk & Schaufeli, 1993). The development of burnout among medical professionals could be explained in terms of burnout theories. For instance, dual level social exchange model (Schaufeli, Van Dierendonck, & Van Gorp 1996) suggests that social exchange processes at the interpersonal as well as organizational level trigger burnout due to a lack of reciprocity. Reciprocity exists when an individual's investments or efforts are congruent to rewards or outcomes received at interpersonal and organizational level.

Based on the Equity theory, Buunk and Schaufeli (1993) argued that in human service professions such as doctor's perceived inequity may take the form of emotional exhaustion by depleting one's psychological resources, as well as, lowering one's sense of self esteem. Arguably, doctors may deal with the negative state by decreasing their efforts invested in their relationship with patients. Conversely, they may treat their patients in an
indifferent, callous, and cynical manner. The findings of the present study are inline with previous research (e.g., Bakker, et al., 2000; Van Dierendonck, et al., 1994).

Another explanation could be that given the fact that medical professionals enjoy high status in the Pakistani society, one could argue that they try to work even harder to justify these rewards. When efforts spent at work become too high, this could lead to a vicious circle of not being able to recover from work, which in turn could lead to burnout and could also affect their psychosomatic and physical health.

In the perspective of the ERI model, one could argue that efforts spent by doctors such as coping with workload like long working hours for doctors, dealing with heavy case-load, working under time pressure in case of emergencies are compensated by rewards in terms of money, esteem, and status. However, if rewards are not in proportion to the efforts spent at work, then state of emotional distress occurs with propensity to autonomic arousal and strain reactions. Therefore, the doctors who perceive their jobs demanding in terms of investing high effort and not receiving enough reward experience

128
burnout, psychosomatic problems, and poor physical health.

Regarding the prediction of burnout and health indicators from effort and reward all hypotheses were supported, thus in line with the ERI model. One could argue that doctors' job is inherently stressful, as they have to deal with the troubled people, who are in need of help. These helping relationships are emotionally charged and are psychological burden on the helpers. Therefore, in order to cope with these inherent emotional demands and perform efficiently, doctors may adopt an attitude of detachment. This, in turn, may lead them to treat their patients in a more remote manner without suffering the psychological discomfort. However, when this delicate balance between genuine concern for the patient and detached objectivity is lost, doctors are likely to adopt unprofessional and dysfunctional detachment. Such dysfunctional distancing techniques like using derogatory labels, professional jargons, sick humour that are regarded as 'dehumanization in self-defence' (Zimbardo, 1970) make professionals to treat their patients more like an object than a person (Maslach & Leiter, 1997).
The process of distancing is likely to deteriorate the doctors' relationship with their patients, which instead of reducing the emotional demands increases the interpersonal stress, thus depleting their emotional resources. Besides the nature of this helping profession, doctors persistently have to deal with heavy workloads. Moreover, there is also a lack of positive feedback from the colleagues and recipients of help. Mostly they are only given negative feedback when things go wrong and not when things are working right. In addition, when patients do not respond to doctors' advice and care, it further fosters exhaustion and cynicism among doctors. This, in turn could affect the quality of care and services provided to the patients, thus developing feelings of inefficacy, and self-doubt about one's professional competence.

Our findings regarding the effect of effort and reward on employees health and well-being are in line with previous research (Bakker, et al. 2000; Calnan et al., 2000; Stansfeld, Fuhrer, Shipley, & Marmot, 1999; Tsutsumi, Kayaba, Theorell., & Siegrist, 2001b; Siegrist, 2002).

It is argued (Buunk & Schaufeli, 1998) that reciprocity plays a crucial part in interpersonal relationships. The
reciprocal relationship is considered important for one's health and well-being. Adverse health effects occur when there is lack of reciprocity at work (Siegrist, 1996). Within the perspective of the ERI model, it is argued that the work role is regarded as an important link between emotional and motivational needs such as self-esteem and self-efficacy. For instance, the occupational status of doctors gives them the opportunity to perform well in their jobs and receive reciprocal rewards in terms of job stability, appreciation and esteem, and monetary benefits. Conversely, these beneficial effects of the occupation are based on the socially organized exchange process. When the doctors work too hard but in return they do not receive the expected benefits such as positive feedback, esteem, job stability, promotional and training prospects, then this high cost-low gain condition may give rise to emotional distress which fosters strain reactions such as burnout, psychosomatic health complaints, and poor physical health (Bosma et al., 1998).

However, the interaction effect of effort and reward was only found significant for the emotional exhaustion. One possible explanation for the non-significant results could be the use of a global, composite measure of
reward. In order to study the combined effect of effort and reward, it seems that more specific reward measures (e.g., fair salary, esteem, career opportunities) would be more sensitive to detect relationships. Conversely, the particular effort should match the reward measure in order to enhance or reduce the workers well-being.

Another plausible argument for the weak or non-significant interactive terms based on effort and reward could be that although the doctors face high job demands like workload, yet they are rewarded in terms of status and prestige.

**Prediction of Burnout from Social Support Variables:**

As regards, the social support variable, supervisor support and co-worker support had significant negative correlations with emotional exhaustion, cynicism, and reduced professional efficacy having the highest correlation with cynicism. Family support had significant negative association with all three dimensions having the highest correlation with emotional exhaustion.

The hierarchical regression analyses indicated that supervisor support, co-worker, and family support had main effects on the burnout dimensions, as was hypothesized. However, the significant interaction terms...
were supervisor support x reward for cynicism and co-worker support x reward for professional efficacy. This implies that doctors who perceived low supervisor support and low rewards were likely to develop cynicism. Similarly, doctors who perceive low co-worker support and low rewards have reduced sense of professional efficacy. One interpretation could be that whether it is a support from supervisor or co-worker, it cannot prevent the doctors from being emotionally exhausted due to the nature of their job structure, but it can contribute to a less cynical attitude towards their work and patients, as well as, it can enhance their sense of professional efficacy. For instance, supervisors' support, in terms of allocating an affordable amount of workload, making reasonable work schedule, appreciating the junior doctors work, providing opportunities to gain more skills combined with high rewards, in terms of fringe benefits, performance related bonuses, esteem, and status will buffer or reduce cynical attitude among doctors. Similarly, when co-worker support is combined with high reward it also improves ones sense of professional efficacy. One could argue that since co-workers understand the nature and demand of their fellow workers more than the supervisors they can provide more support like sharing the workload, mutual skill learning, and
being more appreciative of their efforts so giving them chance to focus on developing professional skills.

Interestingly, a three-way interaction term of family support x effort x reward was found significant for exhaustion and cynicism. Thus, hypothesis of the study regarding moderating role of family support was supported. These findings are in line with previous research (e.g., Munro, Rodwell, & Harding, 1998; Peeters & Le Blanc, 2001). One plausible explanation for these findings could be viewed in a rapidly changing job scenario in the Pakistani society, where in order to share the economic burden, women are also entering into the workforce, thus leading to dual-career families. In this situation, the interdependence of work and home domain has increased and so is the importance of family support for the well-being of workers. For example, the nature of the doctors' work require them to be flexible in their work time schedule to cope with working at irregular hours including night shifts, working for longer time to handle caseload, and sometimes working at different locations. So in order to cope effectively with the demands that doctor's work place on them, they need the support from their family. On the basis of the findings of the study, one might argue that besides the
fact, that doctors spend high efforts at work, but receiving high occupational rewards as well as family support could reduce burnout, in terms of emotional exhaustion and cynicism.

In sum, the present study on medical professionals has indicated that high efforts, low rewards, and lack of social support are associated with adverse mental and physical health effects such as, burnout, psychosomatic health complaints, and poor general physical health. One could infer that organizational interventions should be aimed at reducing the job stressors, providing contingent rewards, and supportive work environment for the optimal performance of their employees. For example, factors like supervisor’s supportive attitude, good team work among co-workers, flexible work arrangements, training and education facilities, and promoting physical fitness programmes could help to improve the mental and physical well-being of the employees.
CONCLUSION

The main purpose of this study was to examine the relationship of high effort and low reward with the burnout dimensions i.e., exhaustion, cynicism, and professional efficacy. More specifically, this study investigated the role of extrinsic component of the Effort-Reward Imbalance Model (ERI; Siegrist, 1996; 1998) on the strain reactions i.e. burnout, psychosomatic health complaints, and general physical health among doctors working in the Pakistani hospitals. Moreover, the main effects and potential moderating effects of the social support received from three sources i.e., supervisor, co-workers, and the family, in the relationship between effort-reward imbalance and burnout dimensions were also examined. The data were collected using the questionnaire method, from 250 doctors with 104 females and 146 males with average age of 34 years working in different hospitals of Pakistan.

The findings of the study indicated that high effort and low reward in the medical profession had a significant positive relationship with burnout i.e., emotional exhaustion, cynicism, and reduced professional efficacy and psychosomatic health complaints, and poor physical
Moreover, the interaction of high effort and low reward significantly predicted exhaustion and cynicism.

As regards, the social support variable, supervisor support and co-workers support had significant negative correlations with exhaustion, cynicism, and reduced professional efficacy, with highest correlation found to be with cynicism. Family support had significant negative correlation with all three dimensions of burnout with highest correlation found to be with emotional exhaustion. However, the significant interaction terms were supervisor support x reward for cynicism and co-worker support x reward for professional efficacy. A three-way interaction term of family support x effort x reward was found significant for exhaustion and cynicism.

Several limitations of the study need to be taken into account. First, this study is based on a cross-sectional design. Although theoretically, the ERI model guided our hypotheses about relationship between the effort-reward and the relative strain outcomes, but the causal explanations could not be drawn on the basis of the study design. For instance, one could not rule out the premise that doctors suffering from burnout have a tendency to perceive extrinsic efforts such as workload and low
reward more negatively or the personality characteristic of negative affectivity could have shared a part of the variance in reported correlations. However, a few longitudinal studies have found support for such causation (e.g., Bosma, et al., 1998; Stanfeld, Fuhrer, Shipley, & Marmot, 1999). Second, though we used the proxy measures (as were used in other studies, e.g., van Vegchel et al., 2002) for effort and reward, we still found partial support for the ERI model. This indicates the role of effort-reward imbalance regardless of the original or proxy measures being used, thus lending support to the robustness of the model. Third, since the data were obtained by self-report questionnaire design the results may be confounded by common method variance. However, we did try to reduce this problem by measuring the variables with different response formats. Moreover, several studies have shown these factors did not pose a major problem in the interpretation of the findings (e.g., Bosma, Peter, Siegrist, & Marmot, 1998; Stansfeld, Head, & Marmot, 2000; van Vegchel, deJonge, Meijer, & Hamers, 2001). Fourth, as the sample is based on the Pakistani doctors, therefore, one should be cautious about generalizing the findings to other occupations. Nevertheless, research on the ERI model and burnout, based on objective measures and longitudinal designs is
needed, particularly in Pakistan, where the present study can be regarded as the pioneering work.

One could draw some implications based on the findings of the present study. Since, this study emphasizes the role of high effort and low reward in the development of burnout among doctors, special intervention strategies may be designed. For instance, in order to reduce the incidence of burnout among doctors, focus may be upon restoring the balance between efforts spent at work such as: (a) distribution of the amount of workload, (b) reducing long working hours and caseload on doctors, and (c) increasing workforce; and occupational rewards such as: (a) introducing performance related benefits, (b) providing feedback, (c) training supervisors and co-workers to provide emotional and instrumental support to the colleagues and especially the junior doctors, and (d) providing training opportunities to enhance the professional skills. Such intervention strategies may help to promote healthy and productive working environment for doctors. This, in turn may restore the effort-reward balance and prevent or reduce burnout and other strain reactions among doctors in Pakistan.
To conclude, the findings of the present study are in line with the previous research. This study lends support to the robustness of the burnout theory and the ERI model. Moreover, no previous research based on the ERI model of burnout among Pakistani doctors was noted. Hence, this study could be a starting point for conducting future research on the ERI model, particularly with longitudinal design and involving wide range of occupations. Nevertheless, one could describe this research effort as a contribution to the international work on burnout and the ERI model.
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