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CHILD FEEDING PRACTICES
AMONG NEW URBAN FAMILIES IN IRAN

By

SHAHNAZ ZANJANCHI

A thesis submitted to the University of Surrey
for the degree of
Doctor of Philosophy in Home Economics.

Department of Home Economics
University of Surrey,
Guildford, Surrey,
England.  

April, 1981
To Mohammad
Hadi
and
My Mother
The purpose of this study was to investigate the effect of social change and urbanization on child feeding practices in Iran and to determine how any deleterious effects might be compensated for in a manner consistent with the deeply held beliefs of the subjects. The control group was 35 rural households in a small village and the "new urban" group was 50 households in the squatter quarter of a large city. The families in the survey group had moved from small villages to the city within the last 2 - 10 years.

Significant differences were found between the two groups in lactational performance particularly in the much shorter period of breast feeding in the new urban group. Insufficient milk supply, inability to feed the baby because of the need to take outside employment, another pregnancy, and the influence of advertising of prepared baby foods were all identified as causative factors. The low economic status of the new urban families, the inadequate environmental situation and the ignorance of the parents led to use of improperly prepared infant feeds, too dilute because of expense and unhygienically prepared because of poverty and ignorance, resulted in high prevalence of diarrhoeal disease, infantile marasmus and high infant mortality.

Although the absolute economic status of new urban families was higher than that of their rural counterparts, the quality of life was not improved. Expenditure and cost of living was higher in the city, gross overcrowding was evident,
and the new urban migrants were no longer able to keep animals or grow vegetables. There was also a break down of traditional cultural beliefs amongst the new urban families.

As a result of the survey a nutritional education programme was devised. A series of five or six talks and practical demonstrations was given to small groups of mothers, most of whom were illiterate and the response to this person-to-person approach was gratifying.

The major problems of infant nutrition in the new-urban areas have been identified and a method of alleviating these has been developed and successfully tested. This education programme could easily be extended by trained voluntary workers but would need governmental approval and financial assistance to make dramatic improvements in infant health in the short term.
ACKNOWLEDGEMENTS

I wish to express my heartfelt thanks to Professor R.J. Irving, Head of the Home Economics Department, University of Surrey, for his supervision, devoted interest, encouragement, helpful discussions and guidance throughout the present work.

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I wish to express my sincere thanks to Dr. Mahbob, Head, and other members of the Biochemistry and Nutrition Department of the University of Tabriz, Iran, Food and Nutrition Institute of Iran, Departments of Health, Budget and Organization, and Statistical Centre of East Azarbajyan Province, Iran.

Last, but by no means least, I am greatly indebted to my husband, Mohammad, who showed extreme patience and understanding throughout the period of this research.
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1.1 General
Urbanization has been one of the major trends in modern life. In the last few decades, while the world's population doubled, the number of people living in cities has increased five fold. This phenomenon is not confined to industrialized societies; it is occurring in the underdeveloped and developing countries in the world as well and at a rate which is without precedent. In Asia and Africa, for example, the population living in cities almost doubled in the decade 1950 - 1960 (Davis, 1969).

The move from a rural to an urban environment is frequently accompanied by marked changes in virtually every aspect of life. The physical surroundings of the slum or shanty town where the vast majority of the new arrivals live are quite alien to the newcomers from a rural community. There is less space, less daylight, less fresh air, less greenery and more noise and stress. The role of women is often changed as they seek outside work to supplement their husband's earnings (if any) with accompanying decreased opportunity for breast feeding and often insufficient care and nutrition of young children left parentless at home. The new arrivals find themselves exposed to new cultural values and practices to which they may not easily adapt. The rapid influx of people, overcrowding and poor sanitation with the resulting increase in infections and infestations,
the required adjustments to a cash economy, the higher price of food, the unaccustomed distractions and novelties of an urban society and the increased instability of family life all contribute to social disorganization and cultural confusion frequently associated with an increased incidence and severity of malnutrition particularly in the young.

Urbanization also causes changes in family life and food availability that can have significant nutritional effects. In respect to infant nutrition the dominant changes are decline in breast feeding, a rise in attempted bottle feeding and a tendency to purchase expensive processed foods. The decline in breast feeding is not only due to the fact that the mother may work away from home, but also to socio-cultural pressures generated by imitation of "economic superiors" among whom the trend toward the abandonment of breast feeding is well advanced. Another factor is the desire on the part of the mother to feed her child such status foods as the highly advertised and expensive ready infant foods. These foods have a disruptive effect on the pattern of breast feeding - without supplying an adequate substitute. They are totally beyond the economic range of the group to whom they are supplied. In addition, the possibility of producing uncontaminated food is almost nil, when a mother may have only one bottle, no appropriate storage facilities and the only water supply being a nearby pond or stream. Added to this there is the further problem that because of minimal education they have difficulty in understanding the instructions given on the package so
usually do not prepare food properly. Under these circumstances in very many cases small doses of milk are administered with large quantities of bacteria and the result is starvation and diarrhoea, too often leading to death with the label of "marasmus". The earlier age at which weaning takes place plus the high cost of food in the cities also contribute to the poor nutritional state of the post-weaning young, particularly in the lower socio-economic groups. Urbanization also results in changes of food habits which may have adverse nutritional effects on all members of the family. The main staple to which the new city dwellers were originally adjusted may not be available (at least at a price which can be afforded) in the cities. Restricted cooking facilities and fuel may limit the preparation of certain dishes. The net effect of the above factors is that there is a marked increase in mortality and morbidity in which malnutrition is either the primary or a contributing factor.

This research study examines the situation in Iran in 1978. Its overall objective is to investigate the child feeding practices of families who have recently moved from a village to a large city. Hereafter these will be called "new-urban families".

There is no doubt that the pre-school children are at the most vulnerable age in human development. Children are not isolated beings; they exist not only as individuals, but as members of families and as members of general
social systems. Young children are, by necessity, dependent on others (primarily other family members) for the provision of food and environmental stimulation. Both of these factors influence the child's growth and development. It is proposed, therefore, that information on the feeding practices of young children has greatest significance when examined in the context of their family and social environment. Any study of young children's feeding practices which fails to consider these wider issues can be expected to provide only limited insight. It is assumed that the influences upon a child's well-being are a complex of interacting factors. For complete understanding of the factors influencing the pattern of child care and feeding practices in a changing society, the model presented in this research programme, therefore, focusses on "new-urban families" where the environmental influences appear to be particularly important. It is an investigation of feeding practices of pre-school children of new urban families compared to those of rural families, with detailed emphasis on social, cultural, environmental and economic aspects seen in Iran.
1.2 Migration Study

1.2.1 Urbanization

At the beginning of this century, less than 5 per cent. of the population of Asia, Africa, and Latin America lived in cities. By 1950 the percentage had increased to 16 and it was 28 per cent. in 1975. A conservative estimate for the year 2000 suggests that at least 42 per cent. of the population of these countries will live in cities with continuing rapid increase thereafter. This means that between 1975 and the year 2000 the cities of the developing countries will be expected to absorb 60 per cent. of the projected population increases, most of them poor (Table 1.1), (World Bank, 1975). Put into its historical perspective, this means a dramatic change in population distributions.

Following the example of the developed countries, this increased urbanization of developing countries seems to be a natural step in the process of socio-economic development. Although cities are absorbing a large proportion of the population, they are doing so in a manner that is both inefficient and inequitable. In fact, few cities are prepared for the vast increases that are clearly foreseeable in future.

Urbanization by itself is no cause for alarm. What is alarming is the gross inefficiency and inequity that characterizes urbanization in the developing countries. Large conurbations, some of which will soon surplus the size of the largest cities are now growing (Kosinski et al.,


1974). Living conditions in these crowded cities are grossly inadequate, millions of people from poor socio-economic strata live in crowded and unsanitary slums, where congestion and pollution of the environment are far worse than anywhere in the developed world. The majority of the poor people live in urban areas of developing countries under conditions of absolute poverty, as defined by inadequate nutrition, lack of access to safe water and adequate disposal systems.

Unless there are changes in national, regional and urban policies, the growth of urban areas will alleviate the state of object poverty of many of its inhabitants.
Table 1.1 Rural and Urban Populations 1950 - 2000
(in millions)/a

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<th>1975</th>
<th>2000</th>
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<td><strong>Less Developed Countries:</strong></td>
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<td></td>
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<tr>
<td>Urban</td>
<td>273</td>
<td>819</td>
<td>2,153</td>
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<tr>
<td>Rural</td>
<td>1,382</td>
<td>2,075</td>
<td>2,939</td>
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<tr>
<td><strong>Total</strong></td>
<td>1,655</td>
<td>2,894</td>
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<td><strong>More Developed Countries/b:</strong></td>
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<tr>
<td>Urban</td>
<td>429</td>
<td>731</td>
<td>1,048</td>
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<tr>
<td>Rural</td>
<td>402</td>
<td>362</td>
<td>267</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>831</td>
<td>1,093</td>
<td>1,315</td>
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<tr>
<td><strong>World Total:</strong></td>
<td></td>
<td></td>
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<tr>
<td>Urban</td>
<td>701</td>
<td>1,551</td>
<td>3,200</td>
</tr>
<tr>
<td>Rural</td>
<td>1,784</td>
<td>2,437</td>
<td>3,207</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>2,485</td>
<td>3,988</td>
<td>6,407</td>
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/a U.N. Population Projections, medium tempo, medium variant
/b Europe, N. America, Soviet Union, Japan, Australia and New Zealand.
1.2.2 The Pattern of Urbanization in Developing Countries

Patterns of population distributions are heavily dependent on both the initial conditions at the early stages of urbanization and the subsequent interaction of socio-economic forces. European urbanization occurred over centuries during which population growth was low, income relatively high and the diffusion of innovations relatively slow compared to what is occurring now.

Urbanization in developing countries is taking place under completely different circumstances. A review of the literature indicates that four important factors have contributed to dramatic and rapid urban growth:

1. rapid population growth,
2. decline in available agricultural land area per capita, and low levels of rural income
3. decline in costs of transportation and communication
4. fixed territorial limits and barriers to international migration

These factors will be discussed briefly.

1. The increase in population growth of the 20th century is the most important factor distinguishing present from past urbanization. In the period of rapid urbanization in Europe, national population growth rates were typically of the order of 0.5 per cent per annum. In contrast, the rates for developing countries are usually between 2.5 per cent. and 3.0 per cent. per annum (IBRD, World Bank Operations, 1972). These much higher rates of
population growth have resulted in both larger absolute population movements from rural areas to cities and also natural increases of population within cities. The consequent pressure to absorb large numbers of people through the provisions of employment and services has led to a different type of urbanization which requires different policy responses.

2. There is evidence from the literature that the ratios of population to agricultural land in most developing countries exceed those found in Europe or North America during their period of rapid urbanization. Increases in cultivatable areas have slowed down in the last decade, consequently most countries have reached the practical limits of expanding acreage. This suggests that most future increases in agricultural output will have to come from more productive cultivation of existing land (IBRD, World Bank Operations, 1972). This constraint is not, however, absolute, given the experimentation with sea-farming, jungle clearance, desert reclamation through irrigation and double cropping, but the cost of overcoming it is often prohibitive. Therefore, even where the absolute limits of cultivatable area are not reached immediately, it may be economically too expensive to expand the acreage. In addition this expansion must usually involve governmental policy and may require relatively small numbers of skilled or semi-skilled workers rather than a large number of unskilled labourers.
A constrained supply of productive land will contribute to more rapid increase in population to land ratio and a pressure to migrate from rural to urban areas as the limits to agricultural output are approached.

3. The widespread diffusion of modern communications and transportation encourages population movement in the first instance by providing information concerning urban opportunities, and in the second, permits relatively cheap movement from the place of origin to the city. As the result of progress in technology and the use of motorised transport, the cost of movement of goods and also people has been reduced. The literature indicates that even as recently as mid-20th century, migration from rural to urban centres was limited to some degree by the horse-drawn technology of the time in Iran. The major urban centres are now a short and relatively inexpensive bus or truck ride from even the remote rural areas.

4. The last factor distinguishing the urbanization of developing countries from the pattern of Europe and North America is the effect of relatively fixed territorial boundaries which do not allow for any realistic major adjustment in national living space, natural resources, or the free migration of surplus population to compensate for short or medium term population increase.

Taken together, these factors suggest that developing countries are facing the large absolute task of urbanizing many more people within a much shorter period of time than did the developed countries.
1.2.3. Internal Migration in Developing Countries

In most developing countries population is growing rapidly in both urban and rural areas, with the urban population at rates generally double those of the rural areas. Rural to urban migration thus accounts for a significant part of urban growth. Its importance, however, varies considerably from country to country and from one period of time to the next. For those countries with a large percentage of their population already in urban areas (e.g. Latin America) the impact of migration on urban growth rates should decline rapidly, probably in about another decade. In the predominantly rural countries (e.g. Iran and Africa) migration patterns will still dominate urban growth for some time to come.

In spite of often considerably different social and cultural environments, the results of many studies in internal migration reveal that there are remarkable worldwide similarities among migrants and migration flow. Generally migrants are young, typically under 30, and although not highly educated, have higher average education than those not migrating. Large family size is another characteristic of new urban families. Studies of internal migration in Santiago, Chile, Thailand, Iran, Africa and Iraq found that the highest birth rates were found among low income families, in other words, the families least able to afford additional children have the highest fertility rates within the urban population (Herrick 1965, Phillips 1959, Caldwell 1968, Hemmasi 1974).
Where the migrants go is determined by distance, cost of movement and contacts. Most new urban families have friends and relatives or similar contacts in the cities to which they migrate.
1.2.4. Reasons for Settling in Large Cities

In the early stages of urbanization migration is often a two or three step move, from rural to small local towns and from small towns to large urban areas. The eventual movement to large urban areas is a logical consequence of higher incomes and greater opportunities for employment in these areas. The large cities are believed to provide large labour markets, a finer division of labour and a better match between skills and vacancies. Thus, a migrant moving to a large city may have access to potentially several hundred jobs. In a small town there may be only a few potential jobs.

It is increasingly evident, however, from the more rapid growth of large urban areas and the slow growth of smaller towns that this migration is increasingly bypassing any intermediate stops, or that for every migrant to a small town another migrates to the large city.

Migrants are no longer faced with an unknown destination; many have already visited the areas where they will settle eventually. It is not unusual to find that for every five villagers who visit the city four eventually return to settle permanently (Trueblood 1971). In fact, this large movement back and forth from rural and urban areas improves information and lowers the risk of movement.

Another powerful factor in favour of large urban areas as recipients of the migratory flows is the importance of the presence of relatives and friends. These contacts provide both information and support for the newly arrived
migrants. When an urban centre has grown to the point where it contains 15 - 20 per cent of a country's population, it is likely that almost every potential migrant will have a relative or friend in the city, thus continuing the pattern of concentration of the population.

There are, however, a number of disadvantages to large city size. As the population of a city increases commuting costs, housing costs and food prices increase because it takes more time and resources to reach different parts of an expanding urban area.

The dominant problem with respect to the expanding size of urban areas is that of urban management. Many large cities in the developing world appear to have formed by the eventual coalescence of neighbouring small towns which have expanded to fill the space between them. But the proximity of these numerous loosely connected urban units affects the urban ecological system and the social environment. It is well known that in developing countries occurrences of air pollution, noise levels, congestion, poor health status of children, crime and social disturbances, health problems and climatic changes tend to increase with city size and that the centralized urban government tends to ignore the problems which it has inherited. (Hoch, Irving; 1973).
1.2.5. Identifying the Migrants (In Developing Countries)
The results of many studies concerning internal migration
reveal that migrants in general share many demographic
reproductive, educational, nutritional and health, and
political characteristics:

1.2.5.1. Nutritional and Health Characteristics
Health and balanced nutrition are essential for human
productivity. Studies of the effects of disease and
malnutrition demonstrate the importance of health and
diet in utilizing opportunities from school to work place
and to recreation (D.B. Jelliffe, 1968a). Even though
health facilities are more available in urban than in
rural areas, they are often unsuited to the needs of the
majority of urban population, especially those from poor
socio-economic strata. While untreated disease is more
prevalent in rural areas, new health hazards grow from
the crowded, unsanitary urban residential neighbourhoods
and contaminated water supply (Golladay, Koch-Weser, 1974).

The most important aspect of urban health problems is
childhood mortality and disease linked to malnutrition
(Pellett, 1977). The benefit of a full supply of breast
milk to rural children is often lost to urban infants.
The factors responsible for this change have been mentioned
in previous sections of this Chapter (Section 1.1).
Studies in Brazil, Taiwan, Gambia, Indonesia and many other
developing countries show major rural-urban differentials
in the quantity of breast milk provided to infants. Studies in India, the Philippines and Mexico show that 50 per cent. of potential breast milk is lost because of labour force participation by women (Reutlinger et al. 1974). While the family's income may increase, children are deprived of essential nutrients; this has long term implications for educability, productivity and earnings.

Furthermore, the incidence and impact of these problems are felt more severely among low income groups. Health problems are found most often in remote and squatter areas, in part resulting from the lack of safe water supply and effective sewerage disposal occurring at high residential densities. Undiagnosed and untreated health problems then lead to more debilitating problems which can result in temporary loss of income, permanent disability, or death.

1.2.5.2. Educational Characteristics
The distribution of education is positively correlated with both individual and household income. Education, whether for credential purposes or vocational training, increases the opportunities of workers within industries and firms. Workers' productivity, thus, is often linked to educational background. The results of studies in many developing countries such as Hong Kong, Manila, Malaysia Bangkok and Taiwan show that the education of the household head is strongly linked to higher income (Chiswick 1975).
The results of some studies also show that workers with primary education earn from 33 - 50 per cent. more than people without schooling (Clignet & Foster 1966).

Analysis of school attendance patterns shows that the poor have the highest proportion of household heads with only primary education. Low household incomes force high-school-age children to seek employment rather than seek secondary education (Niromand & Ahsan 1970). The result is that the lowest high school enrolment is found among poor households.

1.2.5.3. Demographic Characteristics
The age structure determines the supply of labour that a family of a given size has to offer. Having more than one income earner in every household increases the chance that a family will have higher income to provide the adequate amount of food, a house in good condition and services necessary for continued productivity; a high dependency ratio places great strain on the economic stability of the family group. Age distribution studies of urban population show that low income groups usually have the lowest median age and highest dependency burden within the total population (Hackenberg, 1974).

1.2.5.4. Locational Characteristics
As mentioned earlier, the improvement in transportation and physical settlement determines access to real income-earning opportunities. Because land prices and house rents increase with proximity to the city centre (which is also
the city's business district) the poor people are unlikely to buy or rent places near to employment and other economic activities. Their alternatives include illegal squatting, which permits access but inhibits fixed asset formation, or residence on the urban periphery. This latter situation usually offers more secure opportunities for investment in housing, but more costly access to services and employment (due to high cost of transport within the city).

Studies of large cities in developing countries show examples of squatter settlements on the periphery far from income earning opportunities. In fact most of the job centres are concentrated in city centres. Location, thus, appears to be the determinant factor for increased incomes in most cases (The Budget Organisation of Azarbayajan Province 1971).

1.2.5.5. Political Characteristics

A major dimension of economic status is the ability to take part in decisions which affect the population and their social welfare. Those not represented during the process of resource allocation rarely receive their fair share. Group interest, therefore, can only be safeguarded by the particular group concerned.

Experience shows that poor households suffer serious political disadvantages in the cities of many developing countries. They are rarely represented in formal political
institutions. Their internal organization, while it may be effective in their neighbourhoods, does not guarantee their sharing in the benefits of city-wide resource allocation patterns. They are excluded by the political process.
1.3 Urbanization in Iran

Urban settlements and urban way of life are not new to Iran. Landmark ruins of "Persepolis", "Susa", "Ecbatana" and many other historical sites are evidence of its past urbanization. Since the arrival of Islam (641), city life has been more important, and the Islamic religion has required the city to achieve social and religious goals, for instance, group prayers.

The rapid increase in the population of Iran in this century has been simultaneous with the growth of old cities and the emergence of new cities (Bharier 1968). The Iranian census of 1956 shows 31.4 per cent. of the total population to be urban and the remaining 68.6 per cent. to be rural. In ten years (1956 - 1966) these percentages changed to 38.5 per cent. urban and 61.3 per cent. rural (Hemmasi 1974). Data presented in Table 1.2 show differential rural-urban population growth rates of Iran since 1950 (Davis 1969).

As the data show, the rural population growth rate is substantially lower than urban population growth rate. Also, urban growth does not advance at a similar rate for all levels of urban hierarchy. A remarkable differential exists in the rate of large cities and small towns. Cities of 100,000 inhabitants and over have grown at least two times faster than those of less than 100,000 population and also faster than the national population growth for the region.
Table 1.2 Annual Growth Rate of Population 1950 to 1960 to 1970 (per cent.)

<table>
<thead>
<tr>
<th>Country</th>
<th>Total</th>
<th>Rural</th>
<th>Urban</th>
<th>Town*</th>
<th>City**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iran</td>
<td>2.8</td>
<td>1.9</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
</tr>
<tr>
<td>1950-60</td>
<td>3.0</td>
<td>2.0</td>
<td>4.8</td>
<td>3.4</td>
<td>5.9</td>
</tr>
</tbody>
</table>

*Town means an urban place of fewer than 100,000 pop.  
**City means a place with 100,000 or more.

Assuming that there is no great difference in the rate of natural increase between rural and urban areas, it may be concluded that the observed urban population increase is primarily due to migration from rural and small towns to the cities. Broadly speaking, there is a positive correlation between the size of a city and percentage of recipient rural migrants; the available data show that more than 38 per cent. of the inhabitants of large cities of Iran (100,000 or more) are in-migrants, whereas less than 15 per cent. of the population of smaller cities (20,000 - 99,000) are in-migrants (Census of 1956-1966). In summary, the above mentioned information suggests that the process of population redistribution in Iran has the following common characteristics:

1. rural population is declining  
2. urban population is increasing at a rapid pace  
3. cities in the upper level of the hierarchy are growing much faster than the lower level.

The mobility of Iran's population has gradually been growing, particularly since the 1960s, and is a natural step in the
process of economic development and for the reasons mentioned previously. However, this mobility has accelerated because of deliberate government policy to industrialization.

Several large cities in Iran have concentrations of various industries such as machine tools, heavy electricals, etc. which absorb a multitude of semi-skilled or unskilled workers from rural areas. The landless agricultural workers and persons engaged in traditional village handcraft have shown a special tendency to migrate.

It is interesting to note that the central business districts and the affluent residential areas are quite distinct in character from the poorer areas of the city, both from the nature of the housing and social organization. There is no real demarcation between these poorer areas and those occupied by squatters. The quality of the housing is poor in both cases. Overcrowding and lack of sanitary facilities are equally a problem, and the outside observer could not easily distinguish between them. There seems, therefore, to be little environmental barrier to urbanward migration. The most important problem is, however, cultural, social and psychological strains to which rural to urban migrants are subjected as a result of change in life style and relocation.

The relatively high unemployment levels of urban areas are good indications of the fact that rural to urban migration is not only the result of the economic attractions of the urban centres which are often exaggerated in the minds of the rural population, but also because of the push factors.
operating in the rural areas where the incomes are low and continued population growth is putting much pressure on the cultivated areas.

While the general picture of immigration to the cities has now been described, it is difficult to deal in detail with the problem in Iran since there has only been very limited work done in this field. In fact, the great importance of internal migration studies in Iran is countermanded by lack of direct data and reliable statistics for analysis in this vital aspect of population. The main source of information for such investigation is the indirect data on birth place and residence provided by the Census of Iran carried out every ten years. In recent years Iran's census has introduced some improvements: it has given rural/urban classification of both birth place and place of residence.

However, place of birth data are only an indirect tool for an analysis of migration, and for that reason suffer from many handicaps. The main limitation arises from the fact that it does not differentiate between economic; matrimonial, natal, administrative, casual etc. reasons for migration. There is no information available on the number of moves made, the motive behind an individual's migration or the change in occupation which the migration may have caused.

The present and future research into patterns of internal migration in Iran, therefore, seems to lie in studies of limited scale, in selected localities and with restricted analytical aims.
CHAPTER TWO
PATTERN OF CHILD CARE AND INFANT FEEDING
PRACTICES AMONG IRANIAN MOTHERS RESIDENT
IN ENGLAND.

2.1 Introduction
In order to investigate the changes in the patterns of child care and infant feeding practices of new-urban families in Iran, it was necessary to employ the techniques of the social scientists, and in order to gain these skills and to obtain some background information which might possibly be relevant, a study of a small group of Iranian mothers in the Guildford area has been made.

This study, which completes the initial phase of the research project, was designed simply as a piece of qualitative research to reveal the range and variability of the attitudes and practices that Iranian housewives might have towards infant nutrition and child care practices.

Objectives:
The overall objectives of the present study were:

(1) To learn survey and interview techniques. In order to practise these techniques, seven Iranian housewives, resident in Guildford, with at least one child under two years of age, were interviewed informally.

(2) To assess the range of attitudes towards child care and patterns of infant feeding.

The conclusions of this study should identify some of the key factors which influence infant feeding and child care practices.
2.2. Methods and Procedures

An interview schedule focusing on the dietary habits of children aged 0-2 years was developed. Questions included ages of children, mother, type of infant feeding practices, type and time of introduction of weaning foods, weaning age and foods consumed by the children.

Data collection instruments included a questionnaire and a tape recorded interview schedule.

Seven interviews were held from February - May, 1978. All the members were married Iranian housewives with at least one child under two years of age, resident in the Guildford area and aged between 20-35 years. Detailed characteristics of the samples have been given in section 2.3 and Tables 2.1-2.5.

The names and addresses of some of the sample members were found through other Iranians. Appointments were made beforehand on the telephone.

The interviews were conducted informally at tea time or in the evening at the respondent's house in the sitting room, usually with the children around and lasting 45 minutes, but more time was spent for introduction and discussion afterwards.

Because of the open-ended nature of many of the questions, the interviews were tape recorded. This provided the interviewer time to probe and develop rapport.
The respondents were asked whether they objected to the interview being tape recorded, but that did not seem to worry them at all, so although some factual information was written down by the interviewer, for instance number of children, opinion and knowledge questions were transcribed later. The advantage of this system is that the conversation can develop in a free manner without constant interruptions due to the investigator pausing to write down responses.

The questionnaire was composed of 65 questions reflecting aspects of infant nutrition and child care practice.

For prompting purposes, the respondents were shown a card listing the possible answers. The method was used, for example, when the following question was asked.

"What type of food do you give baby?"

The card read:

- Home made
- Ready food
- Both

Further details were asked from those pointing to a particular answer.

Information on specific dietary practices during pregnancy and proposed infant feeding practices was collected to determine the adequacy of the practices and to assess the level of awareness of current concepts of infant nutrition among the Iranian housewives.
Environmental, cultural, family, socio-economic and informational data were collected to determine their influence on infant nutrition.

Socio-economic status information was calculated by considering three factors based on the family's income, husband's occupation and respondent's education. A copy of the questionnaire has been appended. (Appendix 1)

2.3 General Characteristics of Sample

Five of the families had incomes of £500 or above per month, while two of them had relatively low incomes, i.e. £300 per month. Four of the fathers were Ph.D. students who were on secondment from their employers in Iran. Two of them were post-graduate students, and one a senior lecturer in the University of Surrey.

Most families had 3, 4 or 5 family members, including parents and children, and in one case a relative (respondent's mother).

Six of the mothers were full time housewives, while one of them was a student in the University.

Mothers were between 20 and 32 years of age, all Iranian and Moslems. Two of the respondents had completed grade 12 (full time education to the age of 18). Five of them had further education.
Most of them lived in houses which were of the terraced type, modern, with three bedrooms. Five had central heating, while two of them had electric heaters.

Details characteristics of the samples have been presented in Tables 2.1 to 2.5.
2.4. Results

The main issues in infant feeding include the practices of breast feeding or bottle feeding, need for nutrient supplementation of breast fed and bottle fed infants and the timing of introduction of solids into the infant's diet.

The following is a detailed outline of the main issues raised during the interviews.

2.4.1. Mother's Diet During Pregnancy

All the mothers agreed that good eating habits during pregnancy and lactation are very important to the baby's health.

The result of the study shows that five of the respondents reported regular use of dietary supplements during pregnancy, most of which were multivitamin-mineral complexes or iron. Only one respondent mentioned adherence to a salt-restricted diet, and another respondent reported following a reducing diet during pregnancy due to increased weight gain.

However, it must be mentioned that the importance of stores of various nutrients acquired during the last months in utero is probably particularly so for rural and semi-rural children whose subsequent diet is usually marginal in the early years of life. The dietary pattern during pregnancy is, therefore, of importance, forming as it does the antenatal component of infant feeding.

Among certain groups living a more traditional rural life
in Iran complex dietary patterns have been evolved, sometimes with insignificant or beneficial, but occasionally with harmful results.

Pregnancy food restrictions in some parts of the country have been reported by Ghademi, 1957, where a generally low food intake is considered advisable in the hope of producing a small baby with a not-too-large head, and foods classified locally as "hot" or "cold" or "heavy" are avoided as being liable to damage the foetus and result in a large baby. However, these areas of food habits require more research and special recommendations to improve the situation.

2.4.2. Breast Feeding.
All the mothers in this study agreed that breast feeding has many advantages over bottle-feeding, and should be continued at least for three months of baby's life, but also felt that solids should be introduced into the infant's diet before four months of age.

As seen in Table 2.6, the duration of breast feeding varied considerably between the respondents. The highest incidence of children with a long breast-feeding period - 18 months to two years - was found in two cases. No infant with a breast feeding time shorter than one month was reported. Only one infant was given breast milk for less than three months (41 days), and in this case breast feeding was stopped because of the mother's illness which required
treatment with antibiotics: it was felt that the baby could suffer.

For the purpose of comparison, the records of the seven cases were reviewed and divided into two groups:

1. Mothers whose infants successfully breast fed for a period of 3-9 months (four cases)
2. Mothers whose infants successfully breast fed for a longer period, i.e. 18 months (two cases)

The mothers who began breast feeding, but discontinued due to physical illness without psychological implications in themselves or their infants (only one case and due to mother's illness) - this represents a special case and therefore will not be considered in detail.

There were no mothers whose infants were artificially fed soon after their birth.

2.4.2.1. Attitudes of Respondents towards Breast feeding:
Breast feeding was the main topic of conversation in all interviews. The opinion of mothers toward breast feeding was asked, and it was quite evident from comments that almost all respondents were strongly in favour of breast feeding. All the mothers reported on various advantages of breast feeding, and the following is a summary of opinions which had been raised during interviews:

"Breast milk is physically better for baby, because it is the milk that nature intended for baby, rather than milk which nature meant for calves".

"Human milk is healthful, it is clean, it never needs any preparation. It is ready packed in its own sterile container at the right temperature".
Breast milk is the easiest to digest - I mean that breast fed babies are less prone to digestive upsets."

"I think breast milk is suitable for all babies, it cannot be too rich, too watery or in any way 'wrong' for my baby."

"The baby is unlikely to get any forms of tummy upsets while she is fed on breast milk, the baby will also have protection against other illnesses."

"Night feeds are easy."

"Breast feeding reduces the cost of child rearing but, of course, it is manufactured from what mothers eat, so mothers should eat well."

Perhaps the most interesting opinion about breast feeding comes from one of the respondent's mother who was present at the time of the interview:

"Breast milk is the only suitable food for a newborn baby, because for a human child there is no warmth or security to be found in a bottle. The baby enjoys the softness of his mother's breast which cannot be found in alternative methods. The closeness of baby and mother satisfies them both. Every mother should be proud to breast feed her infant."

One of the respondents who was employed as a nurse some time ago, and had formal nutrition education, commented about the "colostrum" content of human milk:
"Before the real milk comes in, the breasts produce "colostrum". I think this gives the baby water, some sugar, the minerals she needs and many important antibodies. Thus, even a few days of breast feeding will give your baby a head start."

However, an examination of literature shows that in a number of different widely scattered people it is customary to discard the colostrum and to give the new born baby various substances as pre-lacteal feeds (Jelliffe, 1962). In Upper Burma muslin dipped in honey is used, while in rural India the new born is given a laxative and breast feeding is not commenced until the second or third day. In rural Iran, the new born baby is given a sweet oil, such as almond, for three days after birth, both to assist in cleaning out the meconium (an idea much bound up within the local "dirty stomach" concept of disease causation) and also because milk is considered to be "too strong" for the just-born. "Colostrum" is also believed to "stick" in a child's ribs and produce disease. In other parts of Iran breast feeding is commenced almost at once and colostrum is not discarded, but other feeds are given during the early neonatal period. For instance, it is very common for babies to be given water with or without sugar, honey and dates for the first three days until the flow of breast milk increases.

However, a wide variety of aspects of the local domestic culture patterns may be relevant to breast feeding and the colostrum content of human milk. Thus it is necessary to examine the present information in detail.
2.4.3 Bottle Feeding

Fresh cow's milk was found to be the most acceptable source of non-human milk, but the majority of the mothers agreed that it is not the proper food for a young baby because it contains too little sugar and the wrong kind of fat.

It was evident from comments that hygiene is very important for a baby if she is to stay well, and correct preparation of the feed is important if the baby is to be properly nourished.

The typical preparation method which had been suggested by the majority of the mothers has been summarized as follows:

"Wash my hands before handling the milk, especially after using the lavatory"

"Sterilize everything I use in measuring, mixing or storing the made-up milk. That means measuring spoons, mixing jugs and the water in the feed itself"

Five of the mothers felt that sterilizing equipment with chemical sterilants make the job easier, while two of the mothers preferred boiling all utensils for at least 20 minutes, and felt that it is cheaper than other techniques.

2.4.4 Introduction of Solid Foods

There is today a wide range of opinions as to the appropriate time for the introduction of semi-solid foods to infants' diet and the long term effects of the introduction of these foods. Fomon estimated in 1975 that 7% of energy consumed by infants in the United States was derived from semi-solid...
foods, e.g. cereals, strained meats, vegetables and fruits, eggs and other foods in the first month of life and that percentage increased to nearly 30 per cent. at five to six months. Concurrently, table food consumption increased during the first six to nine months. After this the percentage of energy derived from semi-solid foods decreased, while that from table food increased to 46 per cent. at one year (Foman, 1975).

There is current concern that excessive weight gain in infancy may be an important factor in the etiology of later obesity. It has been hypothesized that the early addition of semi-solid food results in excessive energy intakes and weight gains during that period. Charney and associates found that infants who attained the 10th percentile in weight during the first six months of life were 2.6 times more likely to be overweight or obese as adults than those who were average or lightweight (Charney et al. 1976). They suggested that absolute weight gains, not the rate of weight gains was the critical factor. The risk of later obesity was found to be closely linked to body weight and independent of body length.

British studies have also indicated that weight gain in infancy was important to future obesity. Eid found that 7.4 per cent. of infants who were growing rapidly (weight
above the 20th percentile) at six weeks of age, and 16 per cent. of those who had experienced excessive weight gains by six months were obese at six to eight years of age (Bid, 1970). Shukla and associates in a cross sectional study of intakes of infants found that those who consumed semi-solid foods during the first three months consumed an average of 240 K calories per day more than the recommended energy intake, while infants who received only a liquid intake consumed an average of 40 K calories per day more than the recommended intake (Shukla et al. 1972).

However, results of the present study show that respondents often introduced semi-solid foods without professional advice. Many of them responded to suggestions of relatives (mostly their mothers) and friends. One of the mothers said "Weaning a baby is not a difficult job really. I weaned my baby in the same way my mother did. There was nothing wrong with it, I would consult my doctor or health visitor only if I had any problems". One of the respondents believed that early addition of semi-solids will encourage her baby to sleep through the night and commented that "hunger is the main reason why babies wake up and cry during the night. Milk is only a drink, if you give them proper foods, but not very heavy ones, they'll sleep peacefully through the night." However, several
studies show that addition of semi-solids does not influence the infant's sleep patterns and does not result in an uninterrupted night's sleep for the mother! (Beal, 1962).

On the other hand, there were mothers who made comments about the disadvantages of early introduction of semi-solid foods. One of the mothers believed that the early addition of food results in excessive energy intakes and weight gains during infancy and she said "It will produce a big baby!" Another respondent said "A few weeks old baby cannot digest food properly, and addition of solid foods in his diet will cause stomach upsets and will interrupt his night's sleep".

The results of the study reveal that cereal was consistently reported to be the first food added to the infant's diet. Only in one case egg yolk was reported to be the first semi-solid food added to the baby's diet. The mother said "As the milk is poor in iron egg yolk provides the iron needs of a young baby". Rice cereal is commonly the first cereal to be offered. Mothers normally thin the cereal to an almost liquid consistency which permits the infant to suckle the mixture. However, all the seven babies in the study had willingly accepted cereal when it was first offered at an average age of 3 months.

Strained fruits were consistently reported to be well liked by all seven infants - apples and bananas were the favourites. Strained vegetables were also accepted and yellow vegetables were reported to be favourites while beets and spinach were often refused.
Meat was reported to be the most important part of a baby's food. Many mothers reported "Baby's food always has meat, vegetables and starch". Lamb and veal and chicken were the best source.

A preference for the use of home made baby foods for all or part of the infant's feed was reported by all the mothers.

2.4.5. Sources of Information

The "respondent's mother" was named by five housewives as the most helpful source of nutrition information during pregnancy and infant feeding, and two of them indicated that health visitors and physicians would be their primary source of information on infant feeding practices.

Since nutrition information is helpful only if it is practised, the relationship of knowledge to practice is also important. The results of the present study reveal that five of the respondents who had some knowledge of nutrition served an adequate diet to their children, while two of those with little knowledge were also able to serve an adequate diet for the family and children.

The majority of the mothers believed that "Infants and young children do not grow correctly when they have improper diets". The mothers were also strongly motivated to feed their children well. All the respondents found it
a chore to plan meals and felt it was monotonous preparing three meals a day for their children.

During discussion it had been found that mothers who had had some opportunity to take courses with nutrition content during their school years did not take full advantage of them at that time. Instead, their time of highest motivation for learning about feeding a family was not when they were young and unmarried, but when they actually were faced with the problem.

During the survey the mothers had been asked what foods should be included in a child's meals. It has been found that only four of the mothers showed evidence of any nutrition knowledge and could provide a definition of "balanced diet". Mothers who had had some formal nutrition education in or out of school, were more able to provide correct answers.

Nearly all mothers gave importance to the basic food groups in the main course of a meal, often reporting "My baby's meals have a vegetable, starch and meat". Although vegetables were mentioned by all of the mothers, only four of them could give valid nutritional reasons for the importance of this group. Their reason was that vegetables are important for the minerals and vitamins they contain. Mothers who knew the nutritional importance of the meat group cited primarily its protein content. The non-nutritional reasons given by three of the mothers for the importance of vegetables and meat were: "It's good for a child", and because of "habits and customs".
After the main course foods, which mothers listed as most important in the child's diet, they listed the other foods that make up a meal. Six of the respondents reported breads and cereals and only four of them reported dairy foods. Citrus fruits were listed by all the mothers and butter and fat by many fewer.

All the mothers put much more emphasis on milk. They felt that children should have at least one pint of milk a day. They listed milk as important in keeping their children healthy. Only three of them mentioned milk as a rich source of calcium.

However, results of the study show that nutrition practices of mothers, as revealed by the foods they served their young children, were better than their nutrition knowledge would indicate.

2.4.6. Attitudes about Life in General.
A specific section in the questionnaire dealt with the topics of attitudes towards marriage, motherhood and life in general. There were also questions on the respondent's general attitudes and feelings about living in England. These questions were added in an effort to discover whether the mothers' attitudes were dependent on whether or not she obtained help, support and interest from her husband in the care of the child.

The attempt to assess these areas of feelings presented something of a problem. A major difficulty was that of obtaining enough material in the course of one interview to cover these assessments, as well as those pertaining to child
care and infant feeding. This was not only a technical problem of time and length, but also a problem of how the whole study and the interview in particular was presented to the respondent. Initially respondents were told the study was of housewives' attitudes towards infant feeding practices and patterns of child care. It was felt that detailed questions about intimate aspects of the marital relationship would be perceived by the respondents as contradicting the stated aim of the study and going beyond the interview's brief.

Fortunately questions about the husband's participation in child care and about social relationships and economic decision making were readily accepted and did not appear to involve any kind of problem. For instance, the respondents were asked whether their husbands help occasionally or regularly with the children, and one of the respondents said "Oh yes, he's willing to do anything. He even changes baby's dirty nappies without any complaint." Another respondent said "My husband feeds the baby when he is at home, and then he gets him ready for bed and washes him. I think he is really proud of being a father".

This group of questions provided an opportunity for respondents to talk about their marriage generally.

As many sociologists believe, a stable family environment has significant influence on the well-being of children, socially, nutritionally and educationally. So, the last section of questions was designed to assess the status of the family's relationship and their effect on child care practices. Also, the analysis of the last part of the
questionnaire shows a positive attitude towards child
care responsibility. For instance, a number of respondents
reported "the children" or "the baby" were the 'best thing'
about being married.

Finally, the results of the study reveal that no problem
was reported by the respondents because of living in
another country. The majority of the respondents agreed
that living in England does not make any significant
difference in their child care practices, as patterns of
life among relatively educated and privileged social class
do not differ from country to country. For example, one
of the respondents made the comment that "I used to
sterilize the baby's feeding utensils with chemical
sterilants when I was in Iran. Although these tablets
are not very common in Iran, it does not mean that they
are not available".
2.5 Discussion

On the basis of the data collected, it can be generally stated that although there was an instinctive feeling of the importance of breast milk as the normal maternal food for the baby, some external circumstances were found to be persuading the educated mothers to use other forms of infant feeding.

It must, however, be mentioned that for the majority of the mothers in this study artificial bottle feeding was practical, economically and hygienically. Mothers who stopped breast feeding for some reason and eventually bottle fed their infants ordinarily have had sufficient education, information and adequate facilities to follow the necessary routine of preparation, dilution and protection from contamination. The results of observation during the survey show that the conditions inside the home with regard to fuel, kitchen facilities and the means for storage had facilitated the preparation of hygienic feeds. Also, the economical condition of these families were adequate to enable them to purchase the artificial foods in sufficient quantities.

It is concluded that the healthy development of infants during the crucial early months of life depends on good hygiene, sanitation and a healthy environment, not simply upon whether the child is breast or bottle fed.
Although the mothers in this study were adequately fed and should have had no trouble in breast feeding their infants, many of them chose to breast feed only briefly. These mothers who chose not to continue breast feeding were influenced by time constraints and more subtle pressures such as embarrassment over breast feeding.

This report recommends that women in adequate socio-economic strata must be given objective information on both breast and bottle feeding upon which to reach their decisions. It must be mentioned that, readily available modern infant formulas are adequate enough to satisfy the nutritional needs of the child only when intelligently used, and this particular group consisted of well-educated mothers.

The literature gives evidence that in rural areas of Iran as in many other developing countries, new mothers traditionally receive support from family and community in breast feeding their infants. Due to poor hygiene and the eventual transition to an inadequate adult diet, however, many infants do not survive beyond six months to two years of age. In most cases, rural women in Iran are totally dependent on breast feeding to nourish their infants. If lactation fails, their children will sicken and die. To meet the infant's needs therefore, adequate nutrition for the lactating mother must be promoted in the best interest of both mother and child. A nursing mother needs more
calories and increased supplies of most nutrients than one who is artificially feeding her infants.

Women who move from rural areas to urban areas in Iran, tend to reduce or eliminate breast feeding in favour of artificial feeding under circumstances unfavourable to such a change. Studies in other developing countries indicate that this change results from advertising of infant formulas, working conditions that make breast feeding impossible and the impact of social environments on new value judgements.

The findings of this study of a group of women in a relatively high socio-economic group show that it is inadvisable to use moral arguments to persuade a mother to either breast or bottle feed and that it would be wrong to engender guilt feelings if a mother chose to use the bottle.

Similarly, when considering rural mothers of a much lower socio-economic group, breast feeding should be encouraged but at the same time attention should be drawn to the availability of local acceptable nutritious foods and information given on the ways in which they could be best used.

Among the new urban families whose children's nutritional status are the main concern of this research project, the seriousness of the decline in breast feeding should be seen as a major problem and priority should be given to a study of the factors relevant to this.
Further Characteristics of Sample

Table 2.1 House Type

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Old - <1919
Modern - 1945 - 60
New - >1960
Table 2.3 Number of Bedrooms

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### Table 2.5: Ages of Children

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Table 2.6 Duration of Breast Feeding of Studied Children

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CHAPTER THREE
INTRODUCTION TO MAIN STUDY

3.1 Literature review

In the examination of the feeding practices of young children in poor urban communities, socio-economic factors and dietary habits play an important role; such an examination should not only deal with actual diet, but it should also examine the social matrix in which dietary habits developed. In the literature that applies to Iran, there exists a limited number of studies designed to point at the socio-cultural factors which influence the health status and pattern of child feeding in low income communities. Most of this information has been obtained by questioning mothers of malnourished children admitted to hospitals of large towns. Much less information has come from the communities themselves (Ronaghi, et.al., 1968; Ghassemi et.al., 1974). Hedayat, Gharib and Sadre (1968) have reported frequent occurrence of protein energy malnutrition among Iranian children of low socio-economic class. A study of the cases revealed that failure of breast feeding, early weaning and inadequate and unhygienic bottle feeding led to low energy intake and repeated infections, resulting in poor growth and ill health. Within the studied low socio-economic group variations in living conditions, income and education of parents were correlated with the growth performance and nutritional status of young children.
Another survey on this subject describes the situation in Majidieh, near Tehran (Ghassemi, Massaudi and Azordegan, 1974). This was a predominantly low income area, where, malnutrition among young children was common. From the background information given in this paper, it is evident that in poor urban (non squatter) communities of this type, there are a number of correlated factors affecting the health and nutritional status of young children. Typically, there was a family of 6-9 comprising of parents, children and very often relatives, living within a cash economy and low educational standards. The environmental conditions in terms of housing, ventilation, sanitation and other necessities of life were inadequate. The same study indicates that the majority of families had lived in this city for more than ten years and only small groups of families had migrated from rural areas. Therefore, it is reasonable to assume that migration itself had not seriously affected the life and health of children in this study.

In this present research project an attempt has been made to discover whether the social movement has in fact any effect on young children's health status, operating through the mothers' nutritional practices and child-care pattern, and as such forms the basis of this thesis.

The primary objective of this study was to investigate the socio-economic factors which influenced the changes in infant feeding practices when families moved from rural to
urban environment, and to contrast them with comparable families who have remained in their rural villages.

It was also attempted to determine what alternatives might be compatible with present practices in new-urban areas.

It was hoped that the findings of this study would provide a basis for the establishment of guidelines in the planning of programmes to improve nutritional status of young children in poor communities, within the context of other development programmes in Iran and possibly in other developing areas where similar socio-economic and cultural conditions prevail.
3.2 Description of Research areas

3.2.1. New-urban Community of Shahabad:
The Shahabad area is an over-crowded suburb 5 km. from the centre of Tabriz, the second largest industrial city of Iran. Its residents are heterogeneous, embracing a few middle class professionals, a small group of scavengers*, and a majority of low income unskilled and semi-skilled workers and manual labourers.

* The word Scavengers is used to describe a class of people of a type not represented in England. They are unskilled workers who collect rubbish and remove it elsewhere for payment.

A residential district that harbours a limited number of establishments for commercial and personal services, Shahabad’s most prominent commercial establishment is the neighbourhood variety. In this squatter area most of the families occupy small dark rooms in dirty hovels without water or sanitation. The streets outside the houses are narrow, crooked and filthy.

Poor sanitation facilities pose a serious health hazard. Garbage is seldom collected and the problem is aggravated by the scavengers’ refuse lying scattered in the streets. Quite commonly, heaps of garbage and ashes lie in all directions, and the foul liquids emptied in front of the doors gather in stinking pools. In such a community, children have no playground other than the dirty streets themselves. The climate in this industrial city is cold and rainy for long periods during the year, and the atmosphere
is polluted with soot. Many of the people who live in Shahabad district have neither warm clothing nor fires to protect themselves from the cold and damp.

Public and private wells are the most common sources of water supply. Toilet facilities are nil in many Shahabad households.

Educational facilities within the community consists of 4 public elementary schools. Since the only high school of the area charges tuition, most of the low-income families enrol their children in a free public high school some miles away, college and vocational courses are not available inside the community. However, relatively easily available transportation links the community to downtown Tabriz and its variety of available services.

The medical facilities of the region are limited and consist of one public health clinic, whose staff consists of one general practitioner, one nurse and one health worker in charge of family planning services.

There are 5,000 household units in Shahabad area housing 25,000 Shi`ite Moslems of low socio-economic class. Most of the residents of this crowded suburb are unable to provide for themselves better and healthier dwellings, sufficient light and air, more open situations, effective cleansing and drainage and adequate supplies of water.
Their vigour and health are undermined. They are the prey to a host of diarrhoeal and respiratory diseases. Cholera threatens the lives of large numbers of residents and tuberculosis is common. According to the data the author has collected from the Shahabad local clinic, the prevalence of most diseases in the Shahabad and nearby settlements is some 50 percent higher than for the city as a whole. The average death rate from dysentery, for example, in Tabriz, is three times lower than the rate in the squatter area such as Shahabad, and the rate of tuberculosis is ten times higher in squatters than the rate given for the city of Tabriz as a whole. Infant mortality rate is anything from two to three times as great in Shahabad areas as the city average. Diseases such as mild marasmus and kwashiorkar and anaemia are twice as prevalent amongst squatters than in Tabriz. Although the birth-weight of Shahabad-born infants is known to be average, prematurity is reported to be common among Shahabad children born to parents of lower socio-economic groups. This has been examined in other low-income parts of Iran as well; Hedayat et al. (1971), showed that birth-weight of children from poor socio-economic strata, was significantly lower than that of children born to well-off families.

Shahabad has also been reported as a dominantly low-income area (The Budget Organisation of Azarbayagan Province, 1971). The above mentioned situation of the area and the fact that a large proportion of its population are rural migrants, makes it an interesting area to be studied from the nutritional and sociological points of view.
3.2.2. The rural community of Garahdog.
The rural study was conducted over a period of 6 months in a rural village about 30 km. from the city of Tabriz. Garahdog is a small village and is a part of "Sophian" in the East Azarbayejan province. It is mountainous, making transportation and communication and also modern agricultural practices difficult. Recently, a road has been built which skirts the village, but there are no roads across the central mountains. Main communication is by a bus system. Its climate is very cold in winter and moderate in summer with an average temperature of 80°F.

Environmental conditions are typical of a small rural village in a developing nation with no proper electricity or sanitary facilities, unfiltered water and high illiteracy rate.

From data collected in the 1976 census (Iranian census for the province of Azarbayejan, 1976), the population of Garahdog was estimated to be around 600 persons, 45% of whom were less than 15 years of age. Garahdog has not experienced a significant increase in population due to the great rate of migration to the nearby cities.

The village's economy is mainly agriculture and most of the 600 residents of the village depended on subsistence agriculture, but there are also a number of animal keepers, shopkeepers and others.
The level of education in the village is limited to the primary and/or middle school standard, mainly because there is only one primary school in the village. Although lack of proper roads and transport prevented them from making use of opportunities for higher education in past years, slight improvements in communications now enables a limited number of youngsters to go to the nearby schools in the city. This is mostly due to an increasing awareness of the necessity for better education in order to get better job opportunities.

During the time of field survey, except for the relatively limited medical aid provided by the health corps, no organised medical facilities were available in the village, other than local Hakims (a local medicine man who uses indigenous medicaments). However, gradual improvements in communication facilities has enabled the limited number of the villagers to go to nearby hospitals and utilise medical facilities offered by the government. The limitation is due partly to the high cost of transportation from village to the city and partly to the lack of proper roads which makes travelling to the cities an impossibility especially during rainy season and winter.

The typical house is built of sun dried bricks and has generally one or two poorly furnished rooms enclosed within a courtyard. On all sides one is oppressed by evidence of the acute shortage of building timber or fuel for brick burning and its results in poor housing. Sanitation barely exists as yet outside the towns. A few village houses have pit latrines, the proper management of which
is seldom understood so they tend to become foci of fly-breeding instead of reducing the menace. Drinking water is contaminated with enteric bacteria. Morbidity and mortality rates are believed to be high particularly due to gastrointestinal and respiratory problems.

As far as the village's diet is concerned, rice and bread continued to be the staple in most studied families. The main crops cultivated are wheat, beans, vegetables and oil seeds. As far as food production is concerned, the village may be considered self sufficient with regard to staple cereal, wheat, animal milk and vegetables, but marketing facilities and also the need for cash have encouraged cultivators to sell their products after retaining a small portion for their home consumption. It was observed that village shopkeepers purchased provisions and other items from the city markets once a week and sold them in the local village grocery shop at a price convenient to them. Among these items, fizzy drinks, candies and biscuits were most popular.

In the village, the agricultural year starts with getting land ready to be sown as soon as the rainy season sets in June, and the year's work ends with the grain harvest in November. Rudimentary technology is utilized in cleaning and harvesting of the crops. The source of water supply for irrigation purposes continues to be tanks and wells. About 30 percent of the families had started using fertilizers and hybrid varieties of seeds.
Livestock, such as chickens, sheep, goats and cattle are kept on a relatively small scale and products such as milk and eggs are used mainly for home consumption although a small amount is used for sale.

The community of Garahdog was chosen because the characteristics of the community and the inhabitants met certain pre-determined conditions for this study. Thus, their economy is agricultural, they are of a traditional culture, they are of low level economic strata and they have not been influenced by any applied nutrition programme. It was also selected because in a prior study which was conducted in the suburb area of Shahabad, it was found that the majority of the migrants originally came from this village and also according to our data many of the cases admitted to the Sophian's health clinic came from families resident in this village.
CHAPTER FOUR

METHODOLOGY

4.1 New-urban Study (Shahabad)

The study of the feeding practices and pattern of child care of "new-urban families" in Shahabad district took place between October 1978 and June 1979.

Sample: 58 households were selected from an area on the map which was known by the Government's Health Department to contain a large number of migrant families. A health worker employed in Shahabad's local health clinic as a family planning advisor contacted these 58 families. Eight of the families refused to take part in the study because they had no children of pre-school age, so the final sample consisted of 50 families.

Before the actual field work started enquiries were made to the various governmental departments whose officials and archives were able to supply information—census figures, statistics, maps, national and regional food production, etc. Also, the ministries concerned with health, agriculture, economic development and social welfare were approached. Discussion was also made with those who had general or professional experience in the area to be surveyed. These included doctors, social workers and educated indigenous people. Further information and clarification of background data resulted from the field reconnaissance. Observations based largely on impression, were made at the actual survey site when people were assembled for interviews.
Before carrying out the visits and interviews a preliminary visit was made to Shahabad area to assess the situation with regard to accommodation, transportation and general mode of life. In order to make a general inquiry into the pattern of malnutrition and health status of residents the staff in the area's local health clinic were interviewed. Contact was also made with the general medical practitioner and the information obtained in this way used to devise a short questionnaire designed to determine the incidence of various common diseases in the Shahabad community (Appendix 2).

Home visits: This survey was carried out by visiting the families in their own homes. This offered the advantage of seeing the family together in their domestic setting and of not missing sick or malnourished children who would be kept at home. Moreover, a survey by house visiting was necessary, because in poor urban areas of this kind it was not culturally permissible for the women to attend a public meeting place. Two visits were made to each household during the field survey:

First home visits: Data collection instruments included a questionnaire and interview schedule, both of which were completed for all respondents in the sample during the first visits to the households. In fact, the whole questionnaires were not completed within the households because it was thought such actions might be viewed suspiciously as being related to increased taxation. Instead a small pocket notebook was carried and brief answers entered between visits to homes. The pages of the notebook were prepared beforehand. The data
so obtained were transferred to the appropriate questionnaire each evening when the day's visits were still fresh in the author's memory. Whilst this technique is open to some criticism and would not be recommended in a more sophisticated society, under the cultural restraints imposed in these backward communities, no alternative was possible. The introduction of a tape recorder, for instance, would have created instant hostility and complete lack of co-operation.

Interview: The interviews were carried out informally and lasted about two hours, but much of this time was spent in creating a relaxed atmosphere in discussions after the formal questions had been asked.

All the interviews were conducted in Turkish (the local language of Azarbayajan). Before starting each interview the author introduced herself and explained simply that she was helping the health authorities to find ways of improving their situation. In general this explanation was not immediately accepted, and apart from the original eight families who refused to be interviewed, another fourteen families needed considerable reassurance before they would proceed.

Questionnaire: The questionnaire consisted of many questions reflecting aspects of infant nutrition, child care practice and general way of life, each with different possible answers. This method had been devised by the author in a previous study carried out on a group of Iranian mothers resident in
England, and was found to be appropriate for collecting such information. The accuracy of responses was judged by use of indirect questions and by asking several versions of the same question.

The questionnaire covered many broad topics, which derived from the hypothesis of the study. The topics are briefly listed below with an outline of the selected questions asked within each. A copy of the complete questionnaire is appended (Appendix 3).

General data: Place of birth, last previous residence, duration of residence in Shahabad area, reasons for moving etc.

Data on the child (youngest child): Age, sex, incidence of illness since birth, condition of vaccination etc.

Data on the mother: Tribe, religion, educational level, number of pregnancies, interval between pregnancies.

Data on the father: Tribe, age, religion, educational level, occupation

Household composition: Family size, total number of people in a household, number of children and adults, whether family owns the house or rented, presence of other relatives.

Home environment: Number of rooms, availability of W.C. and separate kitchen, gardens, types of water supply.

Finances: Average monthly income, number of sources of income each family has, amount of money spent on food, other expenditure.
Child feeding practices (questions regarding the feeding of children were asked specially about each woman's youngest child).

(a) Breast feeding: when started, duration, comments on any difficulties of breast feeding, age at which supplementary foods introduced, colostrum content of milk (attitudes), types of supplements, preparation, methods of feeding. Manner in which breast feeding is stopped.

(b) Non-human milk: type (fresh or powdered) quantity given and how often, methods of preparation, reasons for artificial feeding.

(c) Diet of the child at weaning: types of foods and their preparation, any prejudices or taboos with regard to child feeding or to feeding during illness.

A most important part of this questionnaire dealt with the questioning of mothers about the current diet of the family and of the children. This was achieved partly by careful questioning of mothers and partly by observation. The questions in this stage were very simple and easy to fill up by marking written alternatives, e.g. (cow's milk; yes/no, daily: ¼, ½, 1 litre) and was based on indigenous foods and dishes given in their vernacular names and on local domestic measures of weight and volume, all of which was known from the background data and as a result of the preliminary visit to the area. Approximate ideas as to the quantities of foods consumed by the family and the methods of preparation had been obtained by employing simple models of locally used household utensils of known size, e.g. bottles and spoons and pots when questioning mothers.
during home visits. Field observation of actual feeding practices (often including noting whether the mother breastfed the child at the time of the visit) was also carried out. However, although approximate, this type of information was valuable and enabled a general pattern to be delineated and some idea was formed on the probable degree of reliability of the information supplied in a simple questionnaire.

Second home visits: The respondents were asked whether the author could visit them again to stay for up to four hours so that much more detailed information on the family's and the young child's diet could be obtained. Initially there were ten refusals for this further visit because they felt that weighing their food would bring "bad luck" and also they were not prepared to spend such a long time with an outsider. However, with careful explanation and assuring the mothers that the work was for their children's well being they eventually agreed to further visits.

During the second visits it was attempted to gain a detailed picture of the child feeding practices of families. A simple form was used for recording the required information: the first page of the form allowed a sufficient space to record all the information about the child, including his name, age, sex and condition. There were seven other pages to record information about the family's and the young child's food. The mothers were encouraged to give a picture of their usual breakfast, lunch and supper for
seven consecutive days encompassing the visit. All details
given by respondents, including the name of the food, its
ingredients, approximate quantity (in household measure)
per day and per child was recorded. A description of
the food, the source, (purchase, production), the places
where they were secured (stores, market, etc.), the
approximate prices paid, the method of cooking and preparation
of each dish was also recorded. To jog the memory of the
respondents only food groups such as green vegetables,
green leaves and fruits and others that might easily have
been forgotten by the mothers were mentioned. A copy of
this form is appended (Appendix 4)

It must, however, be stressed that visiting and observing
the daily cooking and preparing and eating activities of
the housewives and their children produced extremely useful
data for the researcher. The kitchen was of particular
importance during these one-day home visits. The stove or
other cooking device (e.g. fire, oven, oil), the type of
fuel and its apparent availability, the number, size and
type of pots, the method of cooking (e.g. boiling, steaming,
roasting), the source of water, the storage and preservation
of uncooked and prepared dishes, and the local weights and
measures which were usually related to domestic items —
spoons, bottles, gourds, etc. were also noted. The
preparation and cooking and feeding of the food were the
objects of a careful observation, together with the
inspecting and tasting of the meal when completed.
4.2 Rural study (Garahdog)

The second stage of the study was conducted during the months of September 1979 to March 1980 in Garahdog village, 30 km. from the city of Tabriz.

Prior to the actual field survey a visit was made to a village in similar condition and a preliminary questionnaire was pre-tested for a period of 10 days, but not included in the actual survey, after which a final and detailed questionnaire was used.

Sample: A preliminary visit was made to the selected area and permission was secured from the appropriate local Iranian officials to conduct the survey. The author visited all 60 families in 49 households to determine the possible sample (the number of occupied houses with children of pre-school age). Children in the selected age bracket lived in 35 of the families. Mothers did not participate if all their children had died, or where they had completed families all aged over five.

First visit: Preliminary visits were made to the selected houses to schedule a convenient time for the interviews. In this visit the village's leader (local chairman) accompanied the researcher and introduced her to the housewives to assure them that this work was for their benefit and would bring desired changes in their living condition. This description was accepted by housewives and there were no refusals. The initial visit to the area also helped to identify the female household head and she served as the
interviewee or "informant" in all 35 households surveyed. It must be mentioned, however, that selecting a relatively small population sample size in this study made it possible to do the field work much more carefully, since the author carried out all stages herself.

Second visit: An interview schedule focusing on the dietary habits of family and pre-school age children was used during the second visit. The mothers of all 35 pre-school children were interviewed in "Turkish" in their own homes. "Turkish" is the local language of the Azarbayejan Province and was understood by all the subjects interviewed. The questionnaire referred to on page 63 was also used in the rural study.

Third home visit: The experience with new urban families in Shahabad showed that the majority of the informants had difficulty differentiating days and using the food list and recall method seemed to be ineffective among this group of the population. Therefore, in the rural study the usual meal pattern of one day was taken instead of dietary recall during the third visits to the households. Additional questions were directed towards the characteristics of the methods of preparation of the staple, feeding the children and to ascertain what sources of animal and vegetable proteins, fat, carbohydrates and fruits the diet contained. (Appendix 5).

Similar to the Shahabad study the approximate quantities of some food items eaten were estimated by the use of
local measures such as serving spoons and standard size bowls for eating foods. The equivalent weights and volumes of these measures were determined subsequently by the author from similar utensils at home. This type of measuring did not provide satisfactory quantitative data, but it was possible to make an approximate assessment of some of the foods consumed. Also the practice of breast feeding and the method of preparing staples and side dishes were observed during these visits. It must be pointed out that because of the communal feeding habits of the people in this rural community estimates of individual food consumption was difficult, and the quantitative data must be viewed with caution.
4.3 Methods of Analyses

Statistically analysis of data for both urban and rural studies have been carried out on the University of Surrey Computer, using the "Statistical Package for the Social Sciences (SPSS) Program." "SPSS" is an integrated system of computer programs designed for the analysis of social science data. The system provides a unified and comprehensive package that enables the user to perform many different types of data analysis in a simple and convenient manner. SPSS allows a great deal of flexibility in the format of data. It provides the user with a comprehensive set of procedures for data transformation and file manipulation, and it offers the researcher a large number of statistical routines commonly used in the social sciences, such as usual statistics, simple frequency distributions and crosstabulations. For a more detailed description and statements of SPSS the reader is referred to (Nie et al. 1975).

In the present study each response to a particular item in the questionnaire was coded by assigning a number from 1 - 9. For those questions with numerical responses the numbers were coded directly. The data were transferred to computer punch cards with the aid of data processing machines.

Finally, both the SPSS control cards and data cards were fed to the computer by following SPSS special regulations. Computer output contained the simple frequency distributions and other necessary statistics, which were used for plotting the data.
In order to compare life styles in studied new urban and rural areas, it was felt to be necessary to examine and outline the methods usually employed in feeding infants and young children in the new urban areas of "Shahabad" and the rural community of "Garahdog". Several aspects of infant feeding practices were examined in this section. These included the type of feeding, the length of breast feeding, the use of milks or other liquids while the child was still breast fed, the age of the child at the time the first solid food was introduced into his diet, the type of first solid food introduced to the child, time of weaning, reasons for weaning and his usual meal pattern. All of these aspects pertained only to one pre-school child in each family. The data is presented both in descriptive and quantitative forms to provide complete insight into the practices and behaviour and thinking of the people interviewed.
5.1 Child feeding practices

5.1.1. Breast feeding: As is shown in Table 5.1 there is a considerable variation in the duration of breast feeding among studied children in new urban area of Shahabad. There were no mothers whose infants were artificially fed soon after birth. Also, no infants with a breast feeding time shorter than one month were reported. Of the 50 mothers interviewed all breast fed their infants for at least 3 months.

In 4 cases breast feeding was discontinued after 3 months of the infant's life, in 3 of these cases because of the mother's physical illness, and in one case because of the lack of sufficient breast milk. In the latter case the respondent cited that she did not have enough milk and her baby was crying.

In 16 cases infants were breast fed for a period of 4 - 6 months, in 2 cases for 7 - 9 months, in 17 cases for 10 - 12 months, in 8 cases for 13 - 18 months and in 3 cases for more than 18 months.

For the purpose of comparison, the records of 50 cases were divided into three groups:

Group 1: Mothers who successfully breast fed their infants for a period of 1 - 2 years or more. 22% of the mothers (11 cases) were in this group, and all except one mother breast fed their infants for longer periods because they considered that mother's milk is the best source of food and must be continued for 2 years. The other
mother breast fed her infant for a long period because she could not afford any other type of food.

Group 2: Mothers who breast fed their infants for a period of 7 - 12 months. 38% of the mothers (19 cases) fell in this group. The reasons for discontinuing breast feeding beyond the first year of baby's life included subsequent pregnancy (12 cases), mother was working (2 cases), insufficient supply of breast milk (3 cases) and mother's physical illness (2 cases).

Group 3: Mothers who breast fed their infants for 6 months or less. A relatively large proportion of mothers fell in this group (40%) (20 cases). In 6 cases respondents cited that they gave up breast feeding by 6 months of baby's life because they were working and were not able to carry their infants with them. 5 respondents mentioned that they had been told to start bottle feeding by a friend or a milk company advertiser or had been given a free sample and bottle when they were still breast feeding. Obviously, for these mothers, a bottle seemed to be a symbol of progress and appeared to have a definite social prestige value. In 9 cases the informants said they had insufficient milk.

The analysis of the results of the rural study in Garahdog village indicates that unlike Shahabad, breast feeding was the most common method of feeding infants for two to three years of baby's life. There was no evidence of failure
to lactate among the women interviewed. Of the 35 mothers studied in Garahdog village, 91% of respondents breast fed their children for 1 - 3 years. 9% of the mothers failed to continue breast feeding after 6 months. Reasons for discontinuing breast feeding given by respondents included lack of sufficient milk (2 cases) and difficulty with nipples (1 case). Table 5.2 shows the duration of breast feeding in Garahdog village. Attitudes of Garahdog village mothers towards breast feeding have been summarized in Table 5.3.

Figure 5.1 compares the duration of breast feeding in the new urban area of Shahabad and Garahdog village, and indicates that the practice of breast feeding was traditionally continued for 2 - 3 years in the majority of cases in the rural area, while in Shahabad a tendency towards earlier cessation of breast feeding had occurred.

According to the information gathered during the review of the cultural background of peasant societies of Iran, it was found that there was a tendency to breast feed girls longer than the boys (Ghademi, 1957). Although the investigation of such practice was not included in the actual research project, due to the fact that in the present study information was obtained for only one pre-school child in each household, therefore the comparison of data concerning the length of breast feeding for boys and girls within a household was not practicable. To examine the prevalence of this custom,
however, the respondents in both urban and rural areas were asked "Do you usually breast feed your girls and boys for different lengths of time?" All 50 mothers in the Shahabad area (urban) did not support this idea, and no sex differences in the duration of breast feeding were reported by the respondents. Unlike the Shahabad mothers, in Garahdog it was generally believed that girls should be breast fed for twenty-four months and boys for twenty-two months. This was quite a popular idea, and was supported by 44 per cent of the respondents (16 mothers). When the mothers were asked about this discrimination one of the informants cited that "According to Islam religion the girls of the family inherit half as much as boys. In other words, two girls inherit as much as one boy. To make up this deprivation the girls are nursed longer than the boys." This idea was supported by 9 respondents out of 16 mothers. In 6 cases mothers believed that because girls are physically weaker than boys, therefore prolonged breast feeding is required to make the girls stronger! One mother gave no special reason for this practice and regarded it as a "tradition".

All mothers in both Shahabad (new urban) and Garahdog (rural) fed their children on demand. It was observed that the breast or bottle was given to infants whenever the baby cried, even though the cry might have signified quite a different need.

In order to investigate whether "colostrum" was given to new born babies, the respondents in both squatter area
of Shahabad and Garahdog village were asked, "When did you start breast feeding?" with two possible answers: "Just after the birth" and "A few days later". More details were asked of those mothers who gave the latter answer.

Figure 5.2 shows that in the Shahabad area 60% of the mothers (30 cases) did not start breast feeding immediately after birth owing to the belief that colostrum is dangerous. 6 mothers in this group indicated that colostrum is "too strong" for a new born baby. In contrast, 10 mothers cited that colostrum is "watery and pale" therefore has no nutritional value. 5 respondents considered colostrum has an "unpleasant taste". 3 respondents believed that colostrum "sticks in a baby's ribs" and produces disease and 6 mothers mentioned that colostrum is not "traditionally" fed to babies among their tribes. All mothers in this category threw colostrum away until the flow of true milk commenced, but table sugar and water or a mixture of butter and warm water were given to the babies for the first three days.

Among 40% of the mothers (20 cases) in Shahabad who commenced breast feeding immediately at birth, 8 mothers did not discard colostrum but also gave other foods during the early neonatal period because they believed that colostrum is not "true milk". Honey and sweetened water were given for the first 3 days to supplement breast milk until the flow of milk was increased.
Only 24% of the respondents (12 mothers) were strongly in favour of colostrum and believed that infants should be put on the breast as soon as they are born. One of the respondents cited that "a new born baby needs his mother's attention and closeness".

All mothers in this group reported that they wetted inside their infant's mouth with a spoonful of water in order to start him sucking. 6 respondents believed that if the baby sucks his mother's breast, more milk will flow subsequently.

Interestingly, a similar range of attitudes was found regarding colostrum in Garahdog village, (Figure 5.2). In 70% of cases it was customary to discard the colostrum and to give the new born baby various other substances. No significant variation was found in the range of substitutes mentioned by rural and squatter mothers. 10 respondents in Garahdog village stated that colostrum was "too strong", while 6 mothers believed colostrum was "too weak". 7 mothers said they have been told by local midwife and Hakims (local doctor) to discard the colostrum. However, 10 respondents were in favour of colostrum, but no specific reasons were reported.

5.1.2 Artificial feeding. In Garahdog village artificial feeding was almost non-existent. From 35 respondents only 9% (3 mothers) did not continue to breast feed their infants for more than 6 months for various reasons, and in these cases the respondents gave fresh animal milk to
their infants. The 91 per cent. of mothers (32 cases) who breast fed their children for longer periods (1 - 3 years) also gave fresh animal milk as a supplementary food to their infants from time to time.

In the new urban area of Shahabad, 40 per cent. of respondents (20 mothers) stopped breast feeding during 3 - 6 months of the infant's life, and only 2 mothers out of the 20 could afford fresh animal milk as a substitute to breast milk. A large proportion, however, chose various types of commercially available powdered milk (18 cases). Among the 38 per cent. of the mothers (19 cases) who breast fed their infants for a period of 7 - 12 months, only 3 respondents gave fresh animal milk to the infants, and in 16 cases infants bottle fed with various types of powdered milk. The age at which fresh cow's milk and powdered milk was introduced to an infant's diet in Shahabad and Garahdog village is given in Tables 5.4 and 5.5. The artificial feeds which were prepared by the mothers in Shahabad area consisted of very dilute milk. The 68 per cent. of the respondents (34 cases) who artificially fed their infants were illiterate with no ability to read or write, and naturally were not able to follow the necessary routine of preparation and dilution. In 22 cases the preparation methods of artificial feeds by mothers were carefully observed during the second house visits, and it was found that a similar preparation method was applied by these mothers. None of the respondents was able to work out measures of milk or even remember the number of feeds. No standard measuring or mixing utensil was used
for making the feeds. 20 respondents put a little powdered milk (about 3 - 4 teaspoons) in the bottle and filled it with cold water and shook it until it looked like milk. In fact, for these informants, anything of whitish colour was classifiable as milk. It was also observed that none of the mothers ever washed their hands before handling the milk, even after using the lavatory. Only 18 mothers out of 34 were reported to have washed the bottle and teat with cold water and detergent. In 16 cases the bottle was just washed once a day and used several times a day. Sweetened water or tea and other liquids were also served in the same bottle. In only 3 households in Shahabad more than one bottle and teat was observed. From 78% of the respondents (39 cases) who bottle fed their infants (powdered milk/fresh animal milk, 68% and 10% respectively) only 8 of the respondents disposed the remaining milk in the bottle, while in 31 cases the remaining milk was stored for the next feed. Among the latter group, only 1 respondent kept the bottle feed in a refrigerator. In 23 cases feeds were stored outdoors and in 7 cases inside the room.

In instances when babies were given fresh animal milk (5 cases) the milk was also diluted with plenty of water because it was believed that cow's milk is "strong". In 2 cases it was observed that mothers mixed about \( \frac{1}{4} \) pint fresh animal milk with \( \frac{1}{2} \) pint water. This was serving normally 2 feeds for the baby. Only 2 respondents were reported to boil the fresh animal milk, but no specific
reason was mentioned for boiling the milk.

In Garahdog village all of the mothers (35 cases) gave fresh animal milk either as a substitute to breast milk or as a supplementary food. 21 mothers were reported to serve animal milk with a spoon from a cup or small bowl. 14 mothers used bottles for feeding the fresh animal milk and other liquids such as tea. No significant differences were found on methods of washing the utensils in both areas. In 3 cases in the village it was observed that mothers washed bottles and other utensils with a specific washing clay and water. Only one respondent was seen to wash the bottle with boiled water, and in 10 cases the bottle and teat were washed with water once a day.

The dilution of animal milk was reported by only 10 respondents in Garahdog village. None of the mothers was able to work out proportions of water and milk. In 6 cases where feeding practices were observed half a pint of animal milk was diluted with about 3 dessert spoons of water. 16 mothers in Garahdog village added table sugar to fresh animal milk. 9 of these mothers stated that this will reduce the risk of diarrhoea. In Shahabad all mothers who gave fresh animal milk or powdered milk to their infants also added 1 - 3 cubes sugar to the milk. No reasons were reported. No other additives were reported by mothers in Shahabad and Garahdog village to their infant's milk. In Garahdog village 26 respondents made use of home-produced animal milk. In 9 cases milk was purchased from the local milkman. In Shahabad all five mothers bought milk from the local market.
Finally, it must be mentioned that the questions regarding infant feeding in this section were not only aimed to obtain quantitative data about the actual feeding practices, but also to assess the range of opinions and cultural beliefs of mothers and their own feelings. The following is the summary of the statements towards breast and bottle feeding reported by the mothers in the Shahabad area:

"My mother breast fed her children, but most of them died, and those of them who survived were always ill. Bottle fed infants in the city are bigger and stronger."

"I used to breast feed my elder child in the village. I was even taking him to the farm with me and nursing him whenever he demanded, but in Shahabad it is different, I go to work and "bottle" feed my baby."

"I understand breast feeding is perfect. It has been encouraged by "Koran", but I am ill and unable to breast feed him."

"I have always breast fed my children. I believe it is excellent. We usually breast fed for two years in the village. There is not any reason to stop it in the city."

"Breast milk is a present from "God" to the new born baby."

"I had made up my mind to bottle feed my baby. It is fashionable, but my husband advised me to breast feed our baby."

"I am a part-time servant in a house. My "lady" always bottle feeds her son, so do I."

"Breast feeding is cheap. I don't have enough money to buy other milk."
"Bottle feeding consumes time to prepare. My sister bottle feeds her son. She has to travel such a long way to the city and get the milk."

"I believe breast feeding is best, but I am a "bread-winner" and I am not able to take her to the factory. My elder daughter gives him his bottle."

"I started breast feeding but my child went ill. My mother told me that my milk is poisonous, and I had to stop it."

In Garahdog village breast feeding was considered very natural and the results of observations showed that rural mothers were proud to breast feed their babies at any time and anywhere. In many cases the author had noticed that the studied mothers left the breast uncovered after feeding the baby.

In Garahdog village it was noted that the practice of wet-nursing a child of a relative or kinswoman who has died in childbirth is more popular than in Shahabad area. 26 per cent. of the respondents in Garahdog village stated that they have nursed other relatives' infants, while in the Shahabad community only one respondent reported nursing a friend's new born baby.

Interestingly, it was found that among rural mothers' "girls" milk and "boys" milk are believed to be entirely different. In other words, if a mother wishes to supplement her own baby's milk she must find someone whose baby is of the same sex. One of the respondents in the rural area who discontinued breast feeding her infant after
4 months due to inadequate supply of her milk explained "I had no milk. I asked my nursing neighbour to give some of her milk to my little daughter, but her baby was a boy and this caused a long illness." When she was further questioned about the nature of the illness she mentioned vomiting, diarrhoea and misery in this category. She reported feeding her infant with fresh animal milk afterwards.

5.1.3 Supplementary Food. The age at which supplementary foods were introduced into the infant's diet and the range of supplementary foods in both Garahdog (rural) and Shahabad (urban) areas were examined and is given in tables 5.4 and 5.5.

In the new urban area of Shahabad supplementary foods were introduced to infants as early as the first month of the baby's life.

While nursing a child sweetened water (gatdog) was among the liquids most commonly given to the infants. 98% of the respondents in Shahabad stated table sugar and water as the first supplement to breast milk. Herbal tea or sweet tea was mentioned by 16% of the mothers, followed by rose water and sugar (20%), cow's milk (10%), commercially manufactured powered milk (68%), eggs (6%), mashed rice (10%), biscuits and tea (60%). (Table 5.4).

In Garahdog village semi solid foods were introduced while breast feeding continued. Supplementary food was introduced as early as the first month of the baby's life. Foods which were mentioned as having been given to the child before he could eat a solid diet are shown in
Table 5.5. Those mothers who mentioned that they began feeding on the first month of baby's life revealed, on closer questioning, that they gave sugar, water and home brewed medicinal teas, not foods.

While breast feeding a child, table sugar and water was among the liquids most commonly given to the infants. 100% of the mothers mentioned this liquid as the first supplement to breast milk. Rose water (11%), fresh animal milk (100%), eggs (2%), sweet tea (20%), rice water (10%) were other liquids mentioned by mothers in this respect. No one item was given as the first supplementary food by all mothers, although most were liquid or semi-solid.

Although breast feeding was continued beyond the age of 6 months for 91% of the cases, the mentioned semi-solids were fed often in a dilute form and served in contaminated bottles. Such practices undoubtedly contributed to the high prevalence of acute diarrhoeal disease early in infancy.

5.1.4. Weaning process and weaning diet
A range of 3-18 months was reported for the age of weaning of the pre-school children in the new urban area of Shahabad (Figure 5.3). The mothers claimed several reasons for attempting to separate children from the breast and giving them solid foods from the family diet. A common reason was a new pregnancy, which was mentioned by 25% of the respondents. Mothers in this group believed that regular breast feeding makes them weaker in pregnancy. 10% of the respondents weaned their children because they
had been told by elder members of their family. 27% of the mothers said that a diminishing milk supply made the child hungry so that he needed stronger food. 20% of the mothers claimed that they were working and had to wean the baby. Mothers in the Shahabad community used various techniques in the weaning process. The most common method of weaning was to make snacks available to the child and to allow him to give up the breast voluntarily. 52% of all respondents who had ever weaned a child said they used this method. Another method was rubbing bitter substances on the breasts (27%). 19% of the mothers reported refusing to give the breast when the baby demanded it and replacing breast milk with artificial milk and other foods.

In the rural village of Garahdog, weaning took place between the second and third year of life (91%). These figures seem late when compared with the Shahabad figures, but are not unusual in rural areas of Iran. Figure 5.3 compares the weaning ages of pre-school children in Shahabad (urban) and Garahdog (rural) areas.

In the rural area in 15 cases (42%), weaning was a gradual process, with foods used during the process chosen from the adult diet (except for milk). Mothers used these foods to familiarize infants with the foods of their culture, rather than supplement their diets. These mothers made snacks available to the child and allowed him to give up the breast voluntarily. Another method of weaning used by 17 (44%) of the mothers was smearing the nipples with irritating substances such as bitter leaf or pepper, in order to discourage nursing attempts. Only one respondent sent the baby away to her grandmother during the time of
weaning. The weaning age in this community apparently was determined largely by custom; most of the children were weaned between 21 and 24 months of age. When the causes of weaning were investigated, it was seen that the majority of women stopped breast feeding for traditional reasons. These reasons included "always breast feed for this length of time", "child was old enough", "child weaned himself", and "another pregnancy occurred". The findings of the study, however, reveal that there were some interesting reasons for late weaning of children in rural Garahdog village; in 50% of the cases the respondents agreed that while breast feeding continues they will not become pregnant again. In 28% of the cases mothers believed that "weaning too early is a crime with dire consequences".

The examination of the dietary practices of the studied sample in both rural and urban areas reveals that no special foods were prepared for children after they were weaned. In the Shahabad area 50% of the informants reported that they had no extra money to prepare special dishes for children. Another 50% mentioned lack of time and fuel for not preparing special foods for children. In the rural area of Garahdog lack of time was a contributory factor and was mentioned by 60% of the mothers, while 40% of respondents cited that it is not traditionally popular to prepare special dishes for weaned children.

Field notes indicate that the range of foods eaten by a family and weaned children in Shahabad was visibly limited, and usually consisted of the region's carbohydrate staple (bread and rice) eaten with a rather spiced stew. Food supplements eaten
by the children who were being weaned included bread and sweet tea (100%), vegetable soup (23%), eggs (6%), meat stew (60%), fruits (60%), dairy products (40%), raw vegetables (20%), rice (60%), bread (100%).

Figure 5.4 compares the ingredients of foods eaten by weaned children in rural and urban areas. The findings of the results show similar patterns of food in both areas but indicate the different amounts consumed in the two areas. In Garahdog village foods eaten by weaned children include bread and tea with sugar (100%), vegetable soup (43%), eggs (10%), meat (40%), chicken (28%), fruits (80%), dairy products (70%), raw vegetables (40%), rice (65%), bread (100%).

In Shahabad and Garahdog areas the usual food pattern for the children who were weaned was as follows: the infant received bread and tea together with snacks from the adult diet. From about 2 years onwards the child was given a small portion of the family diet composed mainly of starchy foods eaten with a rather spiced stew (abgosht) which incorporated a small amount of meat or poultry and often onions, tomatoes, green vegetables and dried lemon. The amounts of meat or poultry used for the stew were very small, estimated at 30 - 50 grams a day for the whole family. Many informants said that they serve the children less meat than the adults. The stew could be considered as a typical noon meal in both areas. Supper might include leftovers from dinner, or simply bread, cheese and sweet tea.
On the days when the sample was questioned on its consumption of meat in the rural area 40% had eaten lamb or mutton. Obviously some meat was consumed by the remaining 60% of the sample from time to time, but the failure of the majority of the sample to report mutton or lamb consumption indicates that the event was rare. In Garahdog village the people eat mutton only when a sheep is seriously ill and must be slaughtered or occasionally when an animal is killed in a hunt. Chicken was eaten by 28% of the sample and was the meat of highest social ranking, being closely associated with a complex of traditional ideas and practices.

Weaned children in the Garahdog village ate at least two categories of foods which were not reported in the interviews. Children were observed to eat green, raw vegetables as "yanja" and "shingy" which were both easily gathered around the village. 90% of weaned children in Shahabad and 60% of children in Garahdog village were reported to eat store snacks, ice cream and commercially prepared cookies.

Field observation showed that in both the new urban and rural areas a child was expected to be fairly independent after weaning. It was noted that the weaned child spends most of his time in the company of older children who assume responsibility for his care. The children were seen to be fed by other older siblings (aged 6-7) who shared some of the young child's food while playing on the ground.

5.1.5 Dietary practices and beliefs.

Examination of the dietary practices of the sample groups
in Garahdog (rural) and Shahabad (urban) showed the following:

In the new urban area of Shahabad the evening meal was the most elaborate meal of the day and required the most preparation in 70% of the households. 36% of the respondents said that they cook evening meals because they had to wait for their husbands to bring whatever he has bought. 26% of respondents mentioned that "usually the whole family gets together at evening meals". Some form of animal or pulse protein was served at these meals. At breakfast 90% of the families in the new urban area of Shahabad consumed bread and tea. 60% of families had cheese with the bread. The noon meal consisted of vegetable soup (ash), or bread and cheese and bread and raw vegetables.

The preparation and cooking of stews was observed at the time of the field survey in Shahabad area and it was found that in all cases the stews were cooked for a long time (usually 3 - 4 hours), and after cooking it was kept for long hours before it was eaten. In all cases it was seen that no liquid was thrown away and the stew's water was eaten with bread. In 16% of cases it was observed that tomatoes and green vegetables were put in the stew when it was boiling. In all cases it was seen that the stews were cooked in a pan with a lid.

It was found that in the Shahabad community quite often the most valuable foods were given to the adults. 71% of the respondents said they gave the children less meat than
the adults. In most of these cases it was the father who got the biggest share of the food, especially the protein-rich foods. In one of the occasions during the house visits it was seen that eating food was believed to be a competition to see who can eat the fastest. Very sadly, the youngest child lost this competition and did not get enough to eat. In 80% of cases it was observed that young children did not have a plate and spoon to themselves and the mother had put 2 - 3 spoons of extra food in her own plate to feed the child.

The practice of finger feeding of small children with a piece of bread or other foods was seen in 32% of the cases in Shahabad area. The food given to the infants was pre-masticated by the mother then a small piece was taken from the mother's mouth with the fingers and fed to the baby. The reasons given by the mothers included "the children haven't enough teeth" (26%), and "the food is more digestible" (6%).

In the rural village of Garahdog a similar dietary pattern was observed. In all cases the usual breakfast for a pre-schooler included tea with sugar, home made bread and cheese. In 14% of the cases mothers mentioned butter and honey instead of cheese. In 60% of the cases mothers reported serving cow's milk for breakfast. Unlike Shahabad, in Garahdog village the family gathered together at noon, and the main food was prepared for the noon meal. In 68% of the cases the noon meal included mutton or chicken stew. In 30% of the cases stew was
consumed with rice. In 58% of the cases bread was eaten with stew. In 32% of the cases the noon meal consisted of various side dishes eaten with bread. In 80% of the cases supper included leftovers from dinner and tea with bread. 20% of the mothers served bread with fresh animal milk and other condiments. Almost all of the respondents served green vegetables during the day and in 80% of the cases at two meals. In all of the cases the vegetables came from the respondent's farm or courtyard. Some types of dried vegetables played a prominent part in rural Garahdog's diets. 72% of the housewives reported taking advantage of dried vegetables especially in winter. Drying methods were simple; all vegetables were cut and sun dried without preliminary blanching. Consumption of certain types of peas was reported by 52% of the respondents in Shahabad and 88% of respondents in Garahdog village. By far the most commonly used were chick peas, pigeon peas and lentils in both areas.

All of the respondents in the village reported producing their own bread. The wheat was marketed as grain right down to the retail level and made into flour by the respondents. Few respondents (3 cases) reported taking grain to the mill, as the nearest mill to the Garahdog village was several miles away.

In Garahdog village the male children in the sample group appeared to be fed larger quantities of the high status foods than the female children. In 54% of the cases it was observed that the father ate the largest and best part of
the food, and in the case of young children the mother took what was left after the father had filled himself to his satisfaction. The amount of food available to each child in different households, therefore, depended on the appetite of the father.

Finally, improper methods of meal preparation were noticed in both Shahabad (urban) and Garahdog (rural) areas. In both cases cooking was made difficult and laborious by some factors; there was normally no firm, clean or flat surface to work on, except for the use of a tray, which was observed in 6 cases in the village community. Also cooking was not done in special self-contained rooms where everything required can be kept permanently. Along with these handicaps in all studied cases the cooking preparation and cooking was done at dirty floor level.

5.1.6 Food Restriction and Beliefs Toward Infancy and Childhood. In both Shahabad (urban) and Garahdog (rural) respondents considered many high protein foods inappropriate for young children. Therefore certain food items were mentioned to be especially restricted for young children. A striking example was meat, which was believed to be unsuitable for infants by 60% of respondents in Shahabad and 72% of the mothers in the rural village of Garahdog. Reasons expressed by urban mothers included "meat produces intestinal worms" (12 cases) and "meat is too strong for infants" (8 cases). A few of the respondents said that meat causes piles and loose stools in babies, but not in older children (3 cases). Among some rural mothers food restriction in early childhood was related
to non-scientific concept of body physiology. Some of the mothers said "the child has no teeth to chew the meat" (10 cases), "they do not know how to eat" (6 cases), "there is no need for them to eat the meat" (2 cases). 10 respondents believed that meat and poultry cause "worms" in babies, and these foods must be avoided until the child is 2 - 3 years old. Other disease producing effects, both probable or improbable from the scientific point of view, were often the cause of other food limitations: eggs were a little used animal protein food for the young children in Shahabad (urban) and Garahdog (rural) areas. 12 mothers in Shahabad believed that eggs will produce "blindness" in the first year of a baby's life. Three mothers said that the consumption of eggs in early childhood causes "kidney diseases". Most respondents, however, believed that eggs are "heavy" for infants (15 cases). The same range of attitudes towards consumption of eggs was found in Garahdog village. 80% of the respondents agreed that eggs must be avoided for the first year of baby's life because "the baby does not like its taste" (8 cases), "the eggs are heavy" (5 cases). Most of the respondents believed that feeding eggs and meat to the babies causes them to be greedy (12 cases). However, one of the respondents explained that this was because these foods are expensive and luxurious, and a baby who is fed them may develop expensive tastes, which cannot easily be satisfied. Most fruits were said to be good for babies. Only 5 respondents in Shahabad cited that oranges produce skin rashes in young
children. 6 mothers in Shahabad (urban) believed that consumption of beans causes diarrhoea in infants. In Garahdog village locally available vegetables, fruits and legumes were not widely objected to by mothers.

Probably one of the major harmful dietary practices found in the feeding of young children in both urban and rural areas was the alleged value of sweetened water or rose water, which was fed from the uncleaned bottle, often resulting in the disastrous vicious circle of infective diarrhoea. It was found that this custom was practised by 78% of the mothers in Shahabad (urban) and 40% of the mothers in rural Garahdog village.

It was also found that food restrictions of a serious nature were practised during the treatment of illness in infancy. The most important example was the restriction of water and milk drinking by the infants in diarrhoea, which was mentioned by 72% of the mothers in urban Shahabad and 82% of the respondents in rural Garahdog village.

In Shahabad (urban) and Garahdog village medical superstitions seemed to play a tremendous part in child care and feeding. Among the respondents in Shahabad area foods were classified as hot, cold, strong, or light according to the effect they are supposed to have on the infant's body. 76% of the respondents mentioned honey, grapes, eggs as hot foods, while yogurt, cucumber, fish and vegetables were among the cold foods. 30% of the respondents mentioned "eggs" among "heavy" foods. Combination of foods was also believed to be harmful to pre-schoolers by 10% of the respondents. The examples given included "yogurt and milk" which were
believed to cause a skin disease called "gashinma."

In the rural village of Garahdog it was also widely believed that foods, herbs, illnesses and bodily states such as sleeping and pregnancy are characterized by degrees of heat or cold. Among 23% of the respondents actual temperature was concerned. The example given was when a person becomes over heated by the sun or wet from contact with cold water. The respondents stated air, water, a cold floor and some foods as sources of "cold". That must be neutralized or drawn off by means of hot foods or herbs taken internally, hot poultices, massage or other similar treatment. According to a mother's belief excessive heat comes from the sun, from strong emotional experiences such as fright or pleasure and some hot foods. Mothers said the resulting illness is treated with cold foods. In one case it was seen that one of the mothers was rubbing the 3-year old son's body with yogurt (cold) to draw out the heat. In another instance one of the respondents administered the juice of watermelon to bring the child's temperature down. Among 71% of the rural mothers the putative degrees of heat or cold were innate characteristics or properties of substances. All respondents in Garahdog village considered honey, oil, sugar, grapes and most of the herbs as "hot" foods. Dairy products, aubergines, cucumber, salt, vegetables and some fruits were believed to be "cold" foods among some groups. Some contradictions were also mentioned by a few informants: most chillies are hot, but some varieties are cold. One respondent believed melon seeds are hot, but melon itself is cold. 52% of the mothers
who divided foods in two or more categories agreed that foods and herbal medicines are made neutral through combination. For instance rice (cold) requires the addition of oil (hot) to make a safe food for a child and also adults. Only 17% of the informants in Garahdog village reported that in their culture certain natures are cold and others are hot, and each individual should take the food or drug according to his nature. These mothers stated that cold 'natures' are much healthier.

Diarrhoea, the most common illness of the pre-school children in Garahdog village, was believed by 54% of the mothers to be caused by either excessive heat or cold. If there was a moderately serious diarrhoea, it was thought to be caused by cold. 28% of the respondents said they treat it with a tea made of hot herbs, such as ginger. If it was thought to be caused by heat it was treated with a drink made of tomato skin and other cold substances. The treatments were thus thought to balance the cause of the disease.

About 18% of the respondents in Shahabad and 26% of the mothers in Garahdog village reported frequent use of purgatives for young children. In Shahabad area it was observed that one of the mothers gave about 10 - 20 cc of castor oil combined with almond oil to keep the 1 year old baby's bowels clean. When she was asked the reason she said "Even when a baby gets diarrhoea his intestinal tract is not clean. This medicine cleans it."

In both Shahabad and Garahdog areas all babies were seen to be swaddled very tightly and straight, due to the belief that if the baby is not wrapped in this way he will
get "crooked legs". This practice may be nutritionally harmful as it reduces exposure to sunlight.

In Shahabad area 14% of the respondents believed that the first forty days of life of a baby have a special significance. Mothers in this group avoided taking the baby out, except under dire necessity. In Garahdog village the same traditional belief was mentioned by nearly half of the total sample, but at the same time the mothers carried their newborn baby on their backs while they were washing, cooking, milking animals, baking bread or carrying water or washed clothes on their heads. One of the respondents in the village said that her newborn baby was sick from the age of one week, but she thought that after forty days it would be well.

Among the respondents in the rural area it was found that boys are much more appreciated than girls. Among the sample group "Gisbass" (daughter enough) was a rather common name for girls. One of the respondents explained that the term "daughter enough" means that the family had too many girls, and no or few sons. Under the magic spell of the new name "daughter enough" the next pregnancy is supposed to produce a boy. 30% of the respondents in Garahdog village reported using this name for one of their girls, while in the urban area of Shahabad only 10% of mothers used "daughter enough" name for one of their girls. The further analysis of the data, however, gave evidence that these 30% of rural mothers were among 34% of the total sample which had 3 or more girls. On the other hand, the 10% of urban respondents were among 46% of the total urban sample with 3 or more
girls (Fig. 5.5). This difference indicates the movement of new urban mothers away from traditional customs, and it shows that traditional habits persist more in rural areas.

Finally, 85% of the respondents in rural Garahdog reported their mothers and in-laws were the main source of information about child care and infant feeding. In fact, the rural respondents fed their children in the same manner as their mothers did, while in the squatter area of Shahabad it was found that in most of the cases (62%) mothers tended to choose a method of infant feeding similar to that of close female friends and neighbours, especially those of the same generation, and in a few cases from medical personnel (Table 5.6).

5.1.7. Classification of Illnesses

Studied mothers in both urban and rural areas had their own ideas of the etiology of diseases and the following is a summary of ideas as to disease etiology:

(a) if a pre-school child becomes weak, miserable and stops crawling he suffers from "zaieflick". 30% of the mothers in Shahabad area recognised that this illness occurs when the child is displaced from the breast by a younger sibling.

(b) 'Eshal" was mentioned as a common disease for children in Shahabad community by 92% of the respondents. In this the young child gets severe diarrhoea, his body becomes dehydrated and the child stops eating. 44% of the respondents believed that this occurs when the child is exposed to hot weather. 40% of the informants
in Shahabad believed that "teething" is the cause of this trouble and 8% of the respondents gave no idea. In Garahdog village 26% of the respondents mentioned that "Eshal" is caused by "hot foods". 46% of the rural respondents said that these symptoms, as well as vomiting and fever, are due to "teething".

(c) "Ghamislick" means "anaemia" and is recognised by the pallor of the skin and general weakness by 34% of the mothers in Shahabad (urban) and 63% of the mothers in rural Garahdog village. Respondents in both groups believed that this condition is due to "intestinal worms".

(d) "Shishmack". Diagnosis was based largely on the findings of a very distended abdomen. The condition was considered by 24% of the respondents in Shahabad to be due to certain "little animals" getting into the child's stomach through the meat. Treatment consisted of the prohibition of meat in the child's diet. 51% of the mothers in the rural village of Garahdog gave the same ideas to the cause and treatment of disease. 29% of the respondents in the village also said that they take the suffering child to a holy man for a prayer and the cause of the disease is symbolically driven out.

(e) "Soyocklok", meaning "cold" in local language, was mentioned by 24% of the mothers in Shahabad, and 50% of the mothers in Garahdog village as a common disease for children. This word is used because suffering children were believed to have cold oedematous feet. Mothers in Shahabad thought that cold weather is the responsible factor,
while rural mothers believed that children get this illness when they are put out of the mother's bed to avoid the "heat of pregnancy".

A very common belief among respondents in both groups was fear from "evil eyes" (nazar). 20 respondents out of 50 in Shahabad area believed in the effect of evil eye on childrens' health. This idea was held more strongly among studied sample group in the rural village of Garahdog where almost all 35 mothers supported it. For treatment certain seeds were seen to be burned and the soot placed on the root of the nose of the child as a life-saving measure. "Evil spirit" was also believed by 10 rural mothers to influence the child's condition.

34% of the respondents in Garahdog village mentioned that certain hakims (local doctors) have a "good step". One of the respondents said that their simple arrival at the bedside will cure the child and change the situation for the better.

29% of the mothers in Garahdog village said that it was necessary to find a good doctor. Unfortunately their view of a good doctor does not always coincide with good medical practice. For example, one general practitioner in the rural area described a case of a child with laryngeal diphtheria, where oxygen treatment was most urgent. The patient and the parents disappeared from the local health clinic to discuss the matter with the child's grandparents and they had promised to return within an hour, but never returned. Next day a female
relative of the child came to the doctor with a sad expression to get the death certificate for the child. The doctor believed that the older members of the family did not approve of the oxygen therapy.
5.2 Dietary practices and beliefs concerning pregnancy and lactation

5.2.1. Pregnancy

In Shahabad area 66% of the respondents believed in general food restriction during pregnancy. In 30% of the cases low food intake during pregnancy was considered advisable in the hope of producing a small baby with not "too large" a head. In Garahdog village a few respondents (10%) believed that some special nourishment is necessary for the mothers to maintain their strength, but among most of the informants (80%) care of the pregnant woman centred on avoidance of specific foods thought to bring on disturbances both to the mother and child. 46% of the respondents in the rural area said that eating too much during pregnancy will produce a "deformed baby". 34% of the informants said that low intake of food during pregnancy is necessary for an "easy labour" and 23% of the mothers believed that eating too much will cause "death" to the mother and baby. 45% of the new urban mothers and 70% of the rural mothers in the study avoided eating eggs in all or part of the pregnancy. 66% of the mothers in Shahabad and 60% of the mothers in Garahdog mentioned that eggs are "too heavy" for an individual in such a delicate condition. A few respondents in Garahdog believed that consumption of eggs would produce a "yellow coloured face" in pregnant mothers. 51% of the mothers in the rural area and 42% of the mothers in Shahabad believed in avoidance of excessive intake of salt during pregnancy. 6 mothers in Shahabad cited advice given by the local clinic personnel regarding limitations of intake of salt. No specific
reasons were given by rural mothers other than that the excessive salt will damage the unborn baby.

Vegetables, fresh animal milk, some fruits and bread were mentioned most frequently as foods which were good for the pregnant woman by 50% of the mothers in the Shahabad area, while women in rural Garahdog village regarded local starches, green vegetables (raw and cooked), dairy products such as cheese and yogurt and some milk as more important foods during pregnancy. Few mothers in both areas reported meat or fish as a good source of nourishment for pregnant women (3 mothers in Shahabad and 5 mothers in Garahdog). Excesses of sweets, drugs and tea were considered by 8% of the respondents in Shahabad area as harmful during pregnancy.

A variety of clay earths and chalk intermixed with various chopped leaves and herbs were mentioned to be eaten during pregnancy by 30% of the mothers in Shahabad and 42% of them in Garahdog village. Mothers in the Shahabad area said that they have a desire to eat earth clays and ash during the first 3 months of pregnancy. In the rural area 29% of the mothers believed that these mixtures have medical properties, but none of them were able to identify those properties. 10% of the respondents in the new urban area of Shahabad mentioned regular use of multivitamins or iron tablets. Interestingly none of the respondents knew the nature of the tablets. For them it was a medicine given by medical staff in the hospital.
5.2.2. Lactation

In Shahabad area stew, vegetable soup, liver, milk and most fruits were mentioned by 50% of the respondents as "good" for the nursing mothers. No specific reasons were reported. In the rural area of Garahdog local foods including fresh animal milk, meat stew, raw vegetables, legume soups and fruits were believed by 63% of the mothers as important food for lactating mothers. 30% of the rural mothers reported regular consumption of "shirbereng" (a pudding made from fresh animal milk, rice flour and sugar) during lactation. This food was believed to increase the breast milk supply.

In Garahdog village the most important concept regarding foods considered "bad" during lactation was that of consumption of acid fruits such as oranges and lemons at certain hours of the day, especially prior to nursing a baby. 20% of the mothers thought that these fruits will sour the mother's milk and upset the baby.

Finally, although selected cultural beliefs and practices were found to be similar in both Garahdog village and Shahabad community, however, the numerical comparison of data presented in Table 5.7 indicates that customs are of greater importance among the rural mothers than the new urban area.

Also, when these results were further broken down it was found that in the new urban area of Shahabad more of the younger mothers showed lesser adherence to traditional
beliefs concerning certain harmful effects of foods and other customs during pregnancy, lactation and childhood. Table 5.8 shows a cross-tabulation of the cultural beliefs towards pregnancy, lactation and infancy according to the mother's age in Shahabad (new urban) and Garahdog (rural) areas.
5.3. Some Health Problems of Pre-school Children and Child Mortality in Shahabad (new-urban) and Garahdog (rural) Areas

5.3.1. Childhood Illnesses:
The history of illnesses in children, as reported by their mothers, indicates that in Shahabad 47 children out of 50 (94 per cent.) had at least one attack of diarrhoea before the age of 6 months. In addition 20 per cent. of the children were reported to have had whooping cough before the age of 6 months. 42 per cent of the children were admitted at least once to the Shahabad's local health clinic or children's hospital in the city of Tabriz before the age of 6 months. Several causes were cited for hospitalization, but the most common were infective diarrhoea 20 per cent., whooping cough 6 per cent., fever 6 per cent., measles 4 per cent., abdominal pain 6 per cent. (Table 5.9). Other illnesses which were reported by respondents to attack their children at different ages were measles 50 per cent., diphtheria 30 per cent. tetanus 4 per cent., poliomyelitis 2 per cent., whooping cough 6 per cent. Smallpox was reported by none of the respondents in Shahabad area (Figure 5.6).

In Garahdog village 62 per cent. of the children had at least one attack of diarrhoea before the age of six months. Also, 52 per cent. of the children were reported to have had whooping cough. 23 per cent. of the mothers in Garahdog village mentioned that they had taken their children to the hospital before the age of 6 months. The causes for hospitalization of these infants included respiratory infections 14 per cent and infective diarrhoea 9 per cent.
In Garahdog 29 per cent. of the children were said to be attacked by diphtheria, 60 per cent by measles, 10 per cent. diarrhoea and 3 per cent. by tetanus at different ages. Childhood illnesses of pre-school children in Shahabad and Garahdog village have been shown in Fig. 5.6.

A question regarding the length of a diarrhoea attack among their infants was asked of respondents in both areas, and the results showed inter-relation between the length of attack and type of baby feeding; length of diarrhoeal episodes were shorter among breast fed children (Table 5.10).

Mothers in both Garahdog and Shahabad areas reported that their children had been attacked by diarrhoea more often in summer than winter.

Immunizations: Figure 5.7 indicates that in Shahabad area 6 per cent. of the studied children were reported to be vaccinated against diphtheria, tetanus, whooping cough and poliomyelitis. Only 4 per cent. of the respondents in the urban area immunized their children against measles. It was not clear whether or not the course of vaccinations was completed for the child's age because no respondent was able to remember the total number of vaccinations. None of the respondents in Garahdog had immunized their children against diseases such as diphtheria, tetanus, whooping cough, poliomyelitis and measles. Interestingly, it was found that most of the ignorant mothers in new urban and rural areas welcomed the smallpox vaccination. This was the only prophylactic measure practised by 60 per cent. of Shahabad
mothers and 48 per cent. of the rural mothers (Fig. 5.7). Mothers in Garahdog village reported that official medical personnel were travelling around the village to immunize the children against smallpox. Several reasons were found to be responsible for not immunizing the children against communicable diseases in both areas. The summary of such factors is shown in Table 5.11.

5.3.2 Pattern of Protein-Energy Malnutrition in Shahabad and Garahdog areas.

Considering the relatively large number of children in Shahabad community suffering from gastro-enteritis and respiratory infections, it was assumed that there might be some cases of protein energy malnutrition. Information regarding the pattern of childhood malnutrition in Shahabad and Garahdog was obtained by the aid of a short questionnaire from the "Shahabad Public Health Clinic" and "Shir Korshied Hospital of Marand City". (Appendix 2). Various questions were designed to determine the prevalence of protein energy malnutrition in both areas, and the following is a summary of the findings.

According to Shahabad's health clinic's statistics a total of 700 pre-school age children were admitted to the health centre during the year 1977 - 78. The reasons for admission included:

- Diarrhoea: 280 cases
- Fever: 50 cases
- Whooping cough: 95 cases
- Abdominal pains: 64 cases
- Protein energy malnutrition: 131 cases
Ear infection and other diseases 80 cases

The general practitioner of the health clinic claimed that 90 children out of a total of 131 (69 per cent.) with protein energy malnutrition were suffering from marasmus at ages <11 months old. It was unclear whether this finding was due to changes in the pattern of life associated with urbanization because the children examined in this health clinic had not been identified by family or household, but by area of residence. In close questioning of mothers the medical personnel had found that in 87 per cent. of the marasmus cases children were bottle fed. The hospital reported 20 cases of a moderate form of kwashiorkor and 21 cases of mixed forms of protein energy malnutrition at ages ranging from 2 - 5 years.

On further questioning of medical personnel it was said: "the impression given by these figures is inclined to be somewhat lower than it should be because during the summer, when marasmus is more common, the health clinic is nearly full. Also it is the appearance of oedema that forces the mothers to take the children to the doctor, mere wasting being so common as to be overlooked."

Furthermore, the doctor in Shahabad's health clinic believed that inadequate breast feeding and early introduction of contaminated bottles were the main factors to shift malnutrition from pre-school kwashiorkor to infantile marasmus in the Shahababad community.
Five cases of Vitamin A deficiency were reported to be seen in the clinic in the form of "keratomalacia" among young children during the year 1977-1978 in the Shahabad area. In all five cases the mothers reported that their children had been fed on dried milk.

In a visit to "Shirkorshid" hospital of Marand city a total of 220 cases of admission to hospital from Garahdog and three other nearby villages were reported by medical staff. The most common causes of admission were:

- Diarrhoea: 97 cases
- Fever: 10 cases
- Whooping cough: 10 cases
- Protein energy malnutrition: 33 cases
- Respiratory infections: 60 cases
- Measles: 10 cases

From 33 cases of mild protein energy malnutrition 9 cases of infantile marasmus, 4 cases of mixed types of protein energy malnutrition and 20 cases of mild kwashiorkor were reported by the doctor. He believed that low socio-economic status of rural families and prolonged breast feeding with late weaning practices are the main factors responsible for the ill-health of children examined in hospital.

The medical staff in "Shirkorshid" hospital of Marand reported that hypochronic anaemia, vitamin deficiencies such as beri-beri, pellagra and ariboflavinosis had been seen in hospital, but there was no official document to give statistical support. The same doctor said that
there used to be scurvy cases frequently coming to the hospital during previous years, but last year only 6 cases were seen.

Trachoma was reported by the doctor to be a common eye disease in the villages. Fifty cases were seen in the hospital (adults and children).

In addition 60 per cent. of mothers in Shahabad and 80 per cent. in Garahdog village had reported that their children had been infested by hookworms several times.

5.3.3. Mortality of Children in Shahabad and Garahdog areas
In the present study no families were included where all the children had died. Therefore the actual mortality rates for each area cannot be calculated by accepted methods (Hill & Trussell, 1977). Child death rates reported in this section are simply the number of child deaths reported by respondents as a percentage of their total reported live births and are used to identify contributary causes of child mortality.

All respondents in Shahabad and Garahdog areas had given birth. For 50 respondents in Shahabad area the average number of pregnancies was 6.4 and for 35 mothers in rural Garahdog it was 6.1. Fig. 5.8 shows the number of pregnancies of respondents in Shahabad and Garahdog areas. The average number of live children per household in Shahabad was 4.2 and in Garahdog it was 3.9. The number of live children in both areas has been shown in Figure 5.9.
The average number of child deaths in Shahabad and Garahdog was 2.2 (Fig. 5.10).

Table 5.12 shows that in Shahabad, in most cases the deaths occurred in the first year of life (45 per cent.). In 18 per cent. of the cases death occurred in 13 - 18 months, in 24 per cent. of the cases in 1½ - 5 years and in 13 per cent. of the cases in age 6 and more.

In contrast, in Garahdog, about a third of the deaths (34 per cent.) occurred in the first year of life, while in nearly half of the cases (49 per cent.) it occurred at ages 1 - 5 years and in 17 per cent. of the cases in 6 years and more. (Fig. 5.11).

In Garahdog village from 34 per cent. of infants who died in the first year of their life, 13 per cent. of them died in the first 24 hours of life, while in Shahabad area from 45 per cent. of children who died in the first year of life only 4 per cent. of the infants had died in the first day of their life. This difference possibly indicates the availability of better maternity facilities in the city than the village. On the other hand, there were no mothers who reported the death of their children over the age of 10 in Shahabad area, while in Garahdog village 6 children died at ages over ten. Three of these were girls who died during childbirth. This shows that in rural areas the custom of illegal early marriage is still persistent.

As to the causes of these mortality rates, in Shahabad 16 per cent. of the children had died because of accidents, 79 per cent. because of diseases and in 5 per cent. of the cases the causes
of death were unknown. The respondents whose children died because of accidents reported fire, car accidents, drowning and falling from a height as the main causes.

Among those children in Shahabad who died because of diseases, summer diarrhoea and infectious fever came first. From 87 children (79 per cent) who died because of various illnesses, there were 56 cases of diarrhoea, 15 cases of whooping cough, 10 cases of diphtheria, and 6 cases of typhoid fever.

In Garahdog village 9% of the children died because of accidents and 86 per cent because of various illnesses (66 cases). Of these 66 cases in 28 cases infective diarrhoea was reported to be the cause of death, in 25 cases respiratory infection, in 7 cases measles and in 6 cases typhoid fever. In 5% of the cases the causes of death were unknown. Lack of proper roads, lack of sufficient medical staff in the village and thus delayed medical treatment were contributory factors to these deaths. (Fig. 5.12).
5.4 Background Information

5.4.1. Family Characteristics:

The sample group of families in Shahabad consisted of 20 percent who came from Shahabad or small towns, but the great majority (80%) of the families had migrated from rural areas such as "Garahdog" and "Arasbaran Kandy" villages (Fig. 5.13). Of the 20% who were not rural/urban migrants, 6% migrated from other small towns and the remaining 14%, although Shahabad-born had their parents who were migrants from rural areas.

These urban residents were not a residentially stable group. The respondents reported that they had moved from one residence to another within the city of Tabriz, but they finally restricted themselves to the Shahabad area. They claimed that they had changed their residential area within the city for a number of reasons including: high rents and the need to find cheaper dwelling (36%), buying a house in Shahabad (6%), preference for living near relatives (20%) or a desire to live closer to one's workplace (18%).

Of the respondents 50% reported that they came to the city whilst single or shortly after marriage and established their own families in the city.
5.4.2. Reasons for migration to urban area:
Clearly the motives for moving to the city were mainly socio-economic and associated directly with employment. 80 percent of migrants in this study moved to take advantage of a "job" or "better job" opportunity in the city (Fig. 5.14). Another reason for moving to the city was the education of children mentioned by 8 percent of the respondents "our children may become doctors, business-men and lawyers in the city" said one of the informants. Presence of relatives and friends in the city was another reason for this movement and this was mentioned by 12 percent of respondents.

A question regarding the migrant's desire to go back to their original village was asked of respondents and it was found that in most cases (70 percent), they answered negatively. Only 6 percent wished to return to their original villages and 4 percent of the respondents had no opinion. These informants who did not have a desire to return to their villages mentioned that their children would take advantages of the move to the city and even if they did not receive much advantage, at least their children would benefit from this movement.

Those respondents who wanted to return to their original villages gave as reasons, the better availability of food, fresh air and living space in the villages.
The cross tabulation of the results showed correlations between the duration of residence of migrants and their desire to return to their original villages. Table 5.13 indicates that most of the respondents who did not want to go back to villages were those who had stayed in the city for periods longer than 5 years. They had become committed to city living and had evolved mechanisms to cope with the crisis that marked their lives, encouraged always by the anticipation that their children would fare better. Nearly half of those who wanted to return to their villages had lived for less than five years in Shahabad. The duration of residence of the sample group in Shahabad is shown in Figure 5.15.

It was also found that the informant's desire to return to the original places was correlated with the household head's occupation in the urban area (Table 5.14). All of the respondents whose husbands were semi-skilled or skilled workers did not want to return to the villages, while the three respondents who wished to go back to their village, had husbands who were unskilled, low-paid workers.
There was a total of 322 persons in the 50 sample households in Shahabad. Families varied in size between 4-9 and consisted primarily of parents, children and in a few cases relatives. The average family size was 6.44.

In Garahdog the 35 families which were studied consisted of 231 persons, parents, children and grandparents. Families varied in size between 3 to 10 with an average family size of 6.6. Figure 5.16 compares the number of people per household in Shahabad and Garahdog.

These was a total of 211 children in different age groups in the 50 households in Shahabad, 58 percent of the children were of pre-school age, 16 percent in the range 6-10 years and 26 percent between 11-16.

In Garahdog there was a total of 135 children in the various age groups. 60 percent of them of pre-school age, 16 percent in the 6-10 year range and 24 percent between ages 11-16. The age distribution of children in Shahabad and Garahdog village cross-classified by sex is shown in Table 5.15.

"Turkish" was spoken by all respondents both in Shahabad and Garahdog and all informants in both areas were "Shiite" Moslems.
In Shahabad, teenage mothers accounted for 22 percent, 44 percent were in their twenties, 10 percent between 30-40 years of age and 24 percent over 40 years of age. Table 5.16 shows the age distribution of housewives in Shahabad and Garahdog. Among rural respondents, teenage mothers accounted for 40 percent, while 22 percent were in their twenties, 18 percent were in their thirties and 20 percent over 40 years. In Shahabad fathers were in general 8-10 years older than mothers and in Garahdog 7-10 years older than mothers.

In Shahabad mothers married at ages ranging from 13-19 with the average marriage age of 15.1, while in rural Garahdog the marriage age of respondents varied from 13-18 with an average marriage age of 14.2. Figure 5.17, shows that in Garahdog 34 percent of the respondents had married at age 13 while 18 percent of the mothers in Shahabad married at age 13. On the other hand 10 percent of the mothers in Shahabad had married at 18-19 while in Garahdog village only 3 percent of the mothers waited until 18 before marriage. This clearly indicates that early marriage of girls is quite acceptable in rural areas but less so in the city environment.

The average age of respondents at first pregnancy was found to be 16.4 for Shahabad (new-urban) mothers and 15.4 for rural mothers.
Figure 5.18, indicates that in the Shahabad area a small number of mothers had their first child at the early age of 14 (10 percent) while in Garahdog 34 percent of the respondents were having their first child at this age. The same figure also indicates that in Shahabad 58 percent of the mothers had their first child at ages 14-16 and 42 percent in later ages of 17-20. In contrast among rural respondents 86 percent tended to have their first child at the early ages of 14-16 while only 14 percent had their first child at later ages of 17-19.

It should be stressed that the ages quoted in this section were those given by the respondents and could not be checked by the author. It was not possible to check with birth certificates, but any errors are probably of minor significance.
5.4.3. Educational characteristics:

In Shahabad, only 8 percent of the mothers had ever gone to school at elementary level. In 92 percent of the cases mothers were illiterate (Table 5.17) Relatively speaking fathers were better educated than their wives, 6 percent of the fathers had completed primary school and 4 percent of the fathers had completed high school.

In Garahdog all respondents were illiterate and only 6 fathers were reported to go to adult's evening classes at elementary level.

In Shahabad school-age children of the sample group went to public schools which were free at the elementary level. 54 percent of school age children in the studied families were going to school, whereas 46 percent had discontinued their education at some level. According to the responses, all children dropped out of school for financial reasons. Differences appeared within the sample group's children in the level at which they dropped out. In 10 cases children left school before completing elementary schooling, whereas 23 children stopped schooling after completing an elementary education of six years. Most of the children who left school were working in carpet making factories.

In Garahdog there was only one primary school in the area and 50 percent of the school age children (6-12 years) were going to school. Only limited numbers of children (16 percent) were going to middle school in the towns of Sophian or Marnad, as this involved a journey of about 20 km. twice a day.
5.4.4. Financial Characteristics:
In Shahabad area, of the male household heads, 90 percent were working for a living, 40 percent of the fathers were reported to be self-employed in manual, low-skilled jobs like scavenging or vending, but there were also a number of shopkeepers in this group. Other groups of fathers, undertook semi-skilled non-manual jobs (44 percent). Among them were factory labourers and taxi drivers. Only 6 percent of the fathers were skilled workers and these were working as mechanics in different fields. 10 percent of the household heads were unemployed (Figure 5.19).

The data presented in Table 5.18 indicates that in Shahabad area the occupations of fathers were correlated to their education. 10 percent of the fathers who were relatively educated were occupied as semi-skilled or skilled workers while of the 90 percent who were illiterate, 40 percent worked as unskilled workers, 10 percent were unemployed and 40 percent were semi-skilled workers.

In Garahdog all fathers were unskilled workers. Agricultural work and animal keeping used to be the major occupations in the village (70 percent and 20 percent respectively). The remaining 10 percent of the rural fathers were employed in traditional jobs like milk selling, carpentry and hairdressing. The household heads worked a total of 9 months per year with approximately 6 months spent in agricultural work and 3 months in non-traditional occupations.
such as casual labourers in some factories in nearby cities and low paid services such as sweepers.

In Shahabad, 8 of the mothers (16 percent) were working (Fig 5. 20) in carpet factories, 2 as laundresses and 1 as a vendor. Also 10 mothers were known to work at home and had facilities to make carpets which were provided by private carpet factories. These mothers reported that the presence of 3-4 young children in the family was the reason they worked at home.

In Garahdok village, 18 of the mothers (50 percent) took part in agricultural work and animal keeping.

The economic circumstances of the Shahabad community were particularly difficult to assess quantitatively because during interviews respondents were understandably reluctant to reveal their income and other wealth to the interviewer, often, indeed, fearing that these inquiries might lead to increased taxation. However, the results of non-direct questions concerning their financial situation showed that the economic situation of the families studied was poor.

The approximate monthly income per family in Shahabad is given in Table 5.19. In most of the cases (50 percent) the average monthly income per family was 1000-1500 Tomans* from the pooled resources of working members of the family. In 40 percent of cases below 1000 Tomans and in only 10 percent of the cases, between 1500-2000 Tomans.

*(16 Tomans = £1)
However, in 50 percent of the cases, respondents claimed that their monthly income did not meet their requirements because the cost of living in the city was high and they could hardly afford to buy enough food for themselves. Further, the amount which Shahabad respondents reported they spent, covered not only food but other necessities as well. Figure 5.21 shows the amount of money spent on different items in Shahabad and Garahdog areas.

In Shahabad 50 percent of the households contained two working members and in Garahdog village 40 percent of households had two working members, and 14 percent of households had three working members (Table 5.20).

5.4.5. Environmental Characteristics:
In Shahabad, 50 percent of the families had 5-8 persons sharing a room, while in Garahdog, 43 percent of families had 5-8 persons living in one room (Fig. 5.22). In Shahabad 14 percent of the families lived in a private house, in 40 percent of the cases, two families shared a house, in 30 percent of the cases there were three families in a house and in 16 percent there were four families sharing a house (i.e. renting a room in a house). In contrast, in Garahdog village, 94 percent of the families lived in private houses, only in 6 percent of the cases were there two families living in one house.
In Shahabad, houses were in general, poorly constructed, made up of light and cheap materials. 76 percent of families paid rents which did not exceed 200 Tomans per month and only 24 percent of the families owned their houses.

Eighty percent of the houses had toilet facilities and in those cases where there was not a toilet in the house (20 percent) the occupants made use of the wrap and throw method.

Only 8 percent of the households in Shahabad had a piped water supply. 20 percent of the respondents said they used piped water from neighbours and in 72 percent of the cases, respondents had to carry water from public wells. Electricity was used by 30 percent of households but only for lighting.

Forty percent of households used paraffin oil for cooking fuel, while in 60 percent of the cases housewives chose a cheaper fuel, coal or wood. In 80 percent of the cases housewives cooked their food in the single room they had and the cooking fuel was used for room heating in winter. In 20 percent of the cases there were separate kitchens in the houses. In fact it was a part of the living room which was divided by a cheap partition such as a curtain. In only one household was there a refrigerator. Only a handful of houses possessed appliances like sewing machines and televisions. The radios however, were more commonly possessed items and were seen in 80 percent of the households.
In Garahdog 94 percent of the families were found to own their houses. 70 percent of the houses were built from sun-dried brick and wood and the remaining 30 percent were tiled and brick built houses. In 18 cases there were two rooms per family in the house while in 17 cases there was only one room in each house. In the former cases, the second room was usually used as a kitchen and for storage.

The furniture was quite poor and simple, with the rooms containing untidy heaps of boxes, tins, bottles and clothing. Cooking was done on a small fire or coal pot and meals were prepared by the mother who squatted on the ground or on a low stool. Washing was done and meals were eaten in the same position.

Scraps of food that fell to the ground were scrambled for by the children and the domestic animals.

Sanitation was quite unsatisfactory. Over 40 percent of families continued to use the fields or public toilets for purposes of defecation while the remaining 60 percent had toilets, a hole in the ground in the courtyard. There were also two public latrines which were provided by the government. Open drainage was common in this village. More than 90 percent of the families used public wells to obtain drinking water, and also for bathing and washing purposes. Electricity was used by only 7 percent of the studied families.
Five out of the thirty-five households used oil for cooking fuel, while the other 30 households used wood. No refrigerator was observed in the houses. Just as in Shahabad 80 percent of households owned a transistor radio.
Table 5.1 Duration of Breast Feeding in Shahabad Area

<table>
<thead>
<tr>
<th>Duration</th>
<th>Number of cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 1 month</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1 - 3 months</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>4 - 6 months</td>
<td>16</td>
<td>32</td>
</tr>
<tr>
<td>7 - 9 months</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>10 - 12 months</td>
<td>17</td>
<td>34</td>
</tr>
<tr>
<td>13 - 18 months</td>
<td>8</td>
<td>16</td>
</tr>
<tr>
<td>19 - 24 months</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Over 24 months</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100</td>
</tr>
</tbody>
</table>
Table 5.2 Duration of Breast Feeding in Garahdog village

<table>
<thead>
<tr>
<th>Age group</th>
<th>Number of cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 1 month</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1 - 3 months</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>4 - 6 months</td>
<td>2</td>
<td>6</td>
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<tr>
<td>7 - 9 months</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>10 - 12 months</td>
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<td>-</td>
</tr>
<tr>
<td>13 - 18 months</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>19 - 24 months</td>
<td>18</td>
<td>51</td>
</tr>
<tr>
<td>Over 24 months</td>
<td>12</td>
<td>34</td>
</tr>
<tr>
<td>Total</td>
<td>35</td>
<td>100</td>
</tr>
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</table>
Table 5.3: Attitudes of Garahdog Village Mothers toward Breast Feeding

<table>
<thead>
<tr>
<th>Attitudes</th>
<th>Number of cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I breast feed for more than 6 months because:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(a) mother's milk is the best</td>
<td>18</td>
<td>51</td>
</tr>
<tr>
<td>(b) It is cheap</td>
<td>5</td>
<td>14</td>
</tr>
<tr>
<td>(c) It is easy</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>(d) It is our tradition</td>
<td>5</td>
<td>14</td>
</tr>
<tr>
<td>(e) everyone does it here</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>2. I do not breast feed my baby for more than 6 months because:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(a) I am not healthy</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>(b) my milk does not satisfy the baby</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>35</td>
<td>100</td>
</tr>
</tbody>
</table>
Table 5.4 Age at Which Breast Fed Shahabad Infants Were Given Supplemental Foods by Types of Foods

<table>
<thead>
<tr>
<th>Age Group (months)</th>
<th>Table sugar and water</th>
<th>Herbal tea /sweet tea</th>
<th>Rose water and sugar</th>
<th>Cow’s milk</th>
<th>Powdered milk</th>
<th>Eggs</th>
<th>Mashed rice*</th>
<th>Biscuits and tea</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
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<tr>
<td>2</td>
<td>4</td>
<td>8</td>
<td>1</td>
<td>2</td>
<td>-</td>
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<td>-</td>
</tr>
<tr>
<td>3</td>
<td>-</td>
<td>-</td>
<td>5</td>
<td>10</td>
<td>5</td>
<td>10</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>4</td>
<td>-</td>
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<td>-</td>
<td>-</td>
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<td>10</td>
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<tr>
<td>6</td>
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<td>-</td>
<td>-</td>
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<td>-</td>
<td>-</td>
<td>10</td>
</tr>
<tr>
<td>7</td>
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<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<td>10</td>
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<td>8</td>
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<td>-</td>
<td>-</td>
<td>-</td>
<td>10</td>
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<tr>
<td>9</td>
<td>-</td>
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<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>10</td>
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<tr>
<td>10</td>
<td>-</td>
<td>-</td>
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<td>-</td>
<td>-</td>
<td>-</td>
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<td>10</td>
</tr>
<tr>
<td>11</td>
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<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>10</td>
</tr>
<tr>
<td>12</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>49</td>
<td>98</td>
<td>8</td>
<td>16</td>
<td>10</td>
<td>20</td>
<td>5</td>
<td>10</td>
</tr>
</tbody>
</table>

*Mashed rice with soup
Table 5.5 Age at Which Breast Fed Garahdog Infants Were Given Supplemental Foods
By Type of Foods First Given to Young Children. n = 35.

<table>
<thead>
<tr>
<th>Age Group (months)</th>
<th>Sweet Water</th>
<th>Rose Water</th>
<th>Sweet Tea</th>
<th>FAM*</th>
<th>Eggs</th>
<th>Rice**</th>
<th>Bread and Biscuits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>1</td>
<td>28</td>
<td>80</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<td>5</td>
<td>14</td>
<td>3</td>
<td>8</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>6</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>6</td>
<td>3</td>
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<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>6</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>8</td>
</tr>
<tr>
<td>7</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>5</td>
<td>14</td>
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<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>3</td>
<td>9</td>
<td>-</td>
</tr>
<tr>
<td>9</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>6</td>
<td>17</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>4</td>
<td>11</td>
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<td>100</td>
<td>4</td>
<td>11</td>
<td>7</td>
<td>20</td>
<td>35</td>
</tr>
</tbody>
</table>

*Fresh Animal Milk
**As rice water or soft boiled rice.
Table 5.6 Reported sources of Child Care Information in Garahdog (rural) and Shahabad (urban) areas.

<table>
<thead>
<tr>
<th>Source</th>
<th>Urban</th>
<th>%</th>
<th>Rural</th>
<th>%</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td></td>
<td>No.</td>
<td></td>
</tr>
<tr>
<td>Mother, mother-in-law</td>
<td>15</td>
<td>30</td>
<td>30</td>
<td>85</td>
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<tr>
<td>Friends</td>
<td>20</td>
<td>40</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Neighbours</td>
<td>11</td>
<td>22</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Medical Personnel</td>
<td>2</td>
<td>4</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>No-one</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Don't Know</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100</td>
<td>35</td>
<td>100</td>
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</tbody>
</table>
Table 5.7 Prevalence of Cultural Beliefs During Certain Periods in Shahabad (new urban) and Garahdog (rural).

<table>
<thead>
<tr>
<th>Source of customs</th>
<th>Shahabad n = 50</th>
<th>Garahdog n = 35</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of cases</td>
<td>Number of cases</td>
</tr>
<tr>
<td>General restriction of foods in pregnancy</td>
<td>33</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td>66</td>
<td>80</td>
</tr>
<tr>
<td>No meat given to healthy children</td>
<td>30</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>60</td>
<td>72</td>
</tr>
<tr>
<td>No eggs given to healthy children</td>
<td>30</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td>60</td>
<td>80</td>
</tr>
<tr>
<td>No liquids given to sick children (diarrhoea)</td>
<td>36</td>
<td>29</td>
</tr>
<tr>
<td></td>
<td>72</td>
<td>82</td>
</tr>
<tr>
<td>Classifications of foods (hot and cold)</td>
<td>38</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td>76</td>
<td>92</td>
</tr>
<tr>
<td>Frequent use of purgatives in childhood</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>18</td>
<td>26</td>
</tr>
<tr>
<td>Appreciation of boys</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>30</td>
</tr>
<tr>
<td>Use of traditional foods for nursing mothers</td>
<td>25</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>50</td>
<td>63</td>
</tr>
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</table>
Table 5.8 Prevalence of Cultural Beliefs During Certain Periods by Mother's Age
In Shahabad (new urban) and Garahdog (rural) areas

<table>
<thead>
<tr>
<th>Source of customs</th>
<th>Mother's Age</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>15 - 20</td>
<td>21 - 25</td>
<td>26 - 30</td>
<td>31 - 35</td>
<td>36 and over</td>
<td></td>
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<td></td>
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<tr>
<td>General restriction of foods in pregnancy</td>
<td>6</td>
<td>17</td>
<td>10</td>
<td>15</td>
<td>12</td>
<td>18</td>
<td>17</td>
<td>20</td>
<td>17</td>
</tr>
<tr>
<td>No meat given to healthy children</td>
<td>4</td>
<td>14</td>
<td>6</td>
<td>13</td>
<td>14</td>
<td>16</td>
<td>11</td>
<td>20</td>
<td>17</td>
</tr>
<tr>
<td>No eggs given to healthy children</td>
<td>6</td>
<td>20</td>
<td>6</td>
<td>12</td>
<td>12</td>
<td>18</td>
<td>17</td>
<td>18</td>
<td>14</td>
</tr>
<tr>
<td>No liquids given to sick children (diarrhoea)</td>
<td>6</td>
<td>20</td>
<td>8</td>
<td>17</td>
<td>18</td>
<td>14</td>
<td>14</td>
<td>26</td>
<td>17</td>
</tr>
<tr>
<td>Classifications of foods (hot and cold)</td>
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<td>10</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>17</td>
<td>22</td>
<td>20</td>
</tr>
<tr>
<td>Frequent use of purgatives in childhood</td>
<td>-</td>
<td>6</td>
<td>4</td>
<td>-</td>
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<td>8</td>
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<td>6</td>
<td>10</td>
</tr>
<tr>
<td>Appreciation of boys</td>
<td>-</td>
<td>6</td>
<td>-</td>
<td>9</td>
<td>2</td>
<td>6</td>
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</tbody>
</table>
| Use of traditional foods for nursing mothers  | 2             | 11       | 6        | 10       | 12       | 14       | 12       | 17       | 18       | 11
Table 5.9  Some health problems of infants during the first six months of life in Shahabad (urban) and Garahdog (rural) areas.

<table>
<thead>
<tr>
<th>Health problem</th>
<th>New-urban (n=50)</th>
<th>Rural (n=35)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>Diarrhoea</td>
<td>47</td>
<td>94</td>
</tr>
<tr>
<td>Whooping cough</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>Hospitalization</td>
<td>21</td>
<td>42</td>
</tr>
</tbody>
</table>
Table 5.10 Length of diarrhoeal episodes in infants by type of feeding in Shahabad area and Garahdog village.

<table>
<thead>
<tr>
<th>Type of feeding</th>
<th>Length of Diarrhoea</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>New urban</td>
</tr>
<tr>
<td>Only breast fed</td>
<td>5 - 6 days</td>
</tr>
<tr>
<td>Breast plus other feeds on bottle</td>
<td>9 days</td>
</tr>
<tr>
<td>Powdered milk only/plus other feeds</td>
<td>14 days and more</td>
</tr>
<tr>
<td>Fresh cow's milk plus other feeds</td>
<td>10 days</td>
</tr>
</tbody>
</table>

*No rural mother artificially fed her infant
### Table 5.11 Contributory factors for not vaccinating children in Shahabad (urban) and Garañdog (rural)

<table>
<thead>
<tr>
<th>Factors</th>
<th>New urban (n=50)</th>
<th>Rural (n=35)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>Mother's ignorance</td>
<td>8</td>
<td>16</td>
</tr>
<tr>
<td>Lack of proper medical services in the area</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>Lack of time</td>
<td>7</td>
<td>14</td>
</tr>
<tr>
<td>Lack of money to travel to health centre</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>No idea</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>40</td>
</tr>
</tbody>
</table>
Table 5.12 Number of dead children in studied families by children’s age in Shahabad and Garahdog.

<table>
<thead>
<tr>
<th>Age group</th>
<th>Dead children</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>New-urban (Shahabad)</td>
<td>Rural (Garahdog)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>0 - 12 months</td>
<td>50</td>
<td>45</td>
<td>26</td>
</tr>
<tr>
<td>13 - 18 months</td>
<td>20</td>
<td>18</td>
<td>8</td>
</tr>
<tr>
<td>19 - 24 months</td>
<td>16</td>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td>2 - 5 years</td>
<td>10</td>
<td>9</td>
<td>20</td>
</tr>
<tr>
<td>6 - 10 years</td>
<td>14</td>
<td>13</td>
<td>7</td>
</tr>
<tr>
<td>Over 10 years</td>
<td>-</td>
<td>-</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>110</td>
<td>100</td>
<td>77</td>
</tr>
</tbody>
</table>
Table 5.13 Desire to go back to village cross-classified by duration of residence in Shahabad.

<table>
<thead>
<tr>
<th>Duration of Residence in Shahabad</th>
<th>Desire to go back to village (Total number of migrants=40)*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Positive (Yes)</td>
</tr>
<tr>
<td></td>
<td>No.</td>
</tr>
<tr>
<td>3 years</td>
<td>2</td>
</tr>
<tr>
<td>4 years</td>
<td>1</td>
</tr>
<tr>
<td>5 years</td>
<td>0</td>
</tr>
<tr>
<td>6 - 10 years</td>
<td>0</td>
</tr>
<tr>
<td>11 - 16 years</td>
<td>0</td>
</tr>
</tbody>
</table>

*2 respondents (5%) answered "No Idea".
Table 5.14 Desire to go back to village by husband's occupation in Shahabad.

<table>
<thead>
<tr>
<th>Husband's occupation</th>
<th>Desire to go back to village (Total number of migrants = 40)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>No.</td>
</tr>
<tr>
<td>Unemployed</td>
<td>-</td>
</tr>
<tr>
<td>Unskilled worker</td>
<td>3</td>
</tr>
<tr>
<td>Semi-skilled worker</td>
<td>-</td>
</tr>
<tr>
<td>Skilled worker</td>
<td>-</td>
</tr>
</tbody>
</table>
Table 5.15  Age distribution of children in studied families by sex in new urban (Shahabad) and rural (Garahdog) areas.

<table>
<thead>
<tr>
<th>Children's Age Group</th>
<th>Girls</th>
<th></th>
<th></th>
<th>Boys</th>
<th></th>
<th></th>
<th>Total</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Shahabad (urban)</td>
<td>Garahdog (rural)</td>
<td>Shahabad (urban)</td>
<td>Garahdog (rural)</td>
<td>Shahabad (urban)</td>
<td>Garahdog (rural)</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>Less than 1 year</td>
<td>21</td>
<td>19</td>
<td>15</td>
<td>23</td>
<td>19</td>
<td>19</td>
<td>13</td>
<td>19</td>
<td>40</td>
</tr>
<tr>
<td>1 - 5 years</td>
<td>52</td>
<td>47</td>
<td>26</td>
<td>40</td>
<td>31</td>
<td>31</td>
<td>27</td>
<td>39</td>
<td>83</td>
</tr>
<tr>
<td>6 - 10 years</td>
<td>14</td>
<td>13</td>
<td>14</td>
<td>21</td>
<td>20</td>
<td>20</td>
<td>8</td>
<td>11</td>
<td>34</td>
</tr>
<tr>
<td>11 - 15 years</td>
<td>11</td>
<td>10</td>
<td>1</td>
<td>2</td>
<td>18</td>
<td>18</td>
<td>3</td>
<td>4</td>
<td>29</td>
</tr>
<tr>
<td>16 and over</td>
<td>13</td>
<td>11</td>
<td>9</td>
<td>14</td>
<td>12</td>
<td>12</td>
<td>19</td>
<td>27</td>
<td>25</td>
</tr>
<tr>
<td>Total</td>
<td>111</td>
<td>100</td>
<td>65</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>70</td>
<td>100</td>
<td>211</td>
</tr>
</tbody>
</table>
Table 5.16 Age distribution of respondents in Shahabad (new urban) and Garahdog (rural) areas.

<table>
<thead>
<tr>
<th>Age of Housewives</th>
<th>Urban (n=50)</th>
<th>Rural (n=35)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>15 years</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>16 - 20 years</td>
<td>9</td>
<td>18</td>
</tr>
<tr>
<td>21 - 25 years</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>26 - 30 years</td>
<td>20</td>
<td>40</td>
</tr>
<tr>
<td>31 - 35 years</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>36 - 40 years</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>over 40 years</td>
<td>12</td>
<td>24</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100</td>
</tr>
</tbody>
</table>
Table 5.17 Education of Parents in Shahabad (new urban) and Garahdog (rural)

<table>
<thead>
<tr>
<th>Parent's Education</th>
<th>New-urban (Shahabad) n=50</th>
<th>Rural (Garahdog) n=35</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mother</td>
<td>Father</td>
</tr>
<tr>
<td>Illiterate</td>
<td>46</td>
<td>92</td>
</tr>
<tr>
<td>Elementary school</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>High school</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>College training</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100</td>
</tr>
</tbody>
</table>
Table 5.18 Husband's occupation by husband's education in Shahabad (total number of respondents = 50)

<table>
<thead>
<tr>
<th>Husband's Occupation</th>
<th>Husband's Education</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Educated</td>
<td>Illiterate</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>Unemployed</td>
<td>-</td>
<td>-</td>
<td>5</td>
</tr>
<tr>
<td>Unskilled worker</td>
<td>-</td>
<td>-</td>
<td>20</td>
</tr>
<tr>
<td>Semi-skilled worker</td>
<td>2</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>Skilled worker</td>
<td>3</td>
<td>6</td>
<td>-</td>
</tr>
</tbody>
</table>
Table 5.19  Monthly income per family in Shahabad (new urban) and Garahdog (rural) areas

<table>
<thead>
<tr>
<th>Monthly income per family</th>
<th>New-urban (Shahabad)</th>
<th>Rural (Garahdog)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>Below 1,000 Tomans*</td>
<td>20</td>
<td>40</td>
</tr>
<tr>
<td>1,000 - 1,500 Tomans</td>
<td>25</td>
<td>50</td>
</tr>
<tr>
<td>1,500 - 2,000 Tomans</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Over 2,000 Tomans</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100</td>
</tr>
</tbody>
</table>

*16 Tomans = £1

(1 Toman (local currency) = 10 Rials)
Table 5.20 Number of working members per family in Shahabad (new-urban) and Garahdog (rural) areas.

<table>
<thead>
<tr>
<th>Number of working members in a family</th>
<th>New-urban (Shahabad) n=50</th>
<th>Rural (Garahdog) n=35</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 working member</td>
<td>25 50</td>
<td>16 46</td>
</tr>
<tr>
<td>2 working members</td>
<td>25 50</td>
<td>14 40</td>
</tr>
<tr>
<td>3 working members</td>
<td>-</td>
<td>5 14</td>
</tr>
<tr>
<td>Total</td>
<td>50 100</td>
<td>35 100</td>
</tr>
</tbody>
</table>
Figure 5.1 Duration of breast feeding of infants in new urban (Shahabad) and rural (Garahdog) areas
Figure 5.2 Initiation of breast feeding of infants in new urban (Shahabad) and rural (Garahdog) areas.
Figure 5.3 Initiation of weaning process of children in new urban (Shahabad) and rural (Garahdog) areas
Figure 5.4 Ingredients of babies' weaning food in new urban (Shahabad) and rural (Garahdog) areas

NEW URBAN

RURAL

PERCENTAGES OF HOUSEHOLDS

MEAT (LAMB & CHICKEN)

VEGETABLES (COOKED & RAW)

FRUITS

DAIRY PRODUCTS

CEREALS

BABY'S FOOD INGREDIENTS
Figure 5.5 Percentage of households with certain numbers of boys and girls per household in new urban (Shahabad) and rural (Garahdog) areas.
Figure 5.6 Childhood illnesses of children studied in new urban (Shahabad) and rural (Garahdog) areas
Figure 5.7 State of child vaccination in new urban (Shahabad) and rural (Garahdog) areas.
Figure 5.8 Numbers of pregnancies of respondents in new urban (Shahabad) and rural (Garahdog) areas.

<table>
<thead>
<tr>
<th>NO. OF PREGNANCIES</th>
<th>TOTAL NEW URBAN (50 cases)</th>
<th>TOTAL RURAL (35 cases)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVERAGE</td>
<td>64</td>
<td>61</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Figure 5.9  Number of children per household in new urban (Shahabad) and rural (Garahdag) areas

<table>
<thead>
<tr>
<th>NO. OF CHILDREN</th>
<th>TOTAL</th>
<th>AVERAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEW URBAN (50 cases)</td>
<td>211</td>
<td>4.2</td>
</tr>
<tr>
<td>RURAL (35 cases)</td>
<td>135</td>
<td>3.9</td>
</tr>
</tbody>
</table>
Figure S.10 Number of deaths of children in new urban (Shahabad) and rural (Garahdog) areas

<table>
<thead>
<tr>
<th>NO. OF CHILDHOOD DEATHS</th>
<th>TOTAL</th>
<th>AVERAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEW URBAN (50 households)</td>
<td>110</td>
<td>2.2</td>
</tr>
<tr>
<td>RURAL (35 households)</td>
<td>77</td>
<td>2.2</td>
</tr>
</tbody>
</table>
Figure 5.11 Percentage of dead children in studied families by children's age in new urban (Shahabad) and rural (Garahdog) areas.
Figure 5.12 Causes of childhood deaths in new urban (Shahabad) and rural (Garahdog) areas.
Figure 5.13 Place of birth of Shahabad residents
Figure 5.14 Reasons for migration to Shahabad
Figure 5.15 Years of residence in Shahabad
Figure 5.16 Number of people per household in new urban (Shahabad) and rural (Garahdog) areas

<table>
<thead>
<tr>
<th></th>
<th>NEW URBAN (50 households)</th>
<th>RURAL (35 households)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO. OF PEOPLE</td>
<td>TOTAL</td>
<td></td>
</tr>
<tr>
<td>PEOPLE</td>
<td>322</td>
<td>231</td>
</tr>
<tr>
<td></td>
<td>AVERAGE</td>
<td>6.44</td>
</tr>
</tbody>
</table>
Fig. 5.17 Mothers' age at marriage in new urban (Shahabad) and rural (Garahdog) areas.

<table>
<thead>
<tr>
<th>Mothers Age at Marriage (Years)</th>
<th>NEW URBAN</th>
<th>RURAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Mothers Age at Marriage</td>
<td>15.14</td>
<td>14.21  (Years)</td>
</tr>
</tbody>
</table>
Figure 5.18 Mothers' age at first pregnancy in new urban (Shahabad) and rural (Garahdog) areas.
Fig. 5.19 Occupation of husbands in new urban (Shahabad) and rural (Garahdog) areas
Figure 5.20 Sources of income in new urban (Shahabad) and rural (Garahdog) households.
Figure 5.21 Amount of money spent on different items in new urban (Shahabad) and rural (Garahdog) households.

NEW URBAN

RURAL

- Other things
- Fuel
- Rent
- Children education
- Travelling
- Transport
- Clothes
- Dairy products
- Soft drinks
- Fruits
- Vegetables
- Meat
- Bread

PERCENTAGES OF HOUSEHOLDS
Figure 5.22 Number of people per room per household in new urban (Shahabad) and rural (Garahdog) areas.

<table>
<thead>
<tr>
<th></th>
<th>NEW URBAN</th>
<th>RURAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO. OF PEOPLE/ROOM</td>
<td>4.86</td>
<td>4.85</td>
</tr>
<tr>
<td>NO. OF PEOPLE/HOUSEHOLD</td>
<td>6.44</td>
<td>6.60</td>
</tr>
<tr>
<td>NO. OF ROOMS/HOUSEHOLD</td>
<td>1.32</td>
<td>1.36</td>
</tr>
</tbody>
</table>
6.1 Some factors influencing rural/urban migration in Iran

In Iran the movement of population from rural to urban areas has been going on for centuries at varying speeds. As in other developing countries, Iranian large cities are the centre of change, economic and technological development and cultural diffusion. Thus, they attract potential migrants. The available information indicates that as long as urban life has its advantages over rural life this process may be expected to continue.

The movement of the majority of migrant families to Shahabad and possibly to other squatter areas was promoted by the socio-economic development and technological changes experienced by Iranian society during 1962–63. Three major factors influenced the movement of families to urban areas:

1. Land reform: Iran, as many other countries in the Middle East with an economy largely based on agricultural production, undertook a land reform programme during the 1960s. The main objective of this programme was to reduce the power of the landowning class through the redistribution of their large holdings among small farmers, tenants and the landless.

The results of pre-reform village surveys indicate that agriculture in Iran has traditionally produced a surplus
that has gone to support city dwellers with only the barest minimum of investment returned to countryside. The findings of these studies also reveal that nearly all Iranian villages were over-populated and many redundant labourers endured extremely low living levels since their work was needed only at the peak agricultural seasons (Keddie 1968). The conclusions of these surveys indicate that every year those peasants who had the possibility of working for the landlord had to go to him at harvest time and give him gifts for the opportunity of cultivating his land for the next year! This continued down the social scale, those peasants hoping to be engaged as casual labourers also had to spend most of their limited earnings for presents for the landlord in the hope of getting a place on the work team. The landlord had the power to throw out workers at their slightest whims, if for instance, one of the peasants forgot to say 'Good Morning' to the landlord.

The crucial land reform measures in Iran were adopted in 1962-63 at a time when the landlord controlled parliament had been dismissed and a reformist government came to power. In January 1962 a land reform law was announced by the government which permitted landlords to retain only one village and its accompanying land and to sell any other villages and land to the government who, in turn, would sell it to certain categories of peasants (United Nations, FAO & ILO, 1976). The main effect of the implementation of the land reform programme in Iran was that the feudal class (landlords) lost the power they traditionally exercised over the
village land and peasants they formerly controlled. Thus, the basic political objective of the reform had been achieved. The social and economic achievements of the peasants, however, require some comments. After the land reform programme, there was an urgent need to replace the traditional role played by the landlords with new institutions and these were not forthcoming or they were inadequate. The government was primarily concerned with industrial development, so did not give adequate back-up to ensure the success of the rural reforms. The programme did not give the farmers the power to play an active role in the development of their communities. The majority of the farmers did not receive financial assistance to take advantages of their newly owned lands and the co-operative companies and agricultural banks which were provided by the government gave only assistance to large landholders. These institutions were basically oriented towards increasing agricultural production and not towards the main problems of the rural areas, i.e. unemployment and under-employment. In other words, these companies were designed to increase mechanization, not necessarily in a way that generated employment (ILO, 1973). Under these circumstances, most of the poorer peasants who had only acquired small quantities of land sold out to those who had received more, and migrated to the cities. The overall effect then was that the holdings of the traditional landlord were diminished, an intermediate class of smaller landowner was created and the mass of poor peasants who the reforms were designed to help most, were no better off than before.
2. As the result of the technological development, a disproportionate amount of resources was being invested in industrial activities and social services in urban areas. Industrialization of Iran provided more employment in large cities and encouraged more rural families to move to the urban areas in the hope of finding a job.

3. At the same time, the ease of travel and the availability of adequate communication systems enabled more villagers to travel to cities and discover their great attractions. The move from village to city meant not only opportunities for socio-economic betterment and health and educational facilities, but also a flight from the boredom of rural life. Thus, it is not surprising that 80% of the migrant families in Shahabad had moved because of "job" or "better job" opportunities. Figure 5.15 shows that immigration of families to Shahabad area has been a gradual process, reaching its peak in 1968, a few years after the initiation of the technological development which led to a need for more labour in manufacturing activities in Tabriz as a major industrial centre. It is possible that the saturation of factories and manufacturing centres had slowed down the rural to urban migration during the years 1969 - 1973. This figure shows another "peak" point in the year 1975. This was mainly due to the increase in the oil price which took place in 1973 and in turn led to the building of more factories and industrial centres in Tabriz city.

In the movement described above, it may well be asked
what advantages the new-urban families in Shahabad area have gained in relation to their socio-economic status and more important to their own and young children's health: one may also ask what were the disadvantages of this movement.

There is no doubt that a small number of migrant families in Shahabad achieved better opportunities and earned more money. However, the data gathered in this study are sufficient to suggest that in most of the cases there was little improvement in the quality of life in immigration to the city. The following discussion is a further attempt to emphasize the critical points gathered from the comparison of life styles of new urban and rural families with regard to child feeding practices and general mode of life.
6.2 Consequences of migration and their effect on health and feeding practices of pre-school age children.

6.2.1 The decline of breast feeding

Breast milk is the preferred exclusive source of food for the offspring of all mammals in the early period of life. Human milk has unique physical, biochemical and immunological qualities (Mata 1978, Chandra 1978, Jelliffe and Jelliffe 1978, Davidson et al. 1979). It is now widely recognised that the physical contact between the mother and the infant enhances bonding and psychosocial interactions which have long term consequences for mental health. It has been suggested that even after the essential introduction of supplemental foods human milk can serve as an important continuing source of a child's nutritional well being; from the sixth to the twelfth months breast milk can supply up to three quarters of a child's protein needs and a significant portion for some months beyond (Berg, 1973). Nowhere are these benefits more important than to babies in developing countries, most of whose parents are unable to afford or prepare adequate alternatives. There has been concern recently that, among those groups who cannot afford adequate substitutes (economically, hygienically and educationally), fewer mothers are breast feeding, and those who do are doing so for shorter intervals. Data on changes in prevalence of breast feeding in Iran are very limited, but the results of the few studies reveal that decline of breast feeding, which in the present century has become increasingly common in urban areas of Iran, is most apparent in the well-to-do class,
but rural mothers still breast feed, probably about as long as their mothers and grandmothers did. (Sadre, Emami and Donoso, 1971).

Fig. 6.1 shows what has happened to breast feeding in three different areas: a poor urban area in Santiago, Chile, an urban area in Tehran and in Isphahan, Iran. The extreme case is Chile, where about 80% of the infants are bottle fed by six months of age. In Tehran and Isphahan there is also a noticeable tendency toward early weaning. Fig. 6.2 shows that the incidence of breast feeding in rural areas in Chile is nearly as low as in the city, but that the phenomenon has not yet reached the Iranian villages (Hedayat, et al., 1969).

6.2.2. Changes in breast feeding practices of mothers in new urban area of Shahabad

Among the sample group in Shahabad area a change from rural to urban way of life caused a marked change in breast feeding and consequent increase in artificial feeding. A large proportion of mothers (40 per cent.) stopped breast feeding after the first 6 months of the infant's life and only 22 per cent. of the mothers breast fed their infants for relatively longer periods of 1 - 3 years. (For comparison purpose a summary of contrast in selected characteristics of sample groups in new urban (Shahabad) and rural (Garahdog) areas is shown in Table 6.1). As opposed to Shahabad area, in Garahdog village the practice of breast feeding was found to be universal; a noticeably
greater majority of mothers (91 per cent.) breast fed their children for 1 - 3 years, and few of them stopped breast feeding after the first 6 months of the baby's life.

The reasons that new-urban mothers gave for terminating breast feeding need some comments:

(a) Lack of sufficient milk: Most of the mothers in Shahabad who stopped breast feeding at 6 - 12 months of baby's life mentioned that they terminated breast feeding because they had no milk or insufficient milk to feed their infants. Mothers reported that, in spite of their efforts, the milk simply would not come, or came in such small amounts that babies continued to cry from hunger and had to be fed by alternative means. The mothers themselves stated that the inadequacy of their own food during lactation was responsible for insufficient supply of their milk. This suggestion is very feasible, due to the economic inability of the mothers to provide adequate food for themselves. Although the composition of breast milk secreted by poorly nourished mothers is almost as satisfactory as that of well fed mothers, and this persists even in prolonged lactation (Jelliffe 1968b), the volume of the milk produced by poorly nourished women is low because a lactating mother needs increased energy intake if she is providing all the needs of a growing baby (Thomson et al. 1970, Whichelow, 1975, Naismith and Ritchie 1975). The view that milk output is directly influenced by maternal dietary intake has also been shown by Whitehead and his co-workers (1978).
It is also possible that the urban way of life might have caused the new-urban mother to become frightened, psychologically disarranged and socially resentful, states which are by no means conducive to normal biological functions such as breast feeding. Under these circumstances it is suggested that lack of insufficient milk, which was found to be a relatively major factor for early termination of breast feeding in most of the cases in Shahabad, is an "urban phenomenon" which caused changes in traditional pattern of breast feeding.

A review of changes in the incidence and duration of breast feeding from other societies indicates that the problem of "insufficient milk" is a very common complaint among populations where breast feeding is low or declining. In New Zealand, Hood et al. (1978) found that 37 per cent. of the mothers he studied gave up breast feeding because of insufficient milk supply. In Ireland, O'Herlihy (1978) found that 42 per cent. of his sample of 675 Irish mothers breast fed for some period of time and 16 per cent. stopped breast feeding because of milk insufficiency. In Sweden, Sjolin, Hofvander and Hillervik (1979) recorded the reasons for termination of breast feeding of a sample group and found that the principal reason was that often the child was fussy and dissatisfied and that the mother began to give bottles, a set of circumstances which others often interpret as "insufficient milk". In England, Martin (1978) found that insufficient milk was the reason given
by more than 60 per cent. of those mothers in his sample who stopped breast feeding before the infant reached the age of 6 months. A recent study investigated the pattern of lactation in Gambia and Cambridge (Whitehead et al. 1980, Whitehead et al. 1978) shows that although African mothers were able to produce a substantial amount of milk for longer periods, the main reason to stop breast feeding in both countries was "insufficient milk" to satisfy completely all the needs of their infants. The researchers assumed that among the mothers in Cambridge the limiting factor would be the non-acceptance of demand feeding and thus the low frequency of breast feeding. This point of view has also been strongly supported by the Australian Nursing Mothers Association (Rattigan, 1979). Among African mothers the inadequate maternal dietary intake was reported to be one of the main reasons.

In the light of given information it is suggested that although the reasons for termination of breast feeding in most societies show substantial similarities, (e.g. insufficient milk), but the causation of the problem differ from developed societies and developing countries. It seems that the problem of "insufficient milk" stems from the disordered breast feeding pattern of industrialized societies such as U.S.A., England and Sweden where the frequency and thus the amount of suckling is reduced. In these societies, therefore, the problem has probably a psychological basis where one can presume more satisfactory
diets than in the less developed world. However, the suggestion of demand feeding as a recommended routine for those willing to have sufficient milk of an extended period of time needs to be convinced by more objective scientific proof than is at present available. By contrast, the problem of milk insufficiency in poor societies such as Shahabad is probably due to socio-economic inability of mothers to provide an adequate diet for themselves. It is suggested, therefore, that more attention should be given to maternal health and well being by introducing measures to improve their energy intake. However, it has recently been shown that supplementation of maternal diet alone did not change the lactational performance of mothers in Gambia (Prentice, 1980). The researchers suggested that there may be a number of reasons responsible for this. It had been found previously that the lactational capacity of mothers became fixed early during lactation and it related statistically to a number of factors, including the baby's birth weight (Whitehead et al. July, 1978). It has also been shown that the birth weight of the infant was related to the maternal diet during pregnancy (Paul et al. 1979). At present the researchers have initiated programmes to supplement the diet of pregnant as well as lactating mothers. These findings do not minimize in any way the importance of adequate maternal diet during lactation. It suggests that a multiplicity of factors are necessary for the long term production of a sufficient amount of milk. Finally, it is well known that the improved nutritional
status of lactating mothers is associated with a reduced period of lactational infertility (Delgado et al. 1978). In a recent study Lunn and his co-workers (1980) have also explained that an improvement in the diet of African lactating mothers produced significant reduction in plasma prolactin concentration at all stages of lactation. The contraceptive effect of prolactin may be considered as a protective mechanism which prevents a new pregnancy which would be detrimental to the health of mother and infant. Although in communities such as Shahabad, the main concern of any nutritional programme should be the maintenance of breast feeding, at the same time any programme designed to improve the diet of lactating mothers should seriously consider the needs for some artificial form of birth control.

(b) Commercial advertisement of powdered milks may have also played an important role in encouraging the mothers in Shahabad area to discontinue breast feeding. It is interesting that milk company advertising usually stresses "when breast milk is not enough". The reason given for bottle feeding largely involves the health and strength of the baby; artificial feeding is seen to hasten physical development. Therefore, the concepts of power and strength - so popular in Iranian culture - are used frequently in milk advertising and associated with the feeling of the mother that her own milk is not sufficient to produce a powerful baby. In addition, 10 per cent. of the Shahabad mothers mentioned that they had been given a free sample of bottle and artificial milk, or had been advised by "someone else"
to give up breast feeding. It is possible that commercial advertisement of milk products exploited the poor lactation performance of poor urban mothers and encouraged them to initiate bottle feeding before it was necessary.

(c) Another pregnancy. Some mothers in Shahabad area abruptly stopped breast feeding as soon as they suspected that they were pregnant again. The mothers believed that nursing a child during pregnancy changes the quantity and quality of their milk, and that the suckling child may get sick if he takes it. It is possible that the high nutritional demand of pregnancy could not be easily met by the diet of new-urban mothers, and thus when pregnancy intervened the milk production fell off rapidly. MacKeith and Wood (1970) have justified this idea from a nutritional point of view since breast feeding as well as subsequent pregnancy would decrease the expectant mother's already uncertain nutritional reserves. Such a maternal condition has been found to lead to poor foetal development, including impaired intelligence (Whitehad 1976).

Although this practice of stopping breast feeding when the mother becomes pregnant again has traditional roots, and was followed by several of the mothers in Garahdog village as well, it seems that a number of mothers in Shahabad area have imitated the privileged urban expectant mothers who usually bottle feed their babies. Also, according to the new urban mothers' statements, they had seen pictures of expectant mothers bottle feeding their children on a
visit to outpatient departments and hospitals. Because of easy availability of modified cow's milk and an increase in communication with the group whom they considered as well-to-do, the new-urban mothers had discontinued breast feeding as soon as they discovered that they were pregnant.

(d) Employment. For some mothers in Shahabad the move to the urban environment meant that the traditional family pattern of employment and child care must be changed. As a consequence of their incorporation into a new way of life some mothers took up employment and this led to an early abandonment of breast feeding because the practice of breast feeding is not culturally acceptable in urban work places. In these circumstances the children in the Shahabad area were dependent on a younger sibling who fed the baby dirty liquids to keep him quiet. In contrast with new urban mothers in Shahabad, where the need to work was one of the reasons for shortening the length of breast feeding in 16 per cent. of the cases, the need for work did not seem to worry the rural mothers in Garahdog village; 50 per cent. of the rural mothers were engaged in agricultural activities or animal keeping without any attempt to discontinue breast feeding. The rural mothers carried their babies and nursed them even when working in the field, walking down the road, milking animals and carrying water. In the new-urban area of Shahabad, although the number of mothers who are working is still relatively small (16 per cent.) it is probable that with the rising cost of living this number will increase rapidly. The provision of suitable nursery
facilities at the work place might reduce the influence of work as a factor which leads to the decline of breast feeding. This has been shown to be effective in Isphahan, Iran. A programme was initiated by Dr. Emami of the Food & Nutrition Institute of Iran. He set up a free-charge nursery in a factory. The factory benefited because their trained women return to work soon after childbirth. The child benefited because he received regular feeds (preferably being breast fed by his mother), and the mother and family benefited because income was maintained.

Knowledge of these facts indicates that one of the main reasons for short lactation of new-urban mothers is possibly poor maternal diet due to the family's economic circumstances. The promotion and the availability of modified cow's milk means that an alternative feeding procedure is attempted. The idea that artificial feeding is superior is a relatively minor influence on infant feeding practices.
6.2.3. Why bottle feeding is dangerous in Shahabad area

Because of the various above-mentioned factors which lead to a decline in the supply of breast milk in Shahabad area, the infants were fed various modified cow's milk powders fairly easily available in the cities. 68% of the respondents in Shahabad fed their children with powdered milk at ages between 3 - 12 months. The data presented in this study suggests that there are a number of factors which make bottle feeding particularly harmful in Shahabad community:

1. The commonest mistake seen in Shahabad was the use of over diluted milk formula. This practice was found to be due to:
   a) Ignorance of the mothers: As referred to earlier, respondents in the present study were mostly illiterate and had insufficient knowledge to follow the methods of preparation and dilution. In those cases that the preparation of artificial feeds was observed it was seen that mothers mixed about 2 teaspoonfuls of powder in 120-150 ml. of water instead of the recommended 1 measure of powder to 30 ml. of water, i.e. about twice the concentration.
   b) Ignorance of para medical and medical staff: In Shahabad area, the danger was not only the ignorance of mothers but perhaps that of the para medical personnel and of medical staff. It was apparent that in the study area, the general practitioner had not enough time or knowledge of the proper dietetic advice for the baby. Also the milk salesmen who are usually undergraduate students with poor training in nutrition,
have often no idea of the composition and calorific value of the dried milk powders and the preparation of proper formulae. Therefore, they were not able to give proper advice to ignorant mothers when they were buying the milk.

c) It was found that dried powdered milks and processed products designed for babies were too expensive in the market. The wages earned by the average family in Shahabad area made it difficult or impossible for them to buy artificial milk in sufficient quantities to feed the baby adequately. The result was that mothers were making artificial feeds very dilute to make the powdered milk last longer. It was calculated that the cost of feeding a 6 month old baby with commercial preparations available in Tabriz city market, could dispose of 25% of the daily wages of an unskilled labourer in new-urban area of Shahabad (if prepared in adequate amounts). Clearly, it was not expected that such an expense could be met, therefore, the powdered milk was administered in excessive dilutions.

In Shahabad, the high price of powdered milk was considered synonymous with nutritional goodness. This, together with the picture of a healthy child on the box persuaded the mother to believe she was buying the best for her baby - unfortunately, she was not aware that this was money mis-spent and could better have been used in buying food for herself.
2. The sanitary standards of the population in the new-urban area of Shahabad were very low. Housing conditions were often very bad and almost universal prevalence of flies and insects was some indication of the unhygienic conditions. Most households were incapable of preparing a baby’s feed in even a remotely hygienic manner. Although the mother’s ignorance in basic knowledge of hygiene played an important role as none of the mothers washed their hands before making a feed, in the majority of the cases they had neither enough water nor enough fuel to sterilize the feeding bottles properly. In fact, from 34 mothers who gave bottle feeds to their children only 18 washed the bottle and teat with cold water and detergent. In 16 cases the bottles were washed once a day and used for several times and for several purposes. This indicates the inadequate supply of water and fuel and also the economic inability of families to buy a number of bottles. The bottles used were not always standard feeding bottles, but were often medicine bottles with all types of unsuitable and unhygienic teats. These bottles were not kept in safe places. Only 1 respondent in Shahabad area kept the milk left over from one feed in refrigerated conditions. In most cases (31 out of 39 cases) the remaining milk was stored for the next feed at room temperature or out of doors.

Under the existing situation in the Shahabad community, obviously this type of bottle feeding is dangerous for the babies. The feeding bottle in this study, can, in fact, be regarded without exaggeration as a lethal weapon in the hands of the majority of ignorant mothers.
The unfortunate effects that follow when breast feeding is replaced by artificial feeding in an unhygienic environment has been well summarised by Jelliffe: "In very many cases homeopathic doses of milk are administered with large quantities of bacteria - the result is starvation and diarrhoea, too often leading to death with the label of marasmus" (Jelliffe et al. 1975). Jelliffe also has used the term "commerciogenic malnutrition" to describe the thoughtless promotion of milks and infant foods to areas of the world where they are quite unsuitable. He emphasises that the products are themselves excellent but they may do more harm than good in poor regions with low levels of hygiene and education (Jelliffe, 1972).

The available data on the history of illnesses of the children, presented in a previous chapter, indicate that with wide use of bottle feeding in Shahabad area, babies had frequent gastrointestinal tract infection. 94% of the children studied had at least one attack of diarrhoea before the age of 6 months. Also the available statistics show that from those children who admitted to children's hospital or clinic before the age of 6 months, infective diarrhoea was the most common cause of hospitalization. The data obtained from the local health clinic of Shahabad also supported the findings of this study: most of the pre-school children who were admitted to the clinic over a period of one year were suffering from diarrhoea. The doctor in charge of the clinic had noticed that the majority of these children were bottle fed.
Also, the data concerning mortality of pre-school children in Shahabad community revealed that diarrhoea was the top cause of death in the pre-school children. It is possible that in most cases the infants had been having what in local circumstances could only be considered as 'bacteriologically' dangerous food, that was the bottle. The analysis of an individual case study shows, surprisingly, that diarrhoea was responsible for death of 4 children who had died at the ages of 1-2 years.

When the mother was questioned about the feeding patterns of her dead children, she cited that she usually started with breast feeding then changed to the bottle. She believed that her milk was not sufficient. The same respondent explained that her infants did well during the early months of their lives while solely breast fed, but became ill and developed loose stools during weaning. Although the exact mechanisms responsible for the incidence of diarrhoea and consequently death among these infants are not proved, with the background information available, it seems probable that it was principally due to internal infection, especially associated with the introduction of bacterial contamination as a result of bottle feeding.

In Garahdog village, although breast feeding was universal and was considered a natural and instinctive function and was prolonged, over half of the studied children had at least one attack of diarrhoea in early infancy and 3 out of 8
children who were admitted to hospital during the first 6 months of their lives were suffering from diarrhoea. The reason for this is that supplementary liquids such as sweetened water are given in early infancy. Contaminated bottles used to administer these supplementary liquids, inadequate water supply and the unsanitary environment in Garahdog village all contribute to the relatively high incidence and early occurrence of diarrhoea. Even if given to a well nourished breast fed infant, unnecessary supplementations of liquids with bottles and other unhygienic utensils make the whole combined effect bacteriologically dangerous.

However, the proportion of children who suffered from diarrhoea during the first 6 months of their lives is significantly less in Garahdog than in Shahabad; so is the number of children who are admitted to hospital. These differences indicate that breast fed children are less prone to diarrhoeal diseases. Furthermore, because of universal practice of breast feeding, the estimated duration of illness tended to be shorter in the rural than new-urban area.
6.3 Type of supplementary food and age of the child.

Although Mata (1978) has presented the beneficial qualities of human milk, it is well known that after about 4 months it alone becomes insufficient for the nutritional needs of growing infants (Morley 1963, Whitehead, 1976). The age when supplementary feeds were first introduced into the baby's diet in both Shahabad and Garahdog areas depended on local customs, food taboos, available foods in the region, socio economic status of families studied, advice of relatives and health status of mothers. In a study of feeding practices of children in developing countries, Brown (1978) has reported a similar range of reasons for introduction of semi-solids into the infant's diet. Supplementary feeds were introduced in both areas between 1-5 months. In a study of weaning practices amongst the Hausas in Nigeria, Osuher (1980) reported that semi-solids were introduced at 5-6 months, but the reasons for introduction of semi-solids showed a similarity to the present study.

It is important to note that in Shahabad, among those families where failure of breast feeding had occurred, there was early introduction of other foods, mostly powdered cows milk and occasionally fresh cow's milk. Other liquids in both Shahabad and Garahdog were given in the first few months of baby's life. It is often difficult to know whether this early introduction of semi-solids is of much nutritional significance. Experience,
however, shows that exclusively breast fed infants in poor families usually do well for the first 4 months of life, with adequate weight gains and no evidence of deficiency diseases (Foman, 1974). As is mentioned in the previous section, in the unsanitary situation observed in both Shahabad and Garahdog areas, any food or drink unnecessarily given to infants leads almost certainly to infective diarrhoea. For this reason alone, it is advised that breast feeding with no additional supplement should be the method of choice during the first four months of infant's life.

Children in both Shahabad and Garahdog areas were more frequently given homemade food preparations. Data regarding the type of supplementary foods given to infants, (Tables 5.4 and 5.5 of the previous chapter) indicate that the first three types of liquid (table sugar and water, herbal tea and rose water) forms the basis of the diet given to the infants in the neonatal period in both groups. It is traditional in Iran at all social levels for sweetened water, herbal tea and rose water to be fed to infants particularly in the early days of life. The results of the study show that noticeable differences were found in the consumption of fresh cow's milk and artificial milk. For the group examined, fresh cow's milk was not widely used in Shahabad. Because of expense and inadequate supply, it played a small role in the feeding of the majority of poorer infants, although there were some exceptions (Table 6.1). In those cases where fresh cow's milk was bought, it had already been watered and adulterated,
as is common in Iran, bazaar (local market) milk is a dubious commodity. As actually observed, it was often diluted again by the mother to make it go further. The consumption of reconstituted dried powdered milk played a much more important role in supplementing the diet of infants in Shahabad, but it was not obtainable in the rural area.

In spite of the relatively easy availability of eggs in Garahdog village, they were little used for supplementing babies' diet due to a number of different taboos about their use. However, egg consumption was slightly higher in Shahabad area due to less adherence of young mothers toward traditional customs.

6.4 Weaning practices

Weaning took place earlier in the urban area. It does appear that early weaning of most children in Shahabad was influenced by urbanization of the community and associated with the decline in breast feeding. Most of the mothers in the urban area were "pushed" to wean their children due to factors such as diminished milk supply, employment of mothers and a new pregnancy, while in rural Garahdog the usual weaning age of the majority of the children was largely determined by custom. Most rural mothers weaned their children at ages 2-3 because they believed the child was then old enough. It seems that religion has also affected these customs as the Holy Quran enjoins Moslem mothers to breast feed their children for up to two years.
The various weaning methods seen deserve comment. The gradual weaning of children, so common in urban communities was also practiced by more of the mothers in Shahabad than in rural Garahdog. This seems to be a beneficial practice and must be encouraged in any nutrition education programme.

No mother in the new-urban area and only one rural mother sent a child to grandparents during the weaning period. The absence of this method in urban area and its rarity in the rural village seems to be a good point as it appears to be a harmful practice from the nutritional point of view. In fact, the success of geographical separation depends on the personality and socio-economic condition of the grandparents. It is sometimes possible that the grandmother may take better care of the child than his own mother since the mother may have many other children to look after. At the same time this separation may precipitate PEM and many other nutritional deficiency diseases as grandmothers are more strongly steeped in traditional food taboos. In addition to physical effects, this method also affects the children psychologically and because of separation from parents and home may refuse to eat the available food. The method of abrupt weaning by smearing of the mother's breasts with bitter substances was more common in Garahdog. It seems that the psychological aspects of this weaning method may be minimised as the child is still in close contact with the mother and it cannot therefore be classified as a seriously harmful practice. This method of weaning seems to be popular in other parts of
the world; Sanjar and his co-workers (1970) have also reported abrupt weaning of Mexican children by smearing bitter substances on the mother's breasts.

No special weaning foods were prepared for children in either the new urban or the rural area and weaned children received a small quantity of food from the adult's diet. It seems that in both areas the factors such as economic inability of the family, lack of enough fuel and lack of time of over-worked mothers are responsible for not preparing special weaning foods. Obviously the purchasing power of most people in the Shahabad area is so low that they cannot afford to buy a great amount or food or prepare special dishes for children. Therefore, in the deliberate process of stimulating changes in feeding practices of new-urban families it is imperative that the factors outlined above should be taken into account.

The detailed information with regard to the type of family diet in both rural and urban areas has been presented in Chapter 5. No noticeable differences were found in the range of foods eaten by the families and weaned children. In both areas cereals provided a major portion of energy and they were consistently eaten with other foods. No difference was found with regard to consumption of bread. The most important point is that in the rural area families produced their own bread, while in Shahabad they had to purchase it from the local market. Differences were found on the consumption of dairy products, as most village
families produced their own milk and other products such as yogurt. Also, consumption of vegetables decreased in the urban area because few of the families had the space to grow their own vegetables.

No noticeable differences were found with regard to consumption of meat in the two areas. The consumption of chicken meat was slightly higher in the rural area because it was common to keep domestic animals at home to be killed and eaten at special occasions. The most popular local food in both rural and urban areas was "abgousht" stew prepared from meat and vegetables. The next most common food was "ash", a thick vegetable soup made from leeks, parsley, onions, spinach, red beans and rice, the final product being served with yogurt or "kishk". Some housewives added cabbage to this food.

However, the preparation and cooking methods of stew and vegetable soups in both rural and urban areas were similar, and some points deserve comment.

As a result of the traditional method of cooking, very little of nutrient value is lost. The drippings from the meat are incorporated into the food, the nutritive value of the meat protein is little changed (Griswold, 1951) and minerals are retained, as the water in which vegetables are cooked is not discarded. The rather liquid stew is usually mopped up with pieces of bread. This mixture is called Tiltch. What is left is kept for the following meal.
It was found that many housewives cooked their stew for relatively long periods, up to four hours, and this would cause loss of the more unstable nutrients. During meat cookery losses are greater for thiamine than the other B vitamins because it is more sensitive to heat. Cover and co-workers (1944) have studied the retention of the four B vitamins in lamb and beef stews and their finding shows that the average retention in the entire cooked meat stew were 52 per cent. thiamine, 78 per cent. pantothenic acid and about 100 per cent. for riboflavin and niacin. Because of the sensitivity of thiamine to heat the housewives must be encouraged to cook their meat stew just long enough to become tender. Respondents in the Shahabad area and Garahdog village usually browned the meat in a little fat before stewing. Experimental studies show that this browning of meat before stewing results in only slight vitamin losses, and it cannot be considered a real disadvantage (Griswold 1970). The fact that the liquid of meat stews contains a substantial portion of B vitamins re-emphasises the beneficial habit of consuming all stew's liquid. The previously mentioned study by Cover and his colleagues suggests that when a large amount of water is used in making the stew the proportion of vitamins found in the broth is usually greater than that in a stew made with less water. This finding is of little significance in the present study, as all the broth was used.
Studies on the effect of cooking on vitamin and mineral content of vegetables show that the vitamin A value is almost completely retained in vegetables cooked by a variety of methods (Hewston et al. 1948), because carotenoids are insoluble in water and resistant to oxidation, except when vegetables are dehydrated. Ascorbic acid and the B vitamins are not as well retained as vitamin A, because of their solubility in water and the susceptibility of ascorbic acid to oxidation. However, it is logical to assume that if in cooking of vegetables vitamin C is well retained the other vitamins are probably also. In the case of stews and vegetable soups made by most of the housewives in the present study it can safely be said that the minerals, riboflavin and niacin are well retained because although these vitamins and minerals are leaked from the foods into the water, this liquid forms a constituent part of the dish. Retentions of thiamine may be lower.

In a few households in the Shahabad area it was seen that vegetables were put into stew or soup when it was boiling. This practice was considered to be beneficial because it has been found that all loss of ascorbic acid occurs during the time the water is returning to the boil after the vegetables are added. In other words, oxidation is especially likely to occur during the first part of the cooking process, before the temperature inside the vegetables reaches boiling point and inactivates the enzymes "oxidase" which cause destruction of ascorbic acid.
(Griswold 1970). This finding indicates the importance of starting vegetables in boiling, rather than cool water, so that the boiling point will be reached as rapidly as possible in the plant tissues, so minimizing oxidation of ascorbic acid. In many households it was seen that vegetables were prepared and cooked long before eating, which may further reduce the amount of vitamin C still present. This practice obviously needs modification.

It was observed that among households studied the stews and vegetable soups were cooked in covered pans. Studies on the effect of covering the pan in which vegetables are cooked, on vitamin C retention, have given contradictory results, and any effects observed have been slight (van Duyne et al. 1951). Covering the pan cannot be expected to keep in the vitamins, since they are not volatile. It does, however, make possible the use of a smaller amount of water than would otherwise be the case, and hastens the return to boiling point as heat loss is minimized.

Furthermore, because the composition of the cooking utensils seems to have little effect on the retention of vitamin C by vegetables cooked in them (McIntosh et al. 1942), the simplicity of the kitchen equipment need not be taken into account.
6.5 Differences in pattern of immunization of children in new urban area of Shahabad and Garahdog village

Many observations concerning the precipitating effect of infectious diseases such as measles, whooping cough, chicken pox and tuberculosis have confirmed that infections experienced by children during early childhood represent a major factor in protein energy malnutrition (Cook, 1976). The prevention of such diseases by means of immunization certainly will have beneficial long term effect on the nutritional status of pre-school children. Some infectious diseases such as gastroenteritis are not preventable by immunization and the poor sanitary conditions of food, utensils and living environment are to a large extent responsible for the high frequency of diarrhoeal diseases. Immunization programmes against childhood diseases such as measles and whooping cough are particularly effective. It is interesting to note that even those preventable diseases such as poliomyelitis, which has no direct effect on the nutritional status of children, could influence the economic status of families because the handicapped child must be supported by a family which already has insufficient resources. These handicaps decrease the utilization of manpower in poor communities. It is also known that the main beneficial effect of immunization lies not only in the health status of immunized children but also the lessened exposure of non-immune children to infection: when the proportion of children who are immune to infectious diseases passes beyond a certain level, the statistical
probability of an infected child coming in contact with an uninfected, non-immunized child is considerably lessened. This is of great importance in overcrowded and close communities such as rural and the poor new-urban areas, where a communicable disease can spread very rapidly and attack the majority of the children.

In both areas studied the state of immunization against preventable diseases was poor. However, in Shahabad area more pre-school children had received triple and smallpox vaccinations. This was probably because there were relatively better provisions for health services and immunization in Shahabad and some families took advantage of these facilities. In Garahdog village all the families lived far from hospitals and health centres and had no access to regular transport. Obviously a mother with two or more small children cannot be expected to attend regularly for immunization if she has to walk a long distance. Under these circumstances an effective method of providing the immunization service would be an arrangement whereby periodic visits to the village were made by a team from the district health centre. This type of campaign has shown successful results in the case of smallpox vaccination in both Shahabad and Garahdog. In fact, most respondents in both areas had welcomed the immunization of their children against smallpox which was provided by the government as part of the worldwide programme to eliminate the disease. In this type of
immunization programme the cost lies not only in the cost of vaccine, but also in the cost of transport, equipment, refrigeration and administration. Therefore it is wise to administer for example triple vaccine as well as oral poliomyelitis vaccine. Extensive immunization, therefore, is conferred with a minimum expense.
6.6 Differences in the pattern of malnutrition in Shahabad and Garahdog communities

Malnutrition, especially childhood protein energy malnutrition, has a complex etiology, and solution based on food and nutrients alone are completely inadequate (Jelliffe 1976, Taylor and Taylor 1976). In general, protein energy malnutrition results from the interaction of several factors, among which two are directly responsible for the disease and act synergistically. These factors are:

(a) diets which are qualitatively inadequate and quantitatively insufficient

(b) infectious diseases of childhood such as gastroenteritis, measles and chest infections and other infections which result in increased metabolism and loss of appetite, diminishing food absorption and consequently malnutrition (De Maeyer 1976).

Protein energy malnutrition occurs characteristically in children under 5 years where the diet is poor in protein and energy. Typically the marasmic form of the syndrome occurs mostly in infants and is more frequently found in towns and slum areas, while kwashiorkor is mainly a disease of rural areas occurring in the second year of life (Davidson et al. 1979).

The data concerning the commonness of protein energy malnutrition in Shahabad and Garahdog generally support the above mentioned hypothesis: the highest incidence of protein energy malnutrition of marasmic type was found
in the new-urban area of Shahabd. While kwashiorkor was found to be more common in the rural village of Garahdog (Chapter 5, section 5.3.2).

In Shahabad prevalence of marasmus is certainly due to the urbanization process which has resulted in shorter periods of breast feeding, followed by dirty and unhygienic artificial feeding of the infants with very dilute milk or milk products given in inadequate amounts. Weaning started early in this community and inadequate food intake after weaning and commonness of diarrhoea were also contributory factors. Even though periods of breast feeding were shorter among Iranian mothers resident in England (Chapter 2), there was no undernutrition in their children. Obviously knowledge of hygienic food preparation and adequate income enabled them to provide appropriate quantities of food which compensated for the shorter periods of breast feeding.

However, increasing attention has been paid to marasmus in recent years, since it is now believed to be more common on a world wide basis, and it is rapidly replacing kwashiorkor in frequency of occurrence in many regions (McLaren 1966, McLaren and Pellett 1970, McLaren 1976). Evidence from various parts of the world supports the thesis that poor growth and marasmus are considered to result from a set of factors such as poverty, ignorance and disease. The relative importance of causal factors has been argued in the past in an effort to optimize intervention programmes, but these factors appear to vary according to specific ecological
and socio-environmental conditions. In a Caribbean Island Beaudry-Darisime and his co-workers (1972) found similar factors responsible for the high instance of infantile marasmus as those described for new-urban area of Shahabad; their study revealed that marasmus was common in an area undergoing modernization. The situation is familiar: short duration of breast feeding, low educational levels of the families studied, low socio-economic status, all characteristic of new-urban families. A recent community survey in the farming region in the Sudan showed that rise in bottle feeding, lack of supplementary foods and inadequate distribution of foods within the family were among important causative factors in the etiology of malnutrition of marasmic type (Taha, 1978). In the Marmarah region of Turkey socio-economic level, area of residence and type of supplementary food were found to be the most important factors (Gursan 1975). In Lebanon factors associated with type of mother care and living conditions were found to have significant influence on causation of marasmus (Kanawati and McLaren 1973). Under these circumstances it seems that cause and cure will vary from region to region, and single solutions are ineffective.

In the poor and semi-urban areas of which Shahabad represents a typical example, infantile malnutrition of the marasmic type will be eliminated only when factors such as low socio-economic status of families, inadequate housing and low educational standard of parents are improved. However, observation of research workers in some developing countries
suggest that simple poverty and inadequate housing can, however, no longer be put forward as major causative features of nutritional marasmus since massive social progress has often occurred while marasmus persists. Such a situation has been described in Libya (Pellett 1977). In this study families were living in adequate housing and could afford to purchase baby food products in sufficient amounts for their children, but were not sufficiently educated to use these products correctly. This study demonstrates that the major cause of infantile malnutrition in Libya may be the mother's ignorance of elementary hygiene, and the solution of the problem lies in education of mothers and improved dietary knowledge. The importance of the latter has also been brought out in areas of India such as Punjab where dramatic increases in food availability have failed to reduce the high level of malnutrition owing to poor feeding practices (De Maeyer, 1976).

The commonness of kwashiorkor in rural Garahdog (Section 5.3.2) and probably in other rural parts of Iran is probably due to the weaning practices of the community. The protein and energy needs of babies in Garahdog village are met by breast milk during the first 6 months of life. After 6 months their diet is relatively sufficient in calories from breast milk and other sweetened liquids and relatively sufficient in protein from mother's milk and fresh animal milk which traditionally is included in the infant's diet in Garahdog village. In the second and third year of life,
however, protein and energy needs increase and this brings problems. In Garahdog, children, after a prolonged period on the breast, are weaned onto the traditional family diet, which is quantitatively insufficient in both protein and energy, partly due to poverty and also due to customs and food taboos which encourage the mothers to limit the supply of foods of animal origin in the child's diet. Obviously, when the customary diet of a population is limited in protein and in energy, a child may be in moderate health until his protein and energy needs are raised by an infection. Kwashiorkor is, thus, frequently precipitated by infectious diseases such as measles or gastroenteritis.

The staple food of Garahdog village and most rural areas of the country is "village bread" which has been shown to contain relatively high levels of protein with commendable essential amino acid patterns (Konhestani et al. 1969, Pellett and Shadarevian 1970). As the quantity of protein obtained from a diet depends on the amount of food consumed and on the protein content of the food, Iranian village bread could provide significant amount of protein and energy if consumed in reasonable amounts. It seems that the protein-energy malnutrition of pre-school children in Garahdog village occurs primarily as a result of economic inability to provide enough staple food for weaned children as well as animal protein foods associated with certain aspects of the local domestic cultural pattern. To overcome poverty in Garahdog and many other villages new methods of animal
husbandry, the increased use of irrigation and fertilisers and the introduction of improved varieties of seeds for the main crops are needed. Only a social, educational and economic system that provides employment and a fair wage for all sections of the working population can prevent the relatively large number of children suffering from protein energy malnutrition.
6.7. Changes in socio-economic status of new-urban families in Shahabad

Characteristics of family setting, such as race, amount and source of family income, occupation of parents and housing environment may be considered as components of the child's near environment (Jesser and Richardson 1968). Such characteristics and their variations are indicative of the behaviour which can be expected of people located within a specified strata within the large society. Thus a detailed examination of such factors was made in this study because of their potential influence on the behaviour of mothers regarding their young children's feeding practices.

On the basis of the information collected in the present study it may be commented that in Shahabad, as in many other poor squatter areas of the country, most of the families who have migrated from rural areas to urban centres go through a socio-economic revolution, as their stay in the city becomes prolonged. Most of the household heads were unskilled labourers initially, but with a longer stay and education a few of them became skilled workers and technicians and took clerical jobs. But this evolution occurred only in a small percentage of cases, the majority of household heads remaining at a much lower level of employment. Hence, ultimately most of Shahabad's residents belong to the low socio-economic strata which cannot afford to have good housing conditions and, more important, adequate food for their family and children. In Garahdog village people generally produced
enough to feed, house and clothe themselves. They traded by barter exchanging what they produced for the commodities which could satisfy their simple needs. In the Shahabad area the situation was totally different. Instead of the subsistence system of the village there was a money system; everything had to be paid for and there was no opportunity of saving money against future needs. Expenditure was much greater in the city on taxes, rents, housing, education and transportation. In these circumstances it is quite understandable that as many members of the family as possible go out to find paid employment. In most of the households school age children were dropping out of school to engage in paid work. In fact, dropping out in the elementary grades places the migrant's children at a disadvantage. Unless they return to school they have little or no hope of earning a better livelihood than their parents, and their childhood will have been a preparation for next-generation poverty.

The wives of the self-employed workers in Shahabad mentioned that their husbands would choose other forms of work, especially regular work, if the opportunity were open to them. Scavenging was not their preference, but they had no alternative at present. On closer examination respondents commented that this type of irregular employment was very dependant on their health. Many families in Shahabad (especially unskilled workers) earn by day, spend by the day, and thus live from day to day. Under these circumstances it is obvious that the consequence of a few days of unemployment are much more
serious for the new urban families in Shahabad than for their rural counterparts. Very few of the families in Shahabad continued to make their own bread or grow other produce. Their reason for not making their own bread was that "it is not fashionable to make bread in the city", but their reason for not growing vegetables was simply that there was not enough space. A daily source of income was vital because most food supplies had to be purchased from the local market. By contrast, if the rural farmer could not work because of illness the other members of his family would be able to carry the extra load. The economic status of unskilled workers in the new-urban area of Shahabad is such that from a health and productivity point of view the loss of a few days work per month because of illness represents a considerable financial loss to the household head and his family. For instance, for a scavenger in Shahabad who is paid according to what he collects on any one day, a few days lost per month from a diarrhoeal disease corresponds to an approximate 15 per cent. loss of income. Reduced productivity from a chronic disease such as tuberculosis could certainly contribute to a further lowering of his work potentially by at least 30 per cent. This, of course, does not take into account further income losses aggravated by having to pay for medicines, physicians or transportation to hospital, so it is quite clear that even temporary illness of working members of migrant families in new urban areas is a tragedy, both in economic and social terms.
Village life is usually based upon the extended family, where members live in the same compound and pool resources, forming a sort of miniature welfare state and presenting a united front against the family difficulties. By contrast, in a typical poor urban area such as Shahabad the families are mostly nuclear, some families had no close relatives at all in the area, and if they did the relatives showed little concern about each other's problems. Thus, unlike Garahdog, families in Shahabad depended totally on their own resources.

Considering the destruction of tribal traditions and the general disorganization of the residents in new-urban area of Shahabad, it is expected that the incidence of alcoholism, prostitution, venereal diseases and mental disorders would be more frequent than in rural areas, and this could further hazard the socio-economic status of new-urban families.

Finally, the data concerning the educational background of sample families indicated that a few parents in Shahabad were slightly educated, but this was rare for rural parents. There is no doubt that education of fathers in the urban area provided them with relatively better employment opportunities. As far as the mothers' education was concerned a few respondents in Shahabad, in spite of few years of schooling, actually were functional illiterates. This difference did not appear to influence the attitudes of mothers with regard to child feeding and care. This
is not surprising; a limited ability to read or write is of little help because it is insufficient to establish communication with the rest of the national culture.
6.8. Some comments on existing environmental situation in Shahabad and Garahdog.

The data presented in Chapter 5 indicates that urbanization affected housing conditions of few households for the better: electricity, for example, was improved in new-urban area as 30 per cent. of the families utilized electricity compared to 7 per cent. in Garahdog. This improvement, however, could not necessarily be considered as an advantage of city life, since families had to pay for electricity which, in turn, reduced the amount of money available for the purchase of food for family and children. The conditions with regard to water supply and also sanitation showed slight improvement in Shahabad as 8 per cent. of the households had piped water and more new-urban houses had toilet facilities.

In spite of these slight improvements in housing conditions there remains a number of facts which indicate the environmental situation of Shahabad in general is worse than in rural Garahdog.

In Garahdog, in spite of its poor environmental conditions, there is no shortage of land. With few exceptions, the majority of families in Garahdog owned their houses, while in Shahabad land was both in short supply and expensive, so that the problem of housing was acute. Most of the new urban families (76 per cent.) had rented part of a house because they could not afford to rent the whole. Although the results of the study indicated that there
was no significant difference with regard to the average number of people living in a room in Shahabad and Garahdog, the important point is that, on average, rooms were smaller in Shahabad than Garahdog area (approximately 10 m$^2$ and 15 m$^2$, respectively). Also, in spite of no noticeable differences in average family size in both areas in Garahdog it was usual to have one family per house while houses in Shahabad contained two or more families, so that available facilities with regard to water supply, sanitation and outdoor space had to be shared by more people. Finally, new-urban families in Shahabad had less opportunity to use living space outside the houses, but this was freely available in rural areas. Taking these factors into account it is apparent that conditions in new-urban areas are much more crowded.

Similar unsatisfactory environmental conditions of slums have been identified in other developing parts of the world: the situation created by the rapid urbanization of Africa, for example, was examined with respect to its health and medical aspects by the World Health Organization Regional Committee for Africa on its ninth session in Nairobi in 1959 who concluded that "the influx of immigrants into the large cities leads to overcrowding, which in turn produces water shortages, overloading of existing sewage disposal systems, the creation of new sanitary problems in cities without such systems and consequently the risk of spread of infectious diseases", (World Health Organization, 1960).
In general, it could be assumed that under the present situation Shahabad residents, as well as other poor urban families, are the least adequately protected of all city dwellers from the standpoint of environmental conditions because of their poverty and ignorance. They are poorly housed, badly fed and their personal hygiene is of the lowest standard when compared to other parts of the city of Tabriz. Because of lack of space, the young children were seen to crawl among the uncollected rubbish or in the drains. Village children are at least more fortunate in being able to enjoy fresh air and in having unlimited outdoor space in which to play. Although the warmer climate of the country in spring and summer leads to life being spent out of doors to an extent not possible in colder seasons, at the same time it favours vast number of flies and mosquitoes which easily transmit communicable diseases.

The foregoing discussion, although emphasising overcrowding in the new-urban area, does not confirm that the environmental situation in Garahdog village was itself adequate. It suggests that in communities as Shahabad and Garahdog the health status of children is affected not only by poor diet, but also by poor environmental conditions. Clearly an epidemic of communicable diseases can spread very rapidly in both these communities, and as shown earlier, diseases such as diarrhoea, measles and whooping cough usually affect most of the children in these areas. It could be concluded that urbanization only aggravates already unsatisfactory conditions.
6.9 Comments on cultural attitudes of mothers towards pregnancy, infancy and childhood in Shahabad and Garahdog.

In both Shahabad and Garahdog village, the existing poor feeding practices of young children and family occurs primarily as a result of poverty and economic inability to afford an adequate food supply. At the same time, certain aspects of the local domestic culture pattern, either single or in combination act as conditioning or precipitatory factors, influencing these feeding practices. The importance of this aspect of nutrition has been recognised by the medical practitioner of the Shahabad local health clinic:

"In my experience, examination of most children and mothers attending the clinic with various nutritional disorders shows that, while, most cases appear to be associated with poverty and environmental handicaps, but all these mothers have one or usually several harmful cultural beliefs which interfere still further with their own and children's health status".

The examples of practices and food taboos quoted in Chapter 5, were mainly those actually found during the field survey and thus have real practical importance. Although the range of attitudes and practices was found to be similar in both new-urban and rural areas, the detailed study of cases, however, revealed that these customs were of greater importance among the rural mothers in Garahdog who were less exposed to modern ways of life.

These findings do not suggest that old beliefs are necessarily replaced by the new in the urban environment, but it shows that new ideas arising from the pressure of urban life have only increased the range of alternatives. Both old and new ideas exist side by side, and are used alternatively by the
people in the Shahabad community.

Perhaps one of the most harmful dietary practices reported by some mothers in both Shahabad and Garahdog was general food restriction during pregnancy associated with inexplicable food taboos of one sort or another. The most commonly mentioned of these beliefs was the possibility of reducing the baby's weight for easier delivery. There is no doubt that adequate eating during pregnancy is vital to protect the health of mother and to provide optimal conditions for the growth and development of the foetus. There is extensive evidence showing the association of low birth-weight and poor nutrition of the mother. The researchers have found that about one hundred birth-weight series from Austria, Belgium, France, Germany, Greece, Holland, Italy and Russia showing the increased prevalence of low birth-weight with increasing food shortage during or in the aftermath of two world wars (Wynn and Wynn, 1975). These research works conclude that in fact very badly fed women were infertile and the low birth-weight babies were born to women just well enough fed to be fertile but too badly fed to produce healthy babies.

It was concluded many years ago in Europe that the prevalence of low birth-weight be reduced by improving nutrition during pregnancy. In Norway in the 1920's more than 20% of the babies of unmarried mothers were low-birth weight. Beginning in 1931 the diet of unmarried mothers was greatly improved. Instead of 50 low birth-weight babies
of 223 mothers expected from previous experience, there were only 5. This Norwegian experience was repeated in other countries, where the results showed that the percentage of low birth weight babies could be reduced to 2.2% compared with 8% for a comparable population with poor nutrition (Ebbs et al. 1942, Balfour et al. 1942).

The United States Assistant Secretary for Health in presenting his evidence to the Select Committee of the Senate referred to research sponsored by his own department:

"Major emphasis in human population is currently being given to the impact of chronic moderate malnutrition during pregnancy as the development of the child. For instance, a major multidisciplinary study is under way in an undernourished rural Guatemalan population utilising nutritional supplements during pregnancy and the pre-school years. It is of interest that following initiation of supplementation, the rates of prematurity, still births, low birth-weight and neo-natal death declined". (U.S.A. Senate Select Committee on Nutrition and Human Needs, 1973.)

The importance of adequate eating during pregnancy has also been emphasised by "Canada's National Council of Welfare" whose primary role is influencing and educating public opinion. In 1973 the Council reported that:

"Severely restricting weight gains is now understood to increase the risk that a baby will be born before the end of a full-term pregnancy (premature), or full-term but not entirely developed for that age (immature)."
The seriousness of the possible damage is worth the price of its prevention. Poorly nourished mothers are far more likely to give birth to premature babies. And these babies are far more likely to have difficulty, almost from the very start. Serious difficulties are more likely to be found among prematures: difficulties of sight, hearing, and the other senses; mental retardation; the ability to coordinate the use of hands with the ears and eyes. Premature babies are more likely to require later hospitalisation. The important point is that much prematurity is directly related to poor nutrition among pregnant women. That in turn means that many of the problems of the premature infant can be prevented by good nutrition". (Canada: National Council of Welfare, 1973).

Furthermore, recent and more carefully designed studies failed to indicate a relationship between excessive weight gains during pregnancy and toxaemia of pregnancy. Similarly, the hypothesis that excessive weight gains during pregnancy predisposes to a number of other obstetric complications such as abortion, dystocia, and postpartum haemorrhage, seems to have little supportive evidence. The increase in weight gain is not sufficient to cause mechanical difficulties during delivery (Pitkin, et.al., 1972; Hytten, 1979). These observations clearly point up the necessity of supplementing the poor diet of pregnant mothers so that pregnancy disorders can be avoided and healthy offspring produced.

Therefore, the tradition of restriction of weight gain during pregnancy which occurs in both Shahabab and Garahdog should be discouraged at all costs. It must be however stressed that most of the unfortunate consequences of low birth-weight in individual cases can generally be prevented by special care
after birth and by very careful mothering throughout infancy.

However, in most poor societies including Shahabad and Garahdog, many low birth-weight infants are not usually born in hospitals let alone in hospitals that have modern special care units for new born babies. Nor in these communities do many of the premature babies return to homes with the parental time, money or facilities which "at risk" babies really need. So preventive measures, and in particular, supplementation of pregnant women's diet and encouraging them to eat well during pregnancy is required in these areas.

An important point emerging from the findings of the present study is that the previously mentioned cultural practices concerning pregnancy were more strongly supported by rural mothers than urban. Also, some mothers in Shahabad had visited maternity departments of hospitals during pregnancy, which influenced their attitudes: a handful of new-urban mothers reported that they had been advised by a midwife or doctor to decrease the amount of salt in their diet. It is interesting to note the rural mothers by tradition decrease the amount of salt in their diet during pregnancy but can give no reason for this practice. It is suggested that general practitioners, nurses and other medical personnel should engage actively in the communication of sound nutritional knowledge as it relates to mother and child.
However, in emphasising the point that mothers in Shahabtag area showed less tendency toward cultural beliefs does not minimise in any way the importance of these customs in their day to day life and feeding of their children. Although the belief concerning unsuitability of "colostrum" had received greater support in Garahdog, this harmful attitude persisted among Shahabtag mothers as well. "Colostrum" provides the newborn baby water, sugar and minerals he needs and also many important antibodies. Therefore, in planning any nutrition programme the importance of colostrum should be stressed and the practice of discarding it should be discouraged.

Another harmful practice concerning the feeding of children was the avoidance of animal protein foods in infancy and childhood which was mentioned by mothers in both Shahabtag and Garahdog. A similar range of attitudes has been found in other developing countries: For example, Solien and Scrimshow (1957) have reported the avoidance of animal protein foods for young children in other parts of the world such as "Cakehiyuel Indians" of the Guatemalan Highlands because of the fear of worms. Also in Indonesia intestinal worms were feared if fish was consumed in infancy.

However, the fact that the number of respondents who held beliefs regarding the harmfulness of valuable foods such as meat and eggs in infancy was less than those of rural mothers, provides additional support for the conclusion that there is a relationship between the pattern of food habits and the modernization of the community.
The other interesting point which requires comment is that in both rural and urban areas those foods which were regarded as harmful for children were the most expensive and scarce types of foods in the diet. However, this point suggests that if the economic status of the families studied could be improved by means of providing more purchasing power, the expensive foods such as meat and eggs could be consumed in adequate quantities and these harmful food habits could gradually change. At the same time it emphasizes the fact that culture is the basis of food habits and parents' education is a powerful factor in improving such customs; certainly, many young children in this study did not receive much animal protein as evidenced by the distribution of meat consumption within the family. Even where there was sufficient money to buy protein foods there were still mothers who supported these ideas because they lacked an understanding of the importance of animal foods.

The range of cultural attitudes of mothers toward pregnancy, infancy and childhood was described in detail in a previous chapter because it was felt to be necessary to have as complete an understanding of such local beliefs and practices as possible and to assess the effect of change in lifestyle in such practices, both in order to understand the mother's difficulties and to be able to attempt to overcome harmful customs by means of persuasion and modification. Preliminary socio-cultural surveys of this type may facilitate the introduction of new measures.
Finally, it must be mentioned that in the present study those practices and beliefs were emphasised that were felt to be harmful or simply interesting from a nutritional point of view. It must be realised that equally there were some aspects of domestic culture which are beneficial in this context such as the practice of prolonged breast feeding in Garahdog village which has been discussed in a previous section of this chapter.
6.10. Recommendations

It is suggested that a variety of measures are required to overcome problems associated with migration in Iran:

1. Rural development programmes as a means of stopping further rural to urban migration must be given priority. The gap between rural and urban areas of Iran in their level of income, education, sanitation and health care facilities needs to be narrowed down to prevent village depopulation and city over-population.

2. As far as the fate of migrants is concerned, programmes for raising the socio-economic level of poor families should be given priority. Diversified manufacturing and production jobs must be provided by the government for the migrants who are already in the city.

3. The squatters' areas of cities must be properly planned with efficient garbage disposal services, plentiful supplies of pure water and good sewerage systems.

4. Government and health authorities should engage themselves positively in efforts to promote the production of low-cost nutritious foods for pregnant and lactating mothers.

5. More measures should be taken in the field of birth control. The existing Family Planning Association should expand its work throughout the district.

6. Because of high illiteracy and ignorance associated with poor environmental conditions, a national health education programme should be launched through various health centres.
7. The nutrition education of health professionals, including doctors, nurses, midwives, social workers, nutritionists and home-economists who are in contact with mothers, as well as school teachers who are in contact with future mothers, must be emphasised. By introducing useful nutrition teaching into the school curriculum, the cycle of ignorance and misconception can be broken (Turner, 1979).

8. In educational programmes related to the nutrition and general hygiene, the problems of "new-urban families" and other poor segment of population must be taken into account.

9. The maintenance of breast feeding is a major public health measure. Every effort to maintain it should be made through education, by emphasis in both the training of health personnel, educators and in the planning of a food and nutrition policy. Advice concerning breast feeding, weaning and healthy eating should be given during the mother's pregnancy and by the midwife just after delivery.

10. The importance of attempting to decrease the incidence of infective diseases must be accepted by government and authorities and the part this plays in pathogenesis of malnutrition must be appreciated. Thus, locally adopted immunization programmes for young children which have nutritional significance must be given priority.

11. In poor urban communities such as Shahabad, the transistor radio has become quite a popular instrument of
communication. The basic nutrition and health programmes could be used to inform illiterate people of sound knowledge in child feeding. The information would have to be simple and be given in the language or dialect of the area.

12. Various types of artificial milks have provided an alternative method of infant feeding in new-urban areas. Persons contacting mothers (salesmen and advertisers) should be well informed so that they are able to look at the nutritional, economical and environmental problems of the poor families as a whole. They should never use their skill to encourage a special product to ignorant women in such a way that it could be detrimental to good breast feeding. The companies in charge of producing artificial milks should observe great caution in applying methods of promoting their products.

13. Finally, as the health and nutritional status of young children mainly depends on the feeding practices of the community and the available foodstuff (Sharma, et al., 1977) the problem should be ideally tackled by a multipronged attack. The combined efforts of government, health personnel, health educators, nutritionists, home economists, community development officers and social workers must be strengthened so as to produce the desired effect of improved national nutrition and therefore the increase in the socio-economic status of poorer segments of the population. These programmes must be given priority for the benefit of the families and children and hence the future manpower of Iran.
Table 6.1 Summary of contrast in selected characteristics of families living in Shahabad (new-urban) and Garahdog (rural).

**Infant Feeding Practices**

<table>
<thead>
<tr>
<th>Breast fed:</th>
<th>New-Urban</th>
<th>Rural</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 6 months only</td>
<td>40%</td>
<td>9%</td>
</tr>
<tr>
<td>7 - 12 months only</td>
<td>38%</td>
<td>nil</td>
</tr>
<tr>
<td>1 - 3 years</td>
<td>22%</td>
<td>91%</td>
</tr>
<tr>
<td>Artificially fed</td>
<td>68%</td>
<td>nil</td>
</tr>
<tr>
<td>Given fresh cow's milk</td>
<td>10%</td>
<td>100%</td>
</tr>
<tr>
<td>Weaning:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7-18 months</td>
<td>22-24 months</td>
<td></td>
</tr>
</tbody>
</table>

(In neither cases was special weaning food prepared)

**Infant Care**

Source of information about childcare:

<table>
<thead>
<tr>
<th></th>
<th>New-Urban</th>
<th>Rural</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mothers, mothers in law</td>
<td>30%</td>
<td>85%</td>
</tr>
<tr>
<td>Medical personnel</td>
<td>4%</td>
<td>nil</td>
</tr>
<tr>
<td>Friends, neighbours</td>
<td>62%</td>
<td>9%</td>
</tr>
<tr>
<td>Second person for infant care</td>
<td>24%</td>
<td>15%</td>
</tr>
</tbody>
</table>

(In neither cases children had daily bath).

**Beliefs**

<table>
<thead>
<tr>
<th></th>
<th>New-Urban</th>
<th>Rural</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meat is bad for young child</td>
<td>60%</td>
<td>72%</td>
</tr>
<tr>
<td>Eggs are bad for young child</td>
<td>60%</td>
<td>80%</td>
</tr>
<tr>
<td>Restricted diet during pregnancy</td>
<td>66%</td>
<td>80%</td>
</tr>
<tr>
<td>No liquids given to sick children - (diarrhoea)</td>
<td>72%</td>
<td>82%</td>
</tr>
</tbody>
</table>

**Child Illness, Mortality**

<table>
<thead>
<tr>
<th></th>
<th>New-Urban</th>
<th>Rural</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infants who had diarrhoea within first 6 months of their lives</td>
<td>94%</td>
<td>62%</td>
</tr>
<tr>
<td>Infants who had whooping cough within first 6 months of their lives</td>
<td>20%</td>
<td>52%</td>
</tr>
<tr>
<td>Infants who were admitted to hospital because of diarrhoea</td>
<td>20%</td>
<td>9%</td>
</tr>
<tr>
<td>Immunisations:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diptheria, Tetanus, Whooping cough and Poliomyelitis</td>
<td>6%</td>
<td>nil</td>
</tr>
<tr>
<td>Measles</td>
<td>4%</td>
<td>nil</td>
</tr>
<tr>
<td>Smallpox</td>
<td>60%</td>
<td>46%</td>
</tr>
</tbody>
</table>
Child, Illness, Mortality (continued)

<table>
<thead>
<tr>
<th></th>
<th>New-Urban</th>
<th>Rural</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average number of live</td>
<td>4.2</td>
<td>3.9</td>
</tr>
<tr>
<td>children per family</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average number of infant deaths per family</td>
<td>2.2</td>
<td>2.2</td>
</tr>
<tr>
<td>Occurrence of childhood deaths:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>At first day of infant's life</td>
<td>4%</td>
<td>13%</td>
</tr>
<tr>
<td>Within first year of infant's life</td>
<td>45%</td>
<td>34%</td>
</tr>
<tr>
<td>At 12 - 18 months</td>
<td>18%</td>
<td>49%</td>
</tr>
<tr>
<td>Causes of deaths:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accidents</td>
<td>16%</td>
<td>9%</td>
</tr>
<tr>
<td>Illnesses</td>
<td>79%</td>
<td>86%</td>
</tr>
</tbody>
</table>

Food Habits

- Families made their own bread: nil (100%)
- Families kept animals: 6% (100%)
- Families grow their own vegetables: 4% (100%)

Economic Status

- Working - mothers: 16% (50%)
- Working - fathers: 90% (100%)
- Unskilled working fathers: 40% (100%)
- Average monthly income: 1000-1500 Tomans (£1 = 16 Tomans)
- Families who paid tax: 60% (10%)
- Attendance of children at school: 54% (66%)

Environmental Conditions

- Families owned their houses: 24% (94%)
- Families paid rent: 76% (nil)
- Average family size: 6.4 (6.6)
- Average number of people/rooms: 4.88 (4.86)
- Families who lived in private houses: 14% (94%)
- Five-Eight people/Room: 50% (43%)
- Houses with toilet facilities: 80% (60%)
- Houses with piped water: 8% (nil)
- Houses with electricity: 30% (7%)
- Houses with separate kitchen: 20% (49%)
- Houses with refrigerator: 2% (nil)
- Houses with transistor radio: 80% (80%)
Figure 6.1 Duration of breast feeding in urban areas of Iran and Chile

<table>
<thead>
<tr>
<th>AGE (months)</th>
<th>0</th>
<th>20</th>
<th>40</th>
<th>60</th>
<th>80</th>
<th>100</th>
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<tr>
<td>SANTIAGO CHILE</td>
<td></td>
<td></td>
<td></td>
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<td>Only Bottle</td>
</tr>
<tr>
<td>TEHRAN IRAN</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Bottle &amp; Breast</td>
</tr>
<tr>
<td>ISPHAHAN IRAN</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Only Breast</td>
</tr>
</tbody>
</table>

Figure 6.2 Duration of breast feeding in rural areas of Iran and Chile

<table>
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<th>AGE (months)</th>
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<th>12</th>
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<tr>
<td>CURICO CHILE</td>
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<td></td>
</tr>
<tr>
<td>GORG-TAPEH IRAN</td>
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</table>

- Only Bottle
- Bottle & Breast
- Only Breast
CHAPTER SEVEN
NUTRITION EDUCATION OF MOTHERS

7.1 Introduction
The recommendations given in 6.10 are far-reaching, in many cases depend on government action, and for a variety of political or other reasons may never be implemented. Some of the recommendations however, could be implemented relatively easily, and these will now be examined in more detail.

During the period in which the survey was being carried out, the author gained the confidence of the majority of the respondents and was frequently asked for advice relating to the children's welfare. It became apparent that a modest nutrition education programme could be devised and put into practice with the group of new-urban mothers.

This programme was planned to communicate knowledge which would lead the mothers to establish attitudes and habits of a healthy, adequate and relatively complete diet using the available resources. The aim of the programme was two fold: 1) To persuade mothers in Shahabad area to make the best use of foods already available locally for feeding themselves and children. 2) To find out a suitable method of improving nutrition knowledge of mothers.

7.2 The content of Nutrition Education Programme
Detailed knowledge of local methods of infant feeding, including duration of breast feeding, customary practices
weaning, beliefs and superstitions about food and their uses during pregnancy, lactation and childhood as well as ideas about the causes, avoidance and cure of illhealth, the local pattern of childhood malnutrition, morbidity and mortality rate and information on local food stuffs, the prices of the food and their availability, methods of cooking and types of utensils and fuel were all considered in planning the nutrition education of mothers.

The content of the nutrition education programme is summarised below:

1. The importance of maternal diet on pregnancy and lactation, adequate food intake during these periods in order to overcome the problem of inadequate milk supply and the modification of food taboos relevant to pregnancy and lactation.

2. The importance and advantages of breast feeding, dangers of bottle feeding, preparation of low-cost supplementary and weaning foods from locally available foodstuffs.

3. Hygiene in food handling and preparation, e.g. washing hands and utensils, problems of food storage without refrigeration.

4. Early management of diarrhoea, dangers of restriction of liquids on diarrhoea, importance of immunization against communicable diseases and uses of available health facilities.
7.3 Methods

The nutrition education of mothers was carried out in a traditional direct method. Simple and informal discussions and demonstration, with active participation of mothers and full use of visual aids such as actual foodstuffs and other live materials from the kitchen and home environment was chosen as a method of assisting the learning process. The use of actual foodstuffs was chosen to better inform, to sustain interest and to motivate change. The meetings were carried out in the housewives' homes, the atmosphere was informal and relaxed and seating was on the ground, usually in the yard.

Five mothers from the sample group in Shahabad were selected as nutrition aides. These mothers were Turkish speaking migrants from rural areas and were all experienced in cooking for their families. The training of the aides was carried out partly to find out whether such mothers would accept nutritional advice and partly because the assistance of aides who had already been exposed to a similar demonstration and had become convinced of the desirability of the recommended changes was believed to be effective.

The aide training programme was carried out from March to April 1980 and was sufficiently long to observe the acceptability of changes in attitudes of the mothers. A total of eight visits were arranged with the aides in their own homes. Each concept was taught, explained and demonstrated to the aides by the author of this thesis and the mothers took part in every activity. Each aide then worked with the author and with other mothers during the practical nutrition
education of the subject group. The aides were responsible for making further arrangements with mothers to start discussions and demonstrations. Aides also helped the author in presenting nutrition concepts to housewives in a practical manner.

The nutrition education programme of the subject group was conducted from April to June 1980. The 45 mothers from Shahabad who had taken part in the investigation into infant feeding practices were divided into 9 groups.

The small number of mothers in each group stimulated great interest and a high degree of involvement and participation. It also gave the author an opportunity to gauge to some extent the effectiveness of the demonstrations, as the questions provided a kind of feedback.

Five meetings were arranged with each group. Discussions and demonstrations were planned to last for two hours, but enough time was available for subsequent discussion.

Each meeting was started by finding out all that the mothers already knew about the particular subject (e.g. advantages of breast feeding) and finished by asking the mothers to decide what they were going to do when they returned home with their new knowledge. This helped to make sure that at least changes and concepts were understood by the housewives. Mothers were asked to give the new ideas further trial at home. For instance when a recipe was developed with the group, mothers were asked to try it at home before the next meeting. At the next meeting the mothers discussed any problems and asked relevant questions of the author. In cases
where the trial was successful, it was assumed that the change had been accepted.

**FIRST MEETING**

Maternal nutrition was the main concern of discussion with mothers in the first meeting with each group. Mothers were encouraged to feed themselves better during pregnancy and lactation. Many mothers restricted their diet in pregnancy due to the belief that this would produce a not-too-large baby, and so ensure an easier labour. It was explained to the mothers that during pregnancy they need plenty of food for the benefit of themselves and their unborn baby. They were told that low intake of food produces low-weight babies whose physical and mental status will be in danger. Mothers were told that healthy eating during pregnancy will not produce excess weight gain because their bodies require more food. It was explained to the housewives that the main reasons they did not have enough breast milk was because they did not eat properly. Many mothers claimed that they did not have enough money to buy extra food for themselves. It was suggested that they spend their money on extra staple and other available foods rather than on modified cow's milk.

The actual food which they could buy with their available money was shown to the mothers. They were asked to mention any kind of meal they could prepare with such foodstuffs. It was assumed that observing real materials would help the mothers to remember what they had seen as well as what they had heard. Many housewives in each group mentioned the
habit of eating clay earths during pregnancy. As the composition of this was not clearly known, this practice was not considered harmful and was not discouraged.

SECOND MEETING

Breast feeding and bottle feeding were the topics discussed with mothers at the second meeting. The mothers were simply informed that the milk that comes from mother's breast for the first few days is thin and watery and is called Colostrum. They were assured that it is very good for babies; so they should be put to their mother's breast as soon as they are born. In this discussion, every concept was explained in traditional terms, rather than scientific, as complex scientific terms never appeared to be understood. Many mothers complained that their infants do not start sucking for a few days. We suggested they should wet the inside of the infant's mouth with a spoonful of cold boiled water, as this will often start them sucking. Most mothers had difficulty feeding their children during the day. They were advised to take their babies with them to bed, as a breast that is suckled from often makes more milk, and the night is as important for suckling as the day.

Those mothers who went out to work were encouraged to breast feed their infants early in the morning, during the night and when they returned home from work. The mothers were told that breast feeding alone is enough for the first 4-6 months and there is seldom any need to give him other
liquids which are usually fed from bottles. Mothers were also advised to boil any water given to the baby if he is very hot and thirsty. Mothers were shown how they could give the water from a clean spoon, out of a clean cup.

The prestige and modernness of breast feeding was also emphasized by showing pictures of a healthy baby feeding from the breast of a town lady. It was stressed that in such advanced cities as Tehran and Tabriz there is a present day move among mothers to return to breast feeding.

Mothers were advised to continue breast feeding for at least one, and preferably two years. Mothers were told that after about 6 months the breast milk cannot satisfy the needs of fast growing infants and they should be given supplementary foods. In this meeting efforts were made to counteract a further decline in breast feeding. The mothers were helped to identify the factors responsible for the shortening of the duration of breast feeding, and possible alternatives were suggested to them.

For instance, some of the mothers claimed that they did not have enough breast milk for their infants. They complained that the baby cried soon after he had been fed, and their husband and friends have told them that the baby was not getting enough milk and needed a bottle. The mothers were told that if they did not eat enough themselves they would not produce enough milk. It was suggested they should buy more food for themselves instead of spending money on artificial milk and bottles.
Among the mothers who stated new pregnancy as a main factor for stopping breast feeding, it was suggested that breast feeding should be continued at least for the first three months of the new pregnancy and the infant should be weaned gradually over the last 6 weeks of this period. The mothers were assured that this would not harm the unborn baby in any way.

The real dangers of bottle feeding were emphasised (semi-starvation and infection). They were shown a tin of powdered milk and bottle and it was explained that these expensive items are dangerous for their babies unless used properly. They were simply informed that a young baby needs a lot of milk. Powdered milk and bottles are expensive and they do not have enough money to buy sufficient milk and that is why their babies become thin and ill. The mothers were given simple information about "germs". The germs were described as "little animals" which like growing in milk in warm dirty feeding bottles. The mothers were told that even if a little milk is left in a bottle after a feed, germs will grow in it. The baby who is given dirty milk will also eat the germs and will get diarrhoea and may die.

From the comments made by mothers it appeared that they understood safe bottle feeding needs much water and fuel, more money to buy milk and bottles, and that the families could not afford this method of feeding.

The housewives were told that if artificial feeding is necessary, they could make feeds as safely as possible. They were told
to dilute the milk with boiled water. To economise with fuel, they could boil water once a day and keep it covered in a large jar. They were encouraged to feed the milk from a cup and spoon which is easier to clean than a bottle and teat.

Mothers were advised to boil the feeding utensils but if there is not enough fuel with which to boil them, feeding utensils must be made as clean as possible with cold water and detergent, and they were told to dispose of any remaining milk unless they had a refrigerator in which to store it.
THIRD AND FOURTH MEETINGS

Supplementary foods and weaning diet was discussed at the third and fourth meetings.

The mothers were told that a mother's breast milk usually gives a child all the food he needs until he is about six months old. But, when he is six months old, he has become so big that breast milk is not enough by itself. If a child is to continue to grow well he must therefore be eating other foods. The mothers were advised to start giving him plain soup when he is about four months old. He will then be well used to it by the time that he really needs it. The preparation and feeding of some types of semi solid foods was demonstrated later in the same meeting. Mothers were taught to give the infants semi-solids once a day, when the baby is most hungry. When the baby can eat it well, he can have it two or three times daily. By the age of six months a child can usually eat semi solids well, and it was suggested that mothers should add some protein foods to the soup and mix it well. Before carrying out any practical work in this part, the mothers argued that preparing these foods for children requires extra time and money, and they had neither the facilities nor money to prepare separate dishes for young children. They were shown practically how they could feed the softer and more protein rich portions of their own meal to young children. Thus an attempt was made to guide the mothers within the indigenous meal patterns.
Mothers were told that when a child is six months old he should be eating most of the foods that the adults in his family eat, but that they must be mashed until they are very soft.

In this population the best food is usually reserved for the men and they are served first and the children come last. The traditional order at meals persists strongly and could be a factor in producing PEM in childhood. In such circumstances, it was difficult to convince mothers that the child needs a larger share of the scarce protein items and staple food in the diet. Therefore, attempts were made to improve the diet of the whole family, in the hope that the child's share would also increase.

Also, in suggesting appropriate foods, it was noticed that among the group, there were a few foods that they valued highly and without which no main meal was considered complete. In Shahabad community these were bread and rice. The mothers were encouraged to include these items as excellent sources of nourishment for children and they appeared to accept the idea very readily. Mothers were informed that the baby also needs to eat the solid parts of stew such as meat, beans or potatoes. They were advised to cut them well for the baby so that he could eat them easily.

They were advised to feed their children often, preferably three times daily. Preparation of semi-solids and nutritious
foods was demonstrated during the last part of the third meeting and the fourth meeting with mothers helping to prepare the food.

All the meals that were prepared were simple, economical, nutritious and required no extra time for preparation. The dishes were also flexible to allow for different family sizes, and were made from easily available ingredients which were culturally acceptable. The approximate prices of foods were known from the local market and were taken into account.

The following examples of suggested meals for young children were prepared and demonstrated to the mothers:

1. A traditional stew (abgosht) was prepared (the recipe is appended). A small portion of the stew was removed before adding pepper and spices. This soft plain soup was suggested as an ideal semi-solid food for a 4-6 month old baby.

2. To this plain soup some minced meat and mashed potato were added. Alternatively, small pieces of bread were soaked in the soup and fed to the young children who were present at the time of the demonstration.

3. Mothers were shown how to pour the soup onto soft boiled rice and feed it to children.

4. Soup with beans: some beans were cooked in the stew until they were soft. They were then mashed with a spoon and mixed with the soup.
5. A traditional vegetable soup called ash was prepared. The ingredients depended on available vegetables, but onions, spinach, leeks, parsley, beans and rice were the usual components. The beans were cooked in water and all vegetables (cleaned and cut into pieces) were put into the cooking liquid when it started to boil. While the vegetable soup was hot, an egg was added to it and stirred well into the soup. This soft food was fed to the young children and the children accepted it happily.

6. To the vegetable soup, a hard boiled egg (cut into small pieces) was added.

7. A medium size potato was cooked in the vegetable soup in its jacket, the jacket was removed after cooking and then the potato was mashed into the soup.

8. An egg was well mixed into a small quantity of fresh milk. Most children liked this food very much.

9. Half a pint of fresh cow's milk was added to a portion of cooked vegetable soup.

The idea of preparing the above meals was to help mothers to prepare for their child of 6 months or over, special food from a triple mix of staple, together with small quantity of vegetable and animal protein. All these foods were cooked by the traditional methods and were economical, as they were all cooked along with the family's stews and soups.

Mothers were also encouraged to use dark green vegetables and fruits. Where the water supply for adequate cleaning fruits and vegetables was limited, it was suggested these foods were cooked. Mothers were told that fruits protected by a
skin that is removed before serving could be given to children.
BASIC RECIPES FOR LOW-COST SUPPLEMENTARY AND WEANING FOODS

Local name for food: Abgosht (stew)

<table>
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<tr>
<th>Item</th>
<th>Exact or Kitchen Measure</th>
<th>Household Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meat*</td>
<td>50 grs.</td>
<td>5 medium pieces</td>
</tr>
<tr>
<td>Potatoes</td>
<td>10 OZ.</td>
<td>3 medium size</td>
</tr>
<tr>
<td>Dry split pea</td>
<td>3 Oz.</td>
<td>6 large spoons**</td>
</tr>
<tr>
<td>Dry beans (red and white)</td>
<td>3 Oz.</td>
<td>1 large handful</td>
</tr>
<tr>
<td>Tomatoes</td>
<td>3 Oz.</td>
<td>2 small size</td>
</tr>
<tr>
<td>Cooking fat</td>
<td>1 large handful</td>
<td>1 spoonful</td>
</tr>
<tr>
<td>Salt</td>
<td>1 pinch</td>
<td></td>
</tr>
<tr>
<td>Water</td>
<td>1 pint</td>
<td>Half pot or as required</td>
</tr>
</tbody>
</table>

* Any available source of meat can be used including veal, chicken, lamb.

** 1 large spoon is equivalent to an English dessertspoon.

Preparation and cooking:
1. Measure out the dry beans and split or chick peas, wash them and put them to soak overnight in clean water. This softens the skins and makes their removal easy.
2. Peel the potatoes and cut them into pieces.
3. Cut the meat into pieces. Do not remove the bones.
4. Place the meat together with peas or beans and the required quantity of water into the cooking pot. Add the salt and oil. Cook it for one hour (meat must be tender and beans soft). Add tomatoes and potatoes and cook for a quarter of an hour.

Remove a small portion of the rich and thick sauce before adding any spices or dried lemon, taking care to avoid any bones, soak small pieces of bread in it and feed it to young children, or, add this sauce to little soft boiled rice (Kateh), or simply give it as soup to young children. The solid part of this food can be kept for the following supper. It must be well mashed with a spoon to be soft enough for young children.
Local name for food: Ash (Vegetable Soup)

<table>
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<tr>
<td>Onion</td>
<td>6 oz.</td>
<td>2 medium size</td>
</tr>
<tr>
<td>Dry beans</td>
<td>2 oz.</td>
<td>1 large handful</td>
</tr>
<tr>
<td>Mixed green leafy vegetables (leeks, parsley and spinach)</td>
<td>2 oz.</td>
<td>Half a cooking pot</td>
</tr>
<tr>
<td>Rice</td>
<td>1 pint</td>
<td>Half a pot</td>
</tr>
<tr>
<td>Water</td>
<td>1 pint</td>
<td>1 spoon</td>
</tr>
<tr>
<td>Cooking oil</td>
<td>1 spoon</td>
<td>1 pinch</td>
</tr>
<tr>
<td>Salt</td>
<td></td>
<td></td>
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</tbody>
</table>

Preparation and cooking:
1. Soak the dry beans in water overnight.
2. Cut the vegetables into pieces and wash them well.
3. Cut the onion in pieces and fry for few minutes.
   Add beans and salt and cook for one hour. Add all vegetables and rice and cook for another 15 minutes.

Suggestions: Mash the cooked ingredients into its sauce and feed it to young children, or, remove a small portion of the soup and add one of the following items to it:

1 Egg
1.5 oz.
1 beaten or hard boiled

Fresh Cow's milk
Half pint
One medium size glass

The vegetable soup with bread is an ideal food for weaned children.
FIFTH MEETING

At the last meeting with mothers, general health and hygiene such as importance of boiling the drinking water and cleanliness of utensils and environment was re-emphasized. The control and early management of diarrhoea and other diseases was discussed.

The mothers were given some information in the early recognition of dehydration. It was explained that when a child gets diarrhoea, his body loses water in his stools. Other things are also lost, but it is the water that matters most. The housewives were then taught that "when children die from diarrhoea, they die usually because their bodies have got dry and run out of water". The mothers were given some information on how to diagnose dehydration: "When a child is dehydrated, his eyes start to go back into his head. Also if you pinch up the skin over his stomach, it may stay pinched up for a while, instead of going back smooth straight away. The baby's mouth will be very dry. These are signs that his body is very short of water and that he is very ill and must be taken to the hospital or a health centre."

Then the mothers were given advice on diarrhoea therapy with home-made solutions of dilute salt and sugar given by mouth. It was explained that "In looking after a child with diarrhoea the most important thing to do is to put water back into his body. The easiest way to do this is to give him plenty of water to drink by cup and spoon. Your baby may not want to drink it, but you must go on making him drink little by little".
Then the mothers were taught that their infant's body loses salt as well as water in diarrhoea stools. The mothers were encouraged to add a quarter of a teaspoonful of salt and two teaspoonfuls of sugar to each large cup of water they give their children. It was mentioned that more salt and sugar than this will not help the child, they may make him worse because he will vomit. In order to be sure that the mothers have understood this concept, they were handed a cup and spoon filled with boiled water and then offered a bowl of sugar and a bowl of salt to make the mixture themselves. In the demonstration it was found that mothers had difficulty in measuring the right amount of salt, so they were helped to know how much salt to add by telling them that they should add as much as they can pinch in three fingers. Mothers found this easier than measuring salt in a teaspoon. Mothers were advised to give drink frequently throughout the day if the baby showed signs of diarrhoea. They were told that if their children vomited as well as having diarrhoea, they must be taken to a doctor or hospital.

It was emphasized that when a breast fed child has diarrhoea, his mother must go on breast feeding him. The very worst thing that his mother can do is to stop breast feeding him, and start bottle-feeding. If a mother stops breast feeding and gives dirty fluids he may die. They were told that breast fed babies do not usually get diarrhoea badly, and if a mother looks after her child carefully, he will get well again.
It was emphasized to the mothers that underweight children are often killed by diarrhoea, measles and other diseases which seldom kill healthy children. We told them that most of the sick children die because their bodies are not strong and healthy enough to fight the germs that try to kill him. The mothers were advised that the best way to prevent their children dying from diseases such as diarrhoea and measles is to feed them well before they catch a disease. In the same way the mothers were told that children must also be well nourished when they are ill. Their children's body needs plenty of food especially energy and protein foods, so that their body is strong enough to fight the germs that are infecting them and trying to kill them. The mothers were told that for their ill children to get well they must be given extra food. Mother's milk and fresh animal milk were among the best foods mentioned in this category.

In discussions, mothers reported that some foods such as eggs or beans gave their children diarrhoea. It was carefully explained that their children often get diarrhoea because of germs in dirty food or unboiled water, and especially by badly managed bottle-feeding. It was re-emphasized that good, clean, well cooked foods do not cause diarrhoea unless a large amount is given to a young baby who is not used to it.

Finally, the mothers were given advice on the importance of immunization against communicable diseases. It was suggested that their children should be immunized regularly;
even if this means waiting for many hours at the clinic it is worthwhile. The importance of washing hands and utensils, boiling drinking water and general cleanliness of houses was emphasized once more.
7.4 Initial Evaluation of the Nutrition Programme

The mothers involved in the programme appeared to enjoy the meetings and showed a desire to learn more about the health and nutrition of themselves and their children. Although the effectiveness of the programme imparted to the mothers has not yet been objectively determined by evaluation of behaviour change, the preliminary results showed that concepts were understood; mothers did point out some practical problems such as the unavailability of a health centre in the area for immunization of their children against communicable diseases. So it was apparent that they had at least identified their own problems and tried to apply some of the knowledge they had gained in the meetings.

In view of the fact that the housewives requiring the basic knowledge of nutrition, health and hygiene were illiterate, the direct, simple, person to person method of teaching, rather than mass media approach, seems to be more effective.
1. In 1963, the Iranian Government put into practice plans for land reform and technological development which caused massive migration from rural areas to the city.

2. The rapid urbanization of Iran, resulted in the growth of shanty towns and new-urban areas such as Shahabad, with an inadequate water supply, poor sanitation and with consequent detrimental effects on their resident's health status.

3. Rural to urban migration was associated with changes in breast feeding performance of new-urban mothers. Proportion of mothers breast feeding their children declined and shorter duration of breast feeding commonly occurred. In these circumstances inadequate supplementary feeding and early weaning were important causes of undernutrition during the first year of life.

4. Among the factors leading to decline and shorter duration of breast feeding the following factors were found to be important:

   a) One of the most important factors leading to decline in breast feeding and shorter duration of breast feeding was probably the inadequate diet of the lactating mother which resulted in insufficient supply of breast milk among mothers in Shahabad area.
b) Commercial advertisement of powdered milks, although familiar to the urban mothers, did not persuade them to feed their babies with modified cow's milk from the outset: all mothers successfully breast fed their infants for three months. It was only when the mother's milk supply was inadequate to meet the needs of the fast growing infant that they resorted to bottle feeding.

c) Employment shortened the duration of breast feeding for a small proportion (16%) of new-urban mothers.

5. Various types of artificial milks were fairly easily available in the city. This enabled mothers at least to attempt an alternative method of infant feeding.

6. The economic inability of families in Shahabad area to purchase powdered milks in sufficient quantity and also the ignorance of parents, para medical and medical men, lead to the use of improperly prepared and excessively diluted infants' feeds, which in turn resulted in a high prevalence of gastroenteritis, infantile marasmus and high infant mortality rate.

7. The unavailability of home-grown foods and low purchasing power of many families in Shahabad area contribute to the whole family receiving a low food intake.
8. Despite the slight changes in the type of housing, electricity and transport facilities and also a shift in the occupational status of some households in Shahabad area which assured the families a regular monthly income, an effective increase in their real income and noticeable improvement in lifestyle were not seen due to an increase in the cost of living.

9. It appears that some families migrated to the city in order to take advantage of the better education facilities and opportunities for their children. However, economic pressures caused children to drop out of school early, and thus they were unable to take advantage of educational opportunities in the city.

10. Although some new-urban families showed strong attachment to the traditional way of life, some of the mothers had learned child care and feeding practices from friends, neighbours, health and child care services. Thus, more young mothers in new-urban area showed less adherence to customs and taboos concerning food and child care.

11. The move from rural to urban life has brought more disadvantages than advantages. Although most families had moved to the city in search of better opportunities the overwhelming consensus among the residents of Shahabad was that their present status was one of poverty and sheer material deprivation.
The only reason Shahabad residents remain in that area, poor and destitute as they are is "opportunity" - or at least the vague hope that somehow, sometime, they will find the better situation they seek. If they never do attain it, then at least their children may achieve success.
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APPENDIX 1

PATTERNS OF CHILD CARE AND INFANT FEEDING
AMONG SOME IRANIAN MOTHERS
LIVING IN ENGLAND

Interviewer's Name: ____________________________

Interview Number: ____________________________

Respondent's Address
__________________________________________

Date of Interview ____________________________
SECTION ONE - CHILDREN

To begin with, I would like to ask you a few questions about your children.

1. How many children have you got?

2. How many boys and girls?

3. When were they born?

   Day   Month   Year   F   M

   1.   
   2.   
   3.   

Data on the child under 2.

5. What was his birth weight?

6. What was his condition on birth?

   Normal
   Premature
   Postmature
7. Has the child had any serious illnesses since he was born? 
   Yes \[\square\] 
   No \[\square\]
   If yes, what? ________________________________

8. What kind of vaccinations has he had?

   SHOW CARD
   Vaccination | Age of Child
   ------------|------------
   ____________|___________
   ____________|___________
   ____________|___________
   ____________|___________

   Feeding

9. What kind of feeding did he have? 
   Breast feeding \[\square\] 
   Bottle feeding \[\square\]
   If breast feeding ask: 
   When did you start to breast feed him? 
   ________________________________

10. How long did you breast feed him? 
    Less than 1 month \[\square\] 
        1 - 5 months \[\square\] 
        6 - 9 months \[\square\] 
        10 - 12 months \[\square\] 
        over 12 months \[\square\]

11. What kind of diet did you have during lactation? 
    Same as before pregnancy \[\square\] 
    Higher food intake \[\square\] 
    Lower food intake \[\square\]
12. How did you stop breast feeding?  
  
  [ ] Abrupt  
  [ ] Gradual

13. What is your opinion about breast feeding? 

   [ ]

   [ ]

   [ ]

   [ ]

   [ ]

If answer breast feeding is good, then ask: 
Why do you think breast feeding is good for a baby?

14. Do you know anything about the composition of human milk? 
  
  [ ] Yes  
  [ ] No

If yes, give brief idea

15. Why didn't you breast feed your baby?

PROBE: Physical illnesses, ineffective milk ejection, difficulty with nipples, insufficient quantity, other problems.
16. What type of artificial milk did you feed the baby with?

- powdered cow's milk
- fresh cow's milk
- evaporated milk

17. What quantity did you use?

__________________________________________________________

18. Did you dilute the milk? If yes, in what proportions?

__________________________________________________________

19. Did you add anything else to baby's milk?
   Probe: sugar, orange juice, anything else?
   Yes ☐
   No ☐

   If yes, what?
   1. ____________________________________
   2. ____________________________________
   3. ____________________________________

20. When did you start to bottle feed the baby?

   __________________________________________
   __________________________________________
   __________________________________________

21. How did you feed him?

   Cup ☐
   Bottle ☐
22. How did you prepare the milk?
PROBE for information about utensils, mixing techniques, storage temperature of milk.

23. Did you sterilize the bottles etc. before feeding the baby?
   How? ___________________________ Yes
   Why? ___________________________ No
   Weaning (supplementary foods)

24. When did you start to wean the baby? ________________

25. What type of food do you give him?
   SHOW CARD
   Home made
   Ready prepared food
   Both
   a. Who prepares the food?
      Mother
      Grandmother
      Someone else
   b. If it is home made ask:
      How do you (they) prepare the food? ________________

26. Who feeds the baby?
    Mother
    Grandmother
    Someone else
27. What sort of ingredients does the baby's food consist of?  
PROBE: meat, vegetables, fruits.

1. ____________________________

2. ____________________________

3. ____________________________

4. ____________________________

28. Do you cook this food especially for the baby, or for the whole family?

__________________________________________________________

__________________________________________________________

29. Where do you get your information about baby's food preparation?

SHOW CARD

Health visitor
Recommended methods in books
Your mother
Other relatives
Yourself
Friends
Doctor
Anyone else
(Who ________________)

30. Could you tell me what you think a "balanced diet" is for a baby?

__________________________________________________________

__________________________________________________________

__________________________________________________________

31. How do you feed the baby?  
PROBE: You feed baby with spoon  
You feed baby with your fingers  
Baby feeds himself with spoon  
Baby feeds himself with fingers
32. How many meals does he have a day?  

33. Do you feed him on demand or at meals?  
   On demand  
   At meals

34. Is he a good eater? (mean does he refuse to eat or not?)  
   Yes  
   No

If he refuses, what is your reaction?

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

35. Could you tell me what does your baby do during the day, starting with when he gets up in the morning:

<table>
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<tr>
<th>Time</th>
<th>Activity</th>
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36. If the respondent has got other children, ask:
   How does the baby get along with your other children?

37. What about your husband, does he help with baby?
   Yes  [ ]  
   No  [ ]
   If yes, how often?

38. Could you tell me the sources of income you have?

39. How much money do you spend on food altogether?

40. How much money do you spend on other expenditure?

   [SHOW CARD]
   Clothes   [ ]
   Fuel      [ ]
   Education [ ]
   Domestic services [ ]
   Rent      [ ]
   Light     [ ]
   Transport [ ]
   Food      [ ]
   (1 most spent to 8 least spent)
41. Who makes economic decisions?
   PROBE
   Mother   Father   Together

SECTION THREE - BACKGROUND DATA

House
42. House type: Detached   Semi   Terrace
   >1960
44. Tenure: Owner occupied   Local authority
   Privately rented
45. Bedrooms: Ring number  1  2  3  4
46. Heating: Full central  Part central   Upstairs
   Downstairs
   Other
47. Does anyone else live with you?  Yes  No
   If yes, who?
48. Can I just check on what you've got in the kitchen:
   Cooker   Dishwasher
   Fridge   Washing Machine
   Freezer   Tumble Dryer
   Food Mixer
   Liquidiser
49. Age of housewife < 25   25-35   35-45
50. Housewife's nationality   Iranian   Other
51. Housewife's religion   Islam   Other
52. Respondent's occupation:
   Full time   Part time   evenings
   Homeworker
   Full time housewife
   (If not working now, give details of previous employment)
53. Terminal education age of housewife < 12  15  18  > 22

54. Age at marriage

55. Age at first pregnancy  Age at subsequent pregnancy

56. Husband's occupation
   PROBE: on shift work, irregular hours, commuting very long distances. Anything that means he is/is not with family for long periods.

57. Husband's nationality  Iranian  Other

58. Husband's religion  Islam  Other

59. His age at marriage

SECTION FOUR - GENERAL QUESTIONS

60. Do you like being a mother?

61. Do you like being married?

62. How long have you been in this country?
   < year  2 years  3 years  > 4 years
63. How do you feel about being in another country?

______________________________________________________________________________________________________________________

64. Thinking back to your children, do you have any difficulties with child care and feeding because of being in another country?
PROBE: different life style, food habits, anything else?
______________________________________________________________________________________________________________________

If yes, set out the nature of problems in detail
______________________________________________________________________________________________________________________

65. Interviewer's general impressions on:
House
______________________________________________________________________________________________________________________

Mother and child
______________________________________________________________________________________________________________________

Interview
COMMUNITY DIAGNOSIS OF MALNUTRITION
IN SHAHABAD AREA AND GARAHDOG VILLAGE,
TABRIZ, IRAN

Name of Interviewer

Name and Address of Respondent

Date of Interview
1. About how many children died partly or wholly as a result of malnutrition last year?

2. About how many per cent. of pre-school age children in this area are under weight?

3. How common is Kwashiorkor in this area?
   - Not seen
   - Uncommon
   - Common
   - Very common

4. How many cases were seen in the clinic or health centre/hospital last year?

5. What do you think causes kwashiorkor in this area?

6. How common is Marasmus in this area?
   - Not seen
   - Uncommon
   - Common
   - Very common

7. How many cases were seen in the clinic or health centre last year?
8. What do you think causes marasmus in this area?

9. How often do the mothers bring the children to the clinic?

10. What diseases are there in the district that make malnutrition worse, or made worse by malnutrition?

11. How much interest do the women have on the family planning programme?

12. How successful is the family planning programme in this area?

Finally, a list of factors leading to malnutrition has been shown on the next page. I will be grateful if you can choose some of those factors which you believe are the most important causes of malnutrition in this area.
1. Not enough food
2. Mothers not knowing the best ways of feeding their young children.
3. Bad budgeting
4. Commonness of bottle feeding
5. Inadequate breast feeding
6. Short breast feeding
7. Prolonged breast feeding
8. Families too large for one wage earner to feed
9. Short birth intervals
10. Unemployment of household heads
11. Lack of adequate water supply
12. Inadequate environmental conditions.
13. Wrong beliefs and customs affect the health status of children.
14. The role of advertised foods
15. Broken families

(ring the numbers please)
APPENDIX 3

FEEDING PRACTICES OF PRE-SCHOOL CHILDREN IN NEW URBAN AND RURAL FAMILIES OF IRAN.

Interviewer's Name: ________________________________
Interview Number: _______________________________
Respondent's Address: ________________________________
Date of Interview: ________________________________
SECTION ONE - GENERAL QUESTIONS

To begin with, I would like to ask you a few general questions.

1. Name of the area

2. Place of birth

3. Your last previous residence

4. Duration of residence in Shahabad area

   ___________ months ___________ years

5. Reasons for migration

   search for job
   looking for better job
   education of children
   presence of relatives
   other reasons

6. Would you prefer to go back to your original village?

   Yes
   No

If yes, why?
If No, why?

(Ask questions 4, 5 and 6 of new-urban families only)

7. How many people are there living in your house?

   1 2 3 4 5 6 7 more

   PROBE: Ask about their relationships.

SECTION TWO: CHILDREN

8. How many children have you got?

9. How many boys and girls

   F  M

10. When were they born?

    Day  Month  Year  F  M

    1.  
    2.  
    3.  
11. Number of pregnancies

12. Number of dead children

13. Why did they die?

DATA ON PARENTS

14. Age of housewife

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15. Housewife's nationality
   - Iranian □
   - Other □

16. Housewife's religion
   - Islam □
   - Other □

17. Respondent's occupation:
   - Full time □
   - Part time □
   - Homeworker □
   - Full time housewife □

(If not working now, give details of previous employment).
18. Educational level of mother
   Educated [ ] Illiterate [ ]

   If educated, for how many years? ________________

19. Age at marriage ____________________________

20. Age at first pregnancy _______________________

21. Husband's occupation
   Unskilled worker [ ]
   Semi-skilled worker [ ]
   Skilled worker [ ]
   Others [ ]
   Unemployed [ ]

   (ask the nature of his occupation)

22. Husband's nationality Iranian [ ] Other [ ]

23. Husband's religion Islam [ ] Other [ ]

24. His age at marriage _________________________

25. Educational level of husband
   Educated [ ] Illiterate [ ]

26. If mother is employed, then ask:
   Who looks after the children while you work?
   ____________________________
DATA ON CHILD

27. What was his birth weight? ____________________________

28. What was his condition on birth?

- Normal
- Premature
- Postmature

29. Has the child had any serious illness since he was born?

- Yes
- No

If Yes, what? __________________________________________

30. What vaccinations has he had?

<table>
<thead>
<tr>
<th>Vaccination</th>
<th>Age of child</th>
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31. If his vaccination was not completed, then ask for the reason:

- Mother's ignorance
- Child's illness
- Lack of service
- Other
FEEDING

32. What kind of feeding did he have?

Breast feeding
Bottle feeding

If breast feeding, ask:

33. When did you start to breast feed him?

Soon after birth
Few days later

34. How long did you breast feed him?

Less than 1 month
1 - 5 months
6 - 9 months
10 - 12 months
12 - 18 months
over 12 months

35. Do you feed your girls longer than boys?

Yes
No

If yes, why?

36. What kind of diet did you have during pregnancy?

Same as before
Higher food intake
Lower food intake

Probe: Note any food restriction during pregnancy
37. How did you stop the breast feeding:
   
   Abrupt  
   Gradual  

   If it was abrupt, ask:

38. Which method did you use?
   

39. Did you have any difficulties with breast feeding (flow inadequate)?
   

40. What do you think about the milk which comes from the breasts during the first days?
   
   Probe: local names for colostrum, any type of neonatal feeds and methods of feeding.

41. What is your opinion about breast feeding?
If answer, breast feeding is good, then ask:

42. Why do you think breast feeding is good?

If not breast fed at all, or if breast fed for less than one month, ask:

43. Why didn't you breast feed the baby?

- Physical illness
- Insufficient milk
- Difficulty with nipples
- Mother had to go to work
- Imitation of friends
- Other reasons

44. Has the baby had any illnesses since you have stopped breast feeding?

Yes [ ]
No [ ]

If Yes, then ask:

45. What?

46. Do you usually breast feed your children in the village?

Yes [ ]
No [ ]

47. How long do you normally breast feed your children in the village?
48. What type of artificial milk did you feed the baby with?

- Powdered milk
- Fresh animal milk
- Other

49. What quantity did you use?

__________________________________________

50. The amount of consumed powdered milk per week

__________________________________________

51. Do you dilute the milk?

Yes
No

If Yes,

52. In what proportion?

__________________________________________

Probe: Show the bottle to the mother and ask her to show the real amount.

53. Do you add anything else to baby's milk?

Yes
No

If yes, what?

__________________________________________

54. How many times a day do you feed the baby with artificial milk?

__________________________________________

55. When did you start to bottle feed the baby?

__________________________________________
56. How do you feed him?
   Cup
   Bottle
   Cup and spoon

57. How do you prepare the milk?
   Probe: Ask her to prepare the milk in front of you. Note the techniques of mixing, measuring and utensils used.

58. Do you wash your hands and utensils before preparing the milk?
   Yes
   No
   If yes, why? ____________________________

59. Do you ever boil the bottle and other utensils before preparing the milk?
   Yes
   No
   If yes, why? ____________________________

60. If the mother feeds the baby with fresh animal milk:
   What type of animal milk do you feed the baby with?
   Cow's milk
   Sheep's milk
   Other types
61. When did you start to feed the baby with fresh animal milk?

62. Where do you get the fresh animal milk?
   Probe:
   Pasteurised cow's milk from stores
   Home
   Local milkman

63. Do you boil the fresh animal milk before use?
   Yes
   No
   If yes, why? ________________________________

64. How much fresh milk does a baby drink during the day?

65. Do you normally dilute the fresh animal milk?
   Yes
   No
   If yes, why? ________________________________
   In what proportions? __________________________

66. What do you do with the remaining milk in the bottle?
   Keep it for next feed
   Keep it in a cool place
   Keep it inside room
   Dispose of it
DATA ON WEANING (Supplementary Foods)

67. When did you start to wean the baby?______________________

68. What type of food do you give him?
   - Home made [ ]
   - Ready foods [ ]
   - Both [ ]

   If answer is ready foods, then ask:

69. Why do you prefer ready food?______________________

   If answer is home made, then ask:

70. How much money do you spend on ready foods?________

   If answer is home made, then ask:

71. Who prepares the food?
   - Mother [ ]
   - Grandmother [ ]
   - Someone else [ ]

72. How do you prepare the food?______________________

73. Who feeds the baby?______________________
74. What sort of ingredients does the baby's food consist of?
   1.
   2.
   3.
   4.

75. Do you prepare any special food for baby?
   Yes [ ]
   No [ ]

76. If the baby shares the family's food, then give an idea about the kind of family's daily diet:
   Breakfast
   Lunch
   Supper

77. Where do you get your information about baby feeding and food preparation?
   Your mother [ ]
   Other relatives [ ]
   Friends [ ]
   Doctors [ ]
   Yourself [ ]
   Anyone else [ ]
   (who) [ ]
78. How many times a week can you afford to buy meat and eggs?

79. What proportion of the family's diet does the baby get?
   PROBE: Show the actual spoons and plates.

80. How do you feed the baby?
   - You feed baby with spoon
   - You feed baby with your fingers
   - Baby feeds himself with spoon
   - Baby feeds himself with fingers

81. How many meals does he get a day?

82. Has the baby his own spoon, cup and plate?

83. Do you feed him on demand or at meals?
   - On demand
   - At meals

**ECONOMIC DATA**

84. Could you tell me the source of income you have?
85. How many people work in your family? 

86. How much money do you spend on food? 

87. How much money is spent on the following food stuffs:
   * Bread
   * Meat
   * Vegetables
   * Fruits
   * Soft drinks
   * Dairy products (cheese, yogurt, etc.)

88. How much money do you spend on other items?
   * Clothes
   * Travelling
   * Rent
   * Transport
   * Children's education
   * Fuel
   * Other

89. Does your income meet your expenditure?
BACKGROUND DATA

90. House type: Old [□] Modern [□]

91. Tenure: Owner occupied [□] Privately rented [□]

92. If it is rented, then ask:
   How much rent do you pay a month? (approximately)

93. Number of rooms (ring the number):
   1  2  3  More

94. Number of people sharing a room (ring the number):
   1  2  3  4  5  More

95. Number of people in this house:
   Number of families ____________________
   Total number of people ____________________

96. Is there any separate kitchen available at the house?
   Yes [□] No [□]

   If No, ask

97. Where do you cook your food? ____________________

98. Can I just check what you have got in the kitchen?
   ____________________
   ____________________
   ____________________
   ____________________
   ____________________
99. Sources of water supply

- Piped water
- Private well
- Public artesian well
- Pump well
- Open well

If piped water is not available inside the house, then ask:

100. How far does the housewife carry the water? 

101. What sort of heating facilities have you got? 

102. Toilet facilities:

- Uses toilet facilities
- Does not use

103. Bathing facilities:

- Separate enclosed space in house
- Separate open space in house
- Public bath

104. Type of drainage:

- Covered
- Open

105. Lighting facilities:

- Electricity
- Oil
- Candles
106. Cooking fuel:

- Electricity
- Gas
- Wood
- Charcoal

107. Is there a refrigerator in the house?

- Yes
- No

If no, then ask:

108. How do you preserve your food?

109. Condition of latrine:

PROBE: type, condition, cleanliness, fly-proofing:

110. Do you keep any animals at home?

- Yes
- No

If yes, what?

111. Do you take any advantage of these animals?

- Yes
- No

If yes, in what ways?
112. Is there a garden at home?

Yes [ ]
No [ ]

113. Do you grow any plants?

Yes [ ]
No [ ]

114. What do you do with these items?
__________________________

115. How do you clean fruit and vegetables which will be eaten raw?

__________________________

116. Sources of communication at home:

Radio [ ]
T.V. [ ]
Newspaper [ ]
Magazine [ ]
Nothing [ ]

117. Thinking of your life in general, have you got any problems with regard to child care, feeding and with your own social life in general due to change of mode of life from rural to urban style?

PROBE: sort out the nature of problems and discuss them in depth (ask this question of new-urban families only)

__________________________

__________________________

__________________________

__________________________

__________________________
Interviewer's general impression on:

(a) House


(b) Child


(c) Family


APPENDIX 4

DIETARY FINDINGS

Name of Interviewer

Name and address of respondent

Date of interview
Data on child

1. Name of child _______________________________________

2. Age _______________________________________

3. Sex _______________________________________

4. Condition
PROBE: visibly normal, underweight, malnurished, any signs of disease, etc.

__________________________________________________________________________

__________________________________________________________________________

5. Whether the baby was weaned or not?
__________________________________________________________________________
__________________________________________________________________________

6. Does he share the family's food or has his own special food?
__________________________________________________________________________
Saturday:

1. Breakfast (type of meal, quantity, preparation, portion he gets)

2. Lunch:
   Type of food (local name) __________________________
   Ingredients:
   1. 
   2. 
   3. 
   4. 
   5. 
   Methods of preparation and cooking ______________________

Quantity (the amount of food the baby eats) __________

3. Dinner
   Type of food (local names) __________________________
   Ingredients:
   1. 
   2. 
   3. 
   4. 
   5. 
   Methods of preparation and cooking ______________________

Quantity for child.

*This same form was repeated six times, i.e. one for each day of the week.
Foods eaten between meals

Extra details about food:
APPENDIX 5

Name Sex Age Date Case No.

Food Record for: ____________________________

Local Name of Food; Amount eaten per meal, Ingredients, Preparation (record these details for each food).

BREACKFAST

_____________________________________________________________________

BETWEEN BREAKFAST AND NOON

_____________________________________________________________________

NOON MEAL

_____________________________________________________________________

BETWEEN NOON MEAL AND EVENING

_____________________________________________________________________

EVENING MEAL

_____________________________________________________________________

BETWEEN EVENING MEAL AND BEDTIME

_____________________________________________________________________

FOOD RECORD FOR INDIVIDUAL CHILD PER DAY AS STUDIED IN GARARDOG HOUSEHOLDS

RESEARCHER'S RECORD:

FOOD GROUP AMOUNT EATEN PER DAY/PER CHILD

Milk
Meat, eggs.
Vegetables, fruits
Cereal-bread
Others
Data needed:
Food Record for: ____________________________

Please tell me everything you served your family in one day. Give name of food, how much, tell if food was raw or cooked, if cooked, how?

Researcher's Record
Food Money: _____________________ Rials/per day

Type of diet:
Adequate
Inadequate

Changes Needed:
________________________
________________________
________________________
________________________

RECORDS OF FOODS EATEN BY
FAMILY IN ONE DAY IN STUDIED
GARAHDOG HOUSEHOLDS.
APPENDIX 6

PHOTOGRAPHS

These photographs were taken under conditions of considerable difficulty at the unsettled time of the deposition of the Shah. Educated people were viewed with extreme suspicion by the villagers, except those with whom the interviewer had made direct contact. Out of consideration of the people, photography was kept to a minimum.
Boys at play. Shahabad
Baby care. Shahabad

Toilet facilities. Shahabad.
Nutrition Education Programme. Shahabad.
Typical housing. Garahdog.
Boys at play. Garahdog.

Women at work. Garahdog.
Woman at work. Garahdog.

Baby care. Garahdog.