GENDER BIAS IN INTRA-HOUSEHOLD FOOD DISTRIBUTION AMONG PRIMARY SCHOOL CHILDREN IN DHAKA CITY

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Declaration

This is to certify that, the thesis entitled **"Gender Bias in Intra-Household Food Distribution among Primary School Children in Dhaka City"** submitted by Shajada Akter Khanam in partial fulfillment of the requirements for the award of degree of **Master of Philosophy in Nutrition** has been completed under my supervision.

It is further certified that **Shajada Akter Khanam** has fulfilled all conditions laid down in the Academic Ordinance with regard to the M. Phil. coursework, and that to the best of my knowledge the thesis contains her original research.

11-6-2007

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Dedicated

to

My Babies

Shanila

&

Mehrab

ABSTRACT

A cross sectional descriptive study was carried out among 384 mother-children pairs to understand gender bias in intra-household food distribution. Data were collected from ten government primary schools under four thanas of Dhaka city corporation area. All respondents were mothers and those mothers were selected who have at least two children (one son & one daughter). The major objective of the study was to find out gender bias in terms of food distribution and food intake pattern of boys and girls (6-11years) in intra-households. Malnutrition rates of the girls were observed higher than the boys in all categories of anthropometric status. The prevalence of underweight, stunting, and wasting among boys and girls were 37.5 & 39.0 per cent; 42.1 & 48.3 per cent and 18.5 & 24.0 per cent respectively. On the other hand, according to body mass index (BMI), the respondent mothers were relatively well nourished, about two thirds (61.5%) of them were normal and only 3.1 per cent were moderate to severe malnourished, overweight (19.8%) and obesity (7.3%) were also seen as an increasing problem. More than three quarters (76%) surveyed children were suffering from different types of diseases for the last three months prior to data collection and it was found that prevalence of morbidity were higher in girls than boys. Morbidity of the children, which negatively affects the child growth and development was significantly correlated with the mothers' educational level ($P<0.05$).The lower nutritional status and higher morbidity of girls might be due to gender discrimination in intra-household food distribution and the poor knowledge on health & nutrition of respondent mothers as revealed from their opinion and practice of giving more food to boys.

Most of respondent mothers (62.5%) opined that there is no difference between the boy and the girl child in the society because they thought (56.5%) now a days women are also earning money and helping their parents financially like men. Mothers' knowledge on equal position of boys and girls in the society were strongly correlated ($P<0.01$) with mothers' education and occupation. It was also observed that 79.2 per cent of respondent mothers believed in equal importance

for sending both boys and girls to school. A remarkable difference was found between boys and girls on giving opportunity to play outside. According to the opinion of respondent mothers 83 per cent boys got this opportunity where 46 per cent girls got this opportunity. Furthermore, maximum number (76%) of girl children worked different types of household activities; amongst them 71.7per cent did house cleaning, while only 19.5 per cent boys helped in household activities which were caring goods from shops and gardening.

About half of the respondents (42.8%) thought that boys need more foods than girls for growth. Near about fifty per cent (49.3%) of mothers cooked special foods for their sons whereas only 9.9 per cent mothers did this for their daughters for three days prior to data collection. Food priority pattern of households indicates that if only one egg was available in the family, 39.6 per cent mothers gave it to their sons and only 3.6 per cent mothers gave it to their daughters. On the other hand 36.2 per cent respondent mothers considered milk and eggs as special foods for their sons whereas 16.7 per cent considered these as special for their daughters. At the same time 10.7 per cent mothers thought vegetables were specially needed for girls whereas only 1.6 per cent thought vegetables were specially needed for boys.

One third respondent mothers (65%) opined that equitable distribution of foods in the household among male and female children is important. But their attitude towards equitable distribution of food among their boys and girls were poor (37.2%). About eighty per cent (79.9%) of respondents reserved special foods for their sons whereas 45.8% reserved special foods for their daughters. All types of special foods were more reserved for their sons compared to their daughters. Similarly most of the respondents (58.3%) gave preference to buy more snacks for their male children. Respondents' practice of giving milk to their children regularly indicates that more respondents gave milk to their sons (20.1%) regularly than their daughters (7.8%).

Knowledge on boys and girls need equal foods were strongly correlated ($P<0.01$) with educational qualification of household heads and mothers. On the other hand it was not correlated significantly ($P>0.05$) with the occupation of household heads. Educational qualification of mothers was significantly correlated with equal distribution of foods (e.g. milk or egg) regularly among boys and girls. On the other hand it was insignificant with household monthly income. Reserving any special foods for daughters were significantly correlated with household monthly income and mothers' educational level ($P <0.05$) but in case of sons it was insignificant.

The study thus highlighted various aspects of gender bias in food allocation and other health related activities among study population which are influencing intra-household dietary practices especially with the emphasis on the nutritional status of the girls between 6-11 years of age in selected primary school children of Dhaka city.

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LIST OF ACRONYMS

Gm – Gram(s)

mg – Milligram(s)

cm – Centimeter(s)

Kcal – Kilo-calorie

RDA – Recommended dietary Allowances

SD – Standard Deviation

MAK – Mid arm circumference

WAZ – Weight for Age by Z score

HAZ – Height for Age by Z score

WHZ - Weight for Height by Z score

BMI – Body Mass Index

CED – Chronic Energy Deficiency

et al. – And others ('et alil')

VS – Versus

etc – etcetera

Tk – Taka (1 US $ = Tk 70 approximately)

No – Number

INFS – Institute of Nutrition and Food Science

DU – Dhaka University

Thana – Administrative sub-district

NCHS – National Center for Health Statistics

BBS – Bangladesh Bureau of Statistics

UNICEF – United Nation International children's Emergency Fund

FAO – Food and Agriculture Organization

WHO – World Health Organization

ILO – International Labor Organization

UN – United Nations

DCC - Dhaka City Corporation

CHAPTER ONE

1.1 INTRODUCTION

Gender bias is a world wide phenomenon, and nowhere are the consequences more devastating than the "subsistence economics" characteristics of third world countries.[1] Gender bias in food distribution can be termed as "Disparity of intake of food items between male & female members of the households".[2] The disparity in intake between sexes may be attributed to sex discrimination against females in intra-family allocation of food. Studies concerning sex bias in the family allocation of food also lend support to this. [3,4] Although it is well recognized that in many economically disadvantaged population groups, the male head of the family receives the largest share of family diet in relation to other members of the family e.g. infants, adolescents, pregnant women, lactating mothers and the aged. There are studies that focus on this important socioeconomic cultural aspect.[5]

Differential food practices attribute to higher malnutrition among female children. Most society has dictated that daughters are temporary members of their native homes and women's are considered as non productive members of the family. On the other hand, grown sons have better prospect than grown daughters for income earning work and this may become net contribution to family income. In Bangladesh where son preference is predominant in social and cultural environment, lack of access to education, nutrition and other needs adversely affect physical and psychological growth of female children. Discrimination against females in intra-family allocation of food leads to maternal malnutrition. Malnutrition in female children can cause poor growth or stunt the normal development of the body.

A report showed malnourished, stunted, wasted and under weight is markedly higher among female in comparison with male which indicated sex discrimination against females in intra-family distribution of food. [6] In the UNICEF's annual report 'The State of the World's Children stated that from girlhood to

womanhood, the females of many societies are fed last and least. Malnutrition in girls is much more common than among boys and the fact that, on average, an American woman weights approximately 25 per cent more than an Indian women is to be explained not by race but by food.[7]

A study on sex bias in intra-household food distribution conducted in India indicates that since prehistoric times and is present now as cultural characteristic of diverse social and ethnic groups, generally females especially young female are the group most discriminated against.[8] Another study in Mandhir village, Rawalpindi district, Pakistan also showed that males have higher status and are given priority in food distribution. Hunger 1992 a widely circulated report on world hunger from the private voluntary organization 'Bread of World', states, pregnant and nursing mothers and children from birth to age five have greater nutritional needs than the rest of the population, but they are the least well-nourished people within low-income households in developing countries. Male tend to receive more and better food than females.[9]

In school going age, certain increase of growth occurs with greater increase in their body needs. At this stage, the calorie and protein needs of the girls and the boys exceed their parents' needs. Normally, body building and repairing food should be given more to children. Unless, these high needs for growth are met, their development is delayed.

In Bangladesh, the intake of food is remarkably higher for males in all age groups. Dietary food distribution of pulses and nuts show that pregnant and lactating mothers have less share of food in comparison to other members of the family. They are found to have taken almost no meat in their daily diet in relation to other members of the family, though their requirement of this food at that time is more. The egg intakes among the family members are very much insignificant, leading

to malnutrition. Significant sex biased distribution of fish remains among the family members. Female of all age group consumes less fish than that of their counterpart. Among children and adolescents a higher energy deficiency was associated with lower age groups and the deficiency ranged from 28% to 52% in case of children (male & female). The elder age group of male and females usually consume highest amount of milk and milk products. Normally at this time their protein requirement is less in comparison to other members especially growing children of the family.[10]

Discrimination in food allocation within the family, affect both male and female children in the developing world. Yet cultural traditions, scant economic resources and limited opportunities marginalize young girls. Young boys have better access to health care, nutrition and education. Gender bias is reinforced throughout adulthood as men retain economic and political power. Equality of opportunity empowers women and girls to make knowledgeable decisions about their heath and mothering roles. Adolescents reach adulthood in societies that under value the contributions of women and perpetuate harmful gender stereotypes.[11]

It is clear that in case of food allocation within the family, children, pregnant and lactating mothers are discriminated. As our society is less educated the community and the family did not recognize the special needs of these groups. So it is very much important for familial food distributors to know how to choose and distribute the right kind of foods to right members of family. These various information show that sex bias in food distribution is one of the prime cause of malnutrition among female children and nutritional status of the girl children is thus highly influenced by inter family distribution of food. So the society and the community must recognize the special needs of the intra-familial distribution of food to overcome malnutrition and increase the nutritional status of female children. Nutrition intervention programmes is necessary for food distributors because it can significantly improve the knowledge and attitude of the food distributors regarding intra-familial food allocation.

1.2 OBJECTIVES OF THE STUDY

1.2.1 General Objective

This study will reveal the gender bias in terms of food distribution among primary school children (6-11 years) in Dhaka city.

1.2.2 Specific Objectives

1. To obtain information on the socioeconomic conditions, food behavior and cultural aspects of the study children.
2. To assess the nutritional status of the selected primary school children with anthropometric measurements
3. To assess the nutritional status of mothers of the studied children in terms of body mass index (BMI)
4. To determine the level of knowledge, attitude and practice in terms of intra-household food distribution among mothers of selected primary school children.
5. To determine the interrelationship of various socio-economic and cultural aspects with the nutritional status and food behavior of the studied children.
6. To recommend appropriate nutrition education interventions for improving the current situation of gender bias in food distribution.

1.2.3 Hypothesis

Male children are favored over female children in the intra.–familial distribution of food.

1.3 JUSTIFICATION OF THE STUDY

Malnutrition is widely recognized as a major health problem in developing countries. Growing children in particular are most vulnerable to its consequences.[12] Bangladesh is the least developing countries in the world which represent all the characteristics features of under development. According to UNICEF report 1990 the situation of infant, children and maternal malnutrition in Bangladesh is worst in the world.[13] Different studies in Bangladesh have found that level of malnutrition are significantly higher among girls than boys of same age. A report in Bangladesh conducted among six months to six years children showed that girls were more stunted than boys.[14] A Bangladesh Bureau of statistics report showed 14 percent of female children were malnourished in comparison with only 5% of male childeren.[15]

Preference in parental case, feeding patterns, intra-familial food distribution, treatment of illness are all favourable to male children and as a result possibly, the female death rates and higher than males.[16] When asked regarding food allocation among the children of different sexes, women tend to deny of unequal treatment invariably. But inquiry is made male child preference are expressed by majority of women.[17] In Bangladesh, the intake of foods are remarkably higher for males in all age groups. This disparity of intake of foods reflects the sex discrimination in intra-familial food allocation.[10]

Situation of the girl child in Bangladesh, published by Ministry of Social Welfare, Government of the People's Republic of Bangladesh asserts: There has been progress in recent years in several directions such as improvement in access to safe water, primary education, immunization coverage and sanitary facilities. But over all situation of the girl child remains depressed. The additional disadvantages faced by girls, compared to boys may be summarized as: she is less privileged both inside the home and outside the home; she has fewer opportunities for education; she is nutritionally worse off.; more specifically, life expectancy at birth is lower for girls than boys. After the first few months of a better chance of

survival, child mortality rate (1-4 years) is consistently higher for girls than for boys. The reasons are known: once weaning begins girl babies are given less food than boys, placing them at higher risk of malnutrition and disease. And, parents seem to be slower in seeking medical help for a sick girl. The incidence of acute malnutrition is worse for girls than for boys in all age groups, most girls receiving 20 per cent fewer calories than boys. The health and nutrition status of the girl begins to deteriorate in adolescence.[18]

These various information show that, gender bias in food distribution is one of the prime causes of malnutrition among female children and nutritional status of girl children is thus highly influenced by intra-family distribution of food. Under the above mentioned circumstances, the purpose of this study was to examine the factors responsible for gender bias in food allocation and degree of malnutrition among some selected school going children in Dhaka City Corporation area and to identify discriminatory attitude regarding food allocation in terms of nutritious and comparatively costly food items.

1.4 KEY VARIABLES

The main variables of the study are:

Children

Respondent

Age

Occupation

Educational level

Weight

Height

Nutritional status and malnutrition

Family size

Economic condition

Food behavior

Intra-household food distribution

Gender discrimination

1.5 OPERATIONAL DEFINITIONS

1.5.1 Gender

Gender, briefly explain, refers to the 'ways in which roles, attitude, values and relationship regarding women and men are constructed by societies'.[19] Gender refers to the social differences and relations between men and women which are learned, vary widely among societies and cultures, and change over time. The term *gender* does not replace the term *sex*, which refers exclusively to biological differences between men and women. For example, statistical data are broken down by sex. The term *gender* is used to analyse the roles, responsibilities, constraints, opportunities and needs of women and men in all areas an in any given social context. Gender roles are learned behaviours in a given society, community or other social group. They condition activities, tasks and responsibilities are perceived as male or female. Gender roles are affected by age, class, race, ethnicity and religion and by the geographical, economic and political environment.[20]

1.5.2 Gender Equality

Gender equality means that the different behaviour, aspirations and needs of women and men are considered, valued and favoured equally. It does not mean that women and men have to become the same, but that their rights, responsibilities and opportunities will not depend on whether they are male or female. *Gender equity* means fairness of treatment for women and men, according to their respective needs. This may include equal treatment or treatment that is different but which is considered equivalent in terms of rights, benefits, obligations and opportunities.[20]

1.5.3 Gender Bias

Gender bias is a worldwide phenomenon, and nowhere are the consequences more devastating than the 'subsistence economies' characteristics of third world countries. Women in subsistence economies are the major suppliers of food, fuel and water for their families. Development policies that perpetuate gender bias

contribute to increased poverty as access to productive resources desires for women. Gender bias is the single most important cause of rapid population growth, since where women have little access to productive resources, and little control over family income, they depend on children for social status and economics security. To combat *gender bias*, closes cooperation is needed women's movement.[1]

1.5.4 Food Deprivation

Food deprivation is synonymous with individual malnutrition. *Food deprivation* will inevitably occur if there is food shortage or food poverty, but deprivation also affects individuals in households whose food supply would be adequate were it distributed evenly. *Food deprivation* is significant problems in households where food is adequate as well. Inequitable food distribution creates hunger even when supply is adequate.[21]

1.5.5 Discrimination

Discrimination is the most easily understood reason why individuals go hungry in households with adequate food. *Discrimination* results from some members being deemed more valuable than others. Although, some *discrimination* is a household level manifestation of in egalitarian attitudes pervasive in the society as a whole (e.g. women are less valuable than men, children are not fully human until after their first birthday, elderly people deserve higher honour), other discriminating behaviours reflect economically rational response to adverse circumstances.[21]

1.5.6 Food Poverty

Households that cannot secure control over enough food to meet the needs of all of their members are food poor. There are more food-poor households in food short region; *food poverty* is a significant problem in regions where food is adequate as well. Food deprivation is more common in households where there is food poverty.[21]

1.5.7 Vulnerable Groups

Women and children are often identified as "Vulnerable groups" in the hunger literature. *Vulnerable groups* may be likelier than others to experience hunger. In addition, probable consequences if they do experience hunger may be more serious for vulnerable groups than for others. Whole sets of households for examples the landless, those living in rural areas, those headed by women are sometimes identified as vulnerable.[21]

1.5.8 Respondents

The persons who were interviewed called respondents. In this study all respondents were mothers.

1.5.9 Children

The children of the study constituted available children households having aged up to 6-11 years school going children of both sex.

1.5.10 Family Size

Family indicates those members of the household who normally eat from the same kitchen. The determining question was, what is the size of your family – i.e. those who normally (almost everyday) eat from your kitchen? Information on family size was obtained from the respondent.

1.5.11 Nutritional Status

The condition of the body resulting from the utilization of the essential nutrients available to the body is termed as the nutritional status. The dietary history, clinical examination, anthropometric measurements, biochemical and other laboratory test can measure nutritional status.[22]

1.5.12 Anthropometric Measurement

The technique that deals with different measurements of height, weight and proportion of human body. The anthropometric measurements taken in this study were weight, height, MAC of children and weight and height of respondents. [23]

1.5.13 Stunting

The term is used in the text as shorthand to mean "the level of under nutrition as assessed by the prevalence of Ht /Age < –2 Z-score."

1.5.14 Under weight

The term is used in the text as shorthand to mean "the level of under nutrition as assessed by prevalence Wt /Age < –2 Z – Score."

1.5.15 Wasting

The term is used in the text as shorthand to mean "the level of under nutrition as assessed by the prevalence of Ht /Wt < –2 Z -score.

1.5.16 Knowledge

Knowledge means those item of fact and procedure by which an individual learn to do in a given situation and enough about why it is done to make the procedure meaningful in so far he able to understand it.

1.5.17 Attitude

Closely following knowledge is attitude. Attitude is the behavioral outlook to perception of an individual who thinks that or these to be justified or best opinion in any specific situation.

1.5.18 Practice

In this study, practice deals with intrahousehold food distribution and reserving special foods among male and female children.

CHAPTER TWO

2.1 REVIEW OF LITERATURE

Wheeler identified three complementary views of differential food allocation within the family. They are cultural, resource control and functional. From the cultural point of view, the status of an individual will be reflected in the kind and amount of food eaten and intra-household allocation of food tends to favour the high ranking individual of the family. The resource control view indicates, who has the control of household resources and food budget, will receive priority in food allocation. The functional view of food allocation on the other hand, considers proper food allocation to the most productive members of the family.[24]

'The Nutrition Survey of Rural Bangladesh', revealed that the intake of food was remarkably higher for males than for females in all age groups and the highest intake of food was 1326 gm for male of 20 to 29 years of age. Among females the maximum intake was found to be 898 gm for lactating mothers, which was below the average intake of the boys of 13 to 15 years of age. In milk and milk products male seemed to be highest consumer (45 gm) in 40 to 49 years of age.[10]

Hassan & Ahmed studied intra-familial distribution of food in rural Bangladesh by a nation wide food consumption survey in selected rural locations between January 1981 and June 1982. Efforts were made to determine actual food and nutrient intake in relation to daily recommended allowances of various demographic groups within the family. Observation was made to see adequacy and inadequacy of nutrients intake. This study also revealed the major nutrient gaps for specific categories of family members. The dominance of cereals in the diet of females compared to male diets is noticed. The average intake of meat in the intra-family survey was calculated to be 7 grams per person per day. Its consumption was highest (7 gms) by adult males 20-39 years old. Older women (70 years and above) and pregnant as well as lactating women were found to have

eaten no meat. A sharp sex differential was found to exist to fish intake. Females of all age groups had a lower intake than males. Among women fish intake was recorded to be lowest among lactating mothers. Per capita male calorie intake consistently exceeded that of females in all age groups, overall, males averaged 2,277 calories per capita is comparing to 1,849 calories for females. This may again be attributed to sex discrimination against females in intra-family allocation of food. The interfamily data show that average intake of calcium, iron and vitamin C of males appeared to be higher than that of females and children. Interestingly none of the females met the requirement. This implies that children and mothers are ought to be directed towards improving their nutrition.[25]

Gopaldus T., Saxena K. and Gupta A. studied the intra-familial distribution of food in 78 male heads of families of Rathwakali tribe and their household members in Chhotaudepur, Guzrat, India. The "head" (moderate worker) was found to be in positive nutrient intake except for retinol and ascorbic acid, receiving the lion share of the family diet. The only 2 nutrients in which he was deficient were retinol (29%) and ascorbic acid (62%). His intake was marginally deficient in energy (90%), adequate in calcium (105%) and much above the requirement of protein (183%) and iron (152%). The other members of the family toddlers, preschooler, school children, adolescents, pregnant, lactating women and elderly (above 55 years) received proportionately less. The toddler (1-3 years) received about one third of his father consumed in the way of protein and iron, less than half in the case of energy and retinol, and about half to two thirds with respect to calcium and ascorbic acid. When compared to his RDA, the toddler was found to be deficient in energy. He obtained approximately 2/3rd of his requirement of calcium, iron and ascorbic acid but was extremely deficient in retinol when compared to the nutrient intake of the head. The pre-schooler (4-6 years) obtained only 30% of calcium and retinol, about 40% of protein and about half of calories of the heads intake. It is observed that children (7-12 years) received approximately two thirds of what the head received respect to calories, iron and ascorbic acid, approximately 60% or more respect to protein

and retinol and a little over 80% in respect to calcium. The adolescents (13 to 18 years) got approximately 90% of the of energy, iron, ascorbic acid and retinol and 114% of calcium. The elderly age group obtained over 70% of the nutrient share in relation to the intake of the head in all nutrients except calcium.[5]

The effects of contribution rule on food distribution are the frequently observed under feeding of girls compared to boys. Sex differences in nutritional status and probably in food distribution within the household, may be due to the perceived utility or the potential contribution of children. Differential feeding and care of male and female child is based on the relative value of males and females in a society and the perceived long range utility of sons and daughters. In societies, sons are expected to find urban jobs and send money home. In other societies where dowry and bride price are significant this may influence the perceived value of children. In Nepal, for example, women s' families must expend substantial amounts on dowries. That's why female children are neglected in Nepal.[26]

Abdullah and Wheeler. described the individual food intake and body weights in 53 rural Bangladeshi households at 4 seasons. Energy and protein intake (kcal/kg/day) showed significant seasonal differentiation for adults and young children (1-4 years).Energy intake of women and children were expressed as a portion of the male household heads, to give an indicator of food allocation. Women and older children's proportional energy intake remained constant through out the year and in lined with expected values, young children's proportional intake was low, girls being the lower than the boys.[27]

SueSchofield showed that the effects of food shortage coinciding with other seasonal variables, such as labour inputs, which create heavy energy demands specially for the section of population already vulnerable to the effects of food distribution. These includes pregnant and lactating females and pre-school children specially in the age group of 0 to 24 months.[28]

Chen LC., Rahman M. & Sarder A.M. showed in "Epidemiology and causes of death among children in rural area of Bangladesh" that most causes of death displayed seasonal fluctuations and sex differentials were marked with female death exceeding male deaths for all ages after the neonatal period. These sex-differentials may be due to social and cultural reasons in a traditional society where male children preferences are strong and where the role and status of women is inferior. The mortality differentials may reflect the reduced child care, food intake and other health practices for female children.[29]

D'Souza S. & Chen LC. have demonstrated in their study, the evidence of higher female deaths than male deaths from shortly after birth through the child bearing age in a rural area of Bangladesh. The study showed that male deaths exceed female deaths in neonatal period, but these differentials were reversed in the post neonatal period. Higher female than male deaths continued through childhood into adolescent and extended through the reproductive age. Higher level of female deaths is maintained in the 5-44 years age group. Preference in intra-familial food distribution is a possible cause of such higher level of female deaths.[16]

Chen LC., Huq E. & D'Souza S. examined the validity of the hypothesis that some preference in parental care, intra-familial distribution of food, feeding practices and utilization of health services are some of the behavioural mechanisms by which sex-biased attitudes may have lead to the observed high female death pattern. The researchers in depth showed that sex-biased health and nutrition behaviour discriminates against female children and thereby causing an aberrant female predominance in the childhood death rates.[17]

In 'SAMATA' Bangladesh Decade Action Plan for the Girl child, 1991-2001, Ministry of Social Welfare, Government of People's Republic of Bangladesh, in their article 'Situation of the Girl Child in Bangladesh' asserts: there has been

progress in recent years in several directions such as improvement in access to safe water, primary education, immunization coverage and sanitary facilities. But the overall situation of the girl child remains depressed, dependent as it is on simultaneous progress in an inter-related cluster of basic goals related cluster of basic goals relevant to all children. The additional disadvantages faced by girls, compared to boys may be summarized as follows – she is less privileged both inside and outside the home, she has fewer opportunities for education, she is nutritionally worse off, she has a lower degree of personal safety. More specifically, life expectancy at birth is lower for girls than for boys. After the first few months of a better chance of survival, child mortality rate (1-4 years) is consistently higher for girls than for boys, placing them at higher risk of malnutrition and disease. And parents seem to be slower in seeking medical help for a sick girl. The incidence of acute malnutrition is worse for girls than for boys in all age groups, most girls receiving 20 per cent fewer calories than boys. The health and nutrition status of the girl begins to deteriorate in adolescence.[18] The same report states, girls have traditionally lagged behind boys in basic education. 50 per cent of girls enroll in primary school, compared to 70 per cent of boys; Only 10 per cent of girls (10-14 years) attend school, compared to 23 per cent of boys; one out of four boys are in secondary school compared to only one out of 10 girls; only three out of 1000 women are professionally employed. The same report revealed that, forty per cent of all girls are engaged in household work (compared to a negligible number of boys), yet they are reckoned in official statistics as, economically inactive. In spite of several laws restricting child labour, labour participation of girls (10-14 years) has increased, while the participation of boys has declined.[18]

The importance of nutrient intake in the development literature stems from its role as a determinant of economic growth and welfare via its link with productivity and deprivation. The article analyses nutrient intake in rural India and provides evidence on its determinants in selected Indian states. Of particular interest is the analysis of gender bias in nutrient intake. The estimation results show that there is

considerable heterogeneity in the experience of various Indian states and between various age groups. For example while Kerala and Maharashtra record significant gender bias in the intra-household allocation of nutrients to adults in the age group 18-60 years, the bias occurs in the younger age group of 11-17 years in case of Haryana. None of the selected states records significant gender bias in the allocation of nutrients to young infants (0-5 years). The result of this study suggests that the conventional expenditure based poverty rates. Underestimate poverty considerably in relation to those based on minimum levels of calorie intake recommended by the Indian planning commission. Finally the results also show that the use of age and gender invariant 'minimum' calorie levels overestimate poverty in relation to those that recognize their variation between indivduals.[30]

Chen LC. has demonstrated in his study that among the children of under 5 years of age male hospitalization exceeds female hospitalization, which reflects a possible reflection of sex biased in child care and provides sex preference in intra-familial food allocation.[31]

Chen LC., Chowdhury AKMA., & Huffman SL. in their study showed that severe malnutrition is associated with as much as tenfold higher risk of child deaths. Discrimination of food allocation inside the family again showed the female deaths higher in the family.[32]

'Bangladesh Bureau of Statistics Report' (1997-98) showed 14% of female children were malnourished in comparison with only 5% of male children. The per cent of the stunted girls (57.6%) and boys (54.8%); wasted girls (9.5%) and boys (6.8%) and head circumference were low, 17.6% for the girl and 11.5% for boys.[33]

Mitra A.K., Rahman M.M., and Fuchs G.J. studied risk factors and gender differentials for death among children. To identify risk factors for death among children with diarrhoea, a cohort of 496 children, aged less than 5 years, admitted to the intensive care unit of a diarrhoeal disease hospital in Bangladesh, was studied during November 1992 to June 1994. Clinical and laboratory records of children who died and of those who recovered in the hospital were compared. Females experienced a 2-fold higher risk of death than males (P=0.003). Several indices of severe infections were identified more frequently among females than males. Females with severe infections were less frequently brought to the hospital than their male counterparts. The time lapse between onset of symptoms and hospital admission was significantly higher in females than males. This study suggests initiation of programmes to alleviate social disparity between genders for health care in poor communities.[34]

Biswas A.B., Chakraborty I., Das D.K., Biswas S., Nandy S. and Mitra J. studied a community based; cross sectional study. The study conducted among 2,392 school children, aged 8-10 years in Malda district of West Bengal, India, in January 2001 to assess their status. The prevalence of goitre was assessed clinically using the standard palpation method and a total goitre rate of 11.3% was found with no significant gender difference (P>0.05).[35]

Bhuyan M.A.H., Mahajabeen S,-E, Rahman S.M.M. and Mannan M.A. in their study "Gender Bias in Intra-Household Food Distribution" showed that Food security particularly intra-household food distribution is one of the important contributing factors for nutritional status of the family members. Report shows that there is considerable variation in the distribution of food items among the family members. The study conducted in 1996-98, a total 208 household having children of 3-5 years age. Study report showed that all rural respondents reserved special food items for their husbands. Rural women (62%) took their meals after male members. Positive associations were fond in reserving special food items for

their sons with literacy of respondents. Reservation of special food items for their daughters with monthly household income was highly significant (P<0.001). Having nutritional knowledge of the respondents, no association was found in reserving special food items for their sons. Women in the family should be sensitized to ensure that the girl children and mothers of childbearing age group should be given fair share of all food items like their male counterparts.[36]

Gittelsohn J. in 1992 showed in a poor rural Nepalese community that women were less likely to achieve recommended levels of some nutrients than men at the same age.[37] In the same year *Begum J.A. and Haque A.A.S.M.* studied on health and nutritional status of girls in rural Bangladesh found that 30.36% girls and 12.36% boys were with in the range of 70-80% of the Harvard Standard.[38]

Male preference starts before birth. In china in the late 1980's women who already had one son were twice as likely to seek an abortion for a subsequent pregnancy as women who had only daughters.[39] In South Korea, nearly 80,000 female fetuses were aborted between 1986 and 1990, about 5 per cent of all female births.[39] In china, unwanted children put up for abortion are three times more likely to be girls.[40]

Parental education, particularly the fathers' education, appears, to have very little effect on dietary intake and dietary adequacy of pre-school children in rural Bangladesh. However, the mothers' education has a positive effect on protein intake and the protein adequacy ratio for pre-school children as a whole. Mothers' education has a significant and positive effect on calorie intake of children in the first year of life.[41]

Young women face educational inequities. In Morocco, 56 per cent of girls aged five to fourteen are illiterate.[42] The female literacy rate as a percentage of the male literacy rate is 28 per cent in Sudan, 39 per cent in Somalia, 46 per cent in Cambodia and 75 per cent in Guatemala.[43]

Gender bias pervades school texts. In Moroccan primary school texts, the majority of pictures depict women cooking, mothering, cleaning, marketing, fetching water and milking cows. In 53 texts examined, women appeared dressed traditionally forty times but in work cloths only four.[42]

Economic, political and legal policies perpetuate lower states of women. In Java, girls spend 33 to 85 per cent more our per day working at home and in the market as boys the same age.[44] Most of women's time is spent in the non-wage economy, creating a social misperception that women's work has no economic value.[1] In parts of East Africa, women work up to 16 hours a day in the home, and grow 60 to 80 per cent of the family food.[45]

Choudhury K.K., Hanifi M.A., Rasheed S., and Bhuiya A. showed in 'Gender inequality and severe malnutrition among children in a remote area of Bangladesh' that, Bangladesh typifies many south-eastern countries where female children experience inferior health and uncertain survival, especially after the neonatal period. Measurements of MUAC were taken from 2,016 children aged less than 5 years (50.8% male, 49.2% female). It was seen that 33% children were severely malnourished. Of the severely malnourished children, 54.2% were female, 45.8% were male. The gender gap persisted in the multivariate situation with female 1.44 times more likely to be severely malnourished. The persistence of such a gender discrimination now when the country has achieved a lot of in terms of child survival is striking. The issue is important and demands appropriate corrective action.[46]

Although almost all nations show lower female than male mortality, Bangladesh and certain other developing countries show higher female mortality rates. Among children aged 1 to 14 in Bangladesh, female mortality rates are 45% higher for girls than for boys. The study measured weight and height of approximately 1400 children aged 1 to 14 in Bangladesh from April 1975 (10 months after the famine began) through December 1976 (14 months after the famine ended). The findings clearly indicate that sex and social status are strongly correlated of nutritional status. Children of higher status families with larger homes fared better throughout the time period. Within each status category, boys fared better than girls. While poor families were harder hit by famine than weather one's male-female nutritional discrimination was stronger among the higher classes. These differences were accentuated during the famine period. Policy makers and planners in Bangladesh must be made aware that such sex biases exist and these patterns are exacerbated during food shortages.[47]

Sabir N.I. and Ebrahim G.J. studied on both class and gender pattern of food allocation. Their study involves data from a household survey of 151 poor households located in a squatter settlement of Lahore, Pakistan. The sample comprises mostly laborer and artisan households. The authors report a tendency for longer breast feeding of boys than girls. Boys in general are heavier than girls. More girls than boys are significantly wasted, as well as both stunted and wasted; more girls than boys had arm circumference measures of less than 12.5 cm in the age group 12-24 months. More girls than boys had died. In the study population there were 407 boys and 384 girls, yielding a juvenile sex ratio of 106 which is high but not exceedingly high.[48]

Cowan B. and Dhanoa J. presents dietary data by social status. Data were gathered in rural Punjab through home visits and two-day recalls of individual food consumption among a sample of both "underprivileged" and "privileged" households in the late 1970s. The study included 911 index children in their

second and third year of life. The authors repeatedly note that underprivileged girls are 'at the highest risk' of malnutrition. This is certainly true in terms of the number of female underprivileged children with second and third degree malnutrition as a per cent of all female under privileged children. Reported percentage of malnourished privileged boys and girls were 8% and 28%; underprivileged malnourished boys and girls were 20% and 45% respectively. This data in terms of male female disparity within social class highlights the risks to female children.[49]

Das Gupta M. conducted an intensive survey of 400 sample households (about 2400 people) in the Ludhiana area of Punjab in 1984. Consumption data on food, education, medical expenses, clothing, and leisure were gathered every two months over one year. Excess female mortality is most marked for daughters born after another daughter. Comparison of mortality rates by class between daughters born after another daughter and sons born after another son reveals a higher proportion of girl to boy deaths among the landed: 74 male and 119 female, yielding a gender ratio of mortality of 1.6 girls to 1.0 boys. Among the landless, there were 112 male deaths and 160 female deaths, yielding a ratio of 1.4 girls to 1.0 boys. Again, rates of mortality are higher for both females and males among the landless, but the *disparity* between female and male rates is greater among the landed[50]. The same study revealed that although both sexes receive the same number of calories, girls are given more cereals, while boys receive more high valued milk and fats. For sons, expenditure on medical care in the first two critical years of life is more than two times higher than for daughter.[50]

Pettigrew's findings also come from rural Punjab, but they are based on a single village study conducted over a 10 month period from 1980-1981 by a cultural anthropologist. *Pettigrew's* findings reveal intra-household discrimination against daughters. She provides several examples of mothers breastfeeding two children, and in all cases of mixed gender offspring, the boy was fed first. Examples are

from rich, average, and poor households, implying that there are no distinct class patterns. She mentions gender differentials in weaning: supplementary milk is not willingly supplied for girls but is more likely to be provided for boys. No class differences are mentioned. *Pettigrew* states that "the child neglect detailed in this paper was a consequence of poverty, relative to low socio-economic status" and a consequence of the "antithetical relationship within the household between mother-in-law and daughter-in-law". Further, she comments that while Jat; (usually a propertied group) farmer families did not welcome daughters; their daughters "...did not suffer from lack of food and near starvation as did certain female children in labourer families". At the end of the paper, she offers the following statistics: "of the six children in 3rd degree malnutrition (4 girls and 2 boys) all except one girl were from labouring families and of the 18 children who were healthy according to the Harvard International Standard, only 2 came from labouring households". And. finally: "Level of income and ownership of land are thus the important variables in child health", meaning that low income and lack of land are associated with daughter disfavor.[51]

Levine studied long-term participant observation in three villages of ethnic Tibetans in northwestern Nepal forms the backdrop to intensive interviews about child care conducted with 10 men and 10 women in I982--I983. Infant boys are given supplementary food sooner than girls and mothers more frequently voiced concern about the adequacy of their milk for boys. The reported time for supplementation is earlier for boys in only two of the three villages. But in all villages the average disparity is not great in Ladog 6.0 months for boys, 6.9 months for girls; in Rongphug. 3.8 months for boys and 4.2 months for girls; in Giyaling. 0.9 months for boys and 1.0 months for girls.) In terms of class differences, *Levine* informs that "Members of wealthy households voice wishes for relatively more sons and daughters and experience fewer drawbacks in having them. Thus, perhaps more sons and daughters are equally well cared for in wealthy households. Another hint comes from the village differences: son preference appears to be more apparent in Ladog than in the other two villages.

Son preference is more marked in Ladog than in the other two villages, though in none of these three villages are its effects very strong in creating gender differences in health outcomes.[52]

Gittelsohn J. provides a detailed study of intrahousehold food allocation, including attention to quality and quantity of food, the food serving process, decision-making about food selection and preparation, allocation to members of both genders and all age groups, and data on economic standing of the households. This study was conducted over one year during 1986-1987, among a sample of 115 households (767 individuals) in six villages of rural western Nepal. Methods include participant observation, direct meal observation followed by dietary recalls, and after-meal measurement of food serving utensils. The result document a variety of mechanisms by which some individuals are favored over others through household food distribution, including serving order, serving method, refusing to severe foods, channeling foods are substituting low status foods for high status foods. No differences were observed in mechanisms of food distribution or nutrient intake between male and female children, contrary to evidence in the literature suggesting that male children will be favored. On the other hand, adult women were less likely to meet their nutrients requirements for energy, beta-carotene, riboflavin and vitamin C than men of the same age. Women's late position in household serving order, channeling of special food to males and children and lower total intake of food accounts for these findings. [53] The same study revealed that small children of both sexes have top priority in serving order. There is a little difference between males and females up to 10 years of age. After 10 years, male serving order scores remain fairly constant, while female scores decrease with age. In the toddler group (one to three years), breastfeeding occurs more frequently for boys than girls. Female scares increase somewhat with old age, reflecting the increased status of elderly women in the household. These differences in mean serving score for adolescents and adults by sex are significant.[53]

Basu A. et. al gathered data on gender bias in food allocation among several "tribal" groups (Lepchas, Sherpas) of the Darjeeling district which is a Himalayan district of West Bengal state, low-caste Oraon migrant tea laborers in the foothills in Jalpaiguri district, and a landed caste, the Mahi-syas. in the Midnapur district divided into high, medium, and low economic subgroups. [54] The method involved one-day recall of dietary intakes for household members as reported by the wife/ mother in the household. Needs of each household member were calculated according to age, sex, and activity. The only evidence of bias in favor of males was found among the upper economic subgroup of the Maaisyas. In contrast, bias in favor of females was found among the Lepchas. and "nonsignificant" bias in favor of girls was found among the low and medium status Mahisyas. "Mixed" results appeared among the Sherpas, and no sex biases appeared among the Oraons. A limitation with this study is that the results are not desegregated according to age groups.[54] In the case of the upper status Mahisyas, there is gender discrimination against females at some significant stages of the life-cycle, if not for the under-10s, then in the adolescent years as seems common in the Himalayas, Eastern India, and Bangladesh.[55]

Sen A. and Sengupta S. studied in two villages in Birbhum district, West Bengal state, India. They examined the nutritional status of children under the age of five years (no date is provided for when the research was conducted). This study has inferential value for the topic of intrahousehold food allocation but offer no direct data on intrahousehold dynamics because it did not include research on food allocation. The two villages in the study differ on several measures. Kuchli has been through a land reform program, has higher overall nutritional levels and greater gender bias in nutritional status with a higher ratio of malnourished girls to boys than Sahajapur. Sahajapur has a larger proportion of tribals (Santals), and no land reform program, but it does have a nutrition intervention program aimed at the Santals, and a lower ratio of malnourished girls to boys.[56]

An ethnographic study conducted in a West Bengal village in eastern India provides relevant class-disaggregated information on child caring practices and some notes on feeding (this study did not involve nutritional assessments). The evidence consistently indicates favoritism toward sons in higher-caste groups: men and boys are served first at a family dinner, and they are served the best of every dish, especially milk, fish, and eggs. Girls are told, "The boys need more for their health. A sister should be affectionate to her brothers and feed them well".[57]

Warrier's research in three West Bengal villages of two different districts (Midnapur which is more developed and Purulia which is less richly documents class/caste patterns of food allocation. Boys are nursed for a longer duration than girls in all caste groups. The greatest gender disparity in duration of breastfeeding, with boys being favored, is found among the propertied families of Midnapur. Among these people, male babies on average are breastfeed for 30 months and female babies for 18 months.[58] *Warrier* notes an important nutritional support for boys among the Scheduled Castes in both villages: many of the younger women nurse other women's babies, but more frequently boys than girls.[58] *Warrier* reveals class patterns in feeding practices after *Mukhe bhatt*, the ceremony of "first solid food". Among the landed Mahisyas, breastfeeding of girls after this ceremony is greatly reduced and sometimes stopped completely. For boys, the amount of breastfeeding time declines, but not as markedly. When children are about two years old, their regular diet is established. Among landed families, boys are led puffed rice with milk while girls receive tea without much milk or with watered-down milk. Girls are also fed *panta bhatt* leftover rice soaked in water), something which boys are never fed. At lunch, first servings are quite equitably distributed but the "choices" pieces of fish go to the boys. Notably, girls do not get second servings, while their brothers do. Among the landless group, "...discrimination in food allocation appears less severe than among the upper castes, especially in nuclear household". Although there are cases where, if some fish is available, it is given to boys, these people explained their generally

equitable distribution pattern like this: "girls and boys are working equally hard and they get whatever they can depend what we have to give them" [58].

Many careful studies conducted in the Matlab research area of Bangladesh provide detailed nutritional status information, but only a small subset contains information on both gender and social class of the children involved. In one study, literacy of mothers is demonstrated to affect positively the nutritional status of boys[59].If literacy can stand as a proxy for "upper class" (Which is highly likely), then one might infer that intrahousehold bias in favor of sons is greater in upper status groups in the Matlab area.[59]

Two other sources on Bangladesh provide information on the relationship between education and gender patterns of child survival but say nothing directly on possible nutritional interactions. Analysis of nationwide data from the 1975-76 'Bangladesh Fertility Survey' found that proportions of infant and child female deaths increased with maternal education.[60] In contrast, a study of neonatal and infant mortality in northern Bangladesh, using 1982-1983 data, found no sex differences in neonatal/infant mortality and no relationship between maternal education and neonatal /infant mortality.[61]

Anthropometric measurements of weight-for-age are the basis for an analysis of gender differences in child nutrition during a situation of "food crisis" in rural Bangladesh. *Bairagi* says: "For children in rural Bangladesh, food intake is likely to be the main component determining weight-for-age".[62] Data were gathered at the Matlab field research site in 1975-1976 in 12 villages for children aged one to four (about 1400). The period of 1975-1976 included a time of severe food scarcity (April-October, 1975) which *Bairagi* compares to a non-crisis period (April-October, 1976). The crisis situation adversely inflected the nutritional status of both female and lower socioeconomic class children. Concerning

household of higher socioeconomic status, this study points up an unexpected relationship between socioeconomic status on the one hand and sex differentials in the nutrition of children on the other. An improvement in household resources undoubtedly raised the nutritional status of all children, but it benefited males more than females. While the male-female difference in nutritional status found in this study is not totally unexpected, the wider difference among the high socioeconomic status group was both surprising and disturbing .[62]

The data for this study come from a sample survey conducted in Panchmahals district, one of the most "backward" areas of Gujarat state in western India. A random sample of 46 villages was selected within which all households, children up to the age of six years and their mothers were surveyed. Weight-for-age was taken for 4223 children. The non-laboring (propertied) category of the sample population included 1008 boys and 1000 girls which yields a balanced sex ratio of 101. In the laboring (unpropertied) category, the sex ratio is again balanced since there are 1109 boys and 1101 girls. The study claims that, overall, girls have a "significantly better nutritional status than that of boys". There were no sex differences in the effect of selected variables on weight-for-age. That is, the same factors explained variability in both boys and girls (such as mother's nutritional knowledge, size of family, birth order). In households with per capita monthly income less Rs. 65 the child sex ratios is 98, while the households with monthly per capita income Rs. 65 and above the child sex ratio is 108. This difference indicates that better-off households obtain more living sons than daughters[63].

A rich source of quantitative data on children's nutrient intakes in relation to several other variables comes from the ICRISAT VLS (Village Level Studies) Panel Data Set.[64,65] The panel began in 1975 with the selection of two villages in three semi-arid tropical areas in central and south-central India, two in Maharashtra and four in Andhra Pradesh. Within each village a random sample of 40 households was chosen and then stratified into four groups (three levels of

landholding and one landless). Individual 24-hour recall dietary data from these villages were collected four times between 1976 and 1978. Anthropometric data on weight, arm circumference, triceps skin fold thickness and height were also recorded. All these data were standardized according to the Hyderabad higher income group age-specific standards which are at about the 50th Harvard percentile.[64]

Most of the analysis that *Behrman*[64] *and Behrman and Deolalikar*[65] discuss deals with the population as an aggregated unit, but some indications of class differences appear. During the non-lean season gender discrimination in food allocation is not apparent, while in the lean season boys are favored.[64] In considering the effects of landholding class, caste, and education of the household head, only the last of these affects son preference in food allocation. Households with more educated heads, so the estimates suggest, basically favor boys more in the lean season and favor them less in the surplus season. On the average, they do not exhibit much different sex preference than do those with less educated heads, but it is more prevalent when food is scarcest.[65]

Nilsson L. and Nycander L. conducted a study in two fishing villages one in Andhra Pradesh and the other in Tamil Nadu, offer hints about child nutrition patterns. The basic findings on child nutritional status by class are recorded, but the interpretation of possible class differences is limited by the fact that the authors present their data first by gender and then by economic class, with no cross-tabulation. In Rajaram puram (in Andhra Pradesh), the rate of under nutrition did not differ between the sexes.[66] In Injambakkam (in Tamil Nadu), however, female child malnutrition is more prevalent than male child malnutrition. There were a few more girls than boys among the stunted children. About half the girls in the village were undernourist.[66]

Pandey A. et al in their follow up observational study examined gender disparities in seeking health care and in home management of diarrhoea, acute respiratory infections, and fever among 530 children (263 boys and 267 girls) aged less than five years in a rural community of west Bengal, India, from June 1998 to May 1999. Of 790 episodes detected by a weekly surveillance, 380 occurred among boys and 410 among girls. At the household level, girls were less likely to get home fluids and oral dehydration solutions (ORS) during diarrhea. Qualified health professionals were consulted more often (P=0.0094) and sooner for boys than girls (8.3 $\pm$ 4.5 hours vs. 21.2 $\pm$ 9.5 hours), for which parents also travelled longer distances (3.3 km for boys vs. 1.6 km for girls). Expenditure per treated episode (Rs. 76.76 $\pm$ 69.23 in boys and Rs. 44.73 $\pm$ 67, in girls) differed significantly (p=0.023). Results of logistic regression analysis showed that chance of spending more money was 4.2 times higher for boys. The boys were 4.9 times more likely to be taken early for medical care and 2.6 times more likely to be seen by qualified allopathic doctors compared to girls. Persistence of gender disparities calls for effective interventions of correction [67] .

Jahan and Hassan studied the nutritional status of children among the 100 households in a village of Narayngonj district between 1988-89. The study indicated that the children were mostly deficient in calorie (54 per cent), protein (49 per cent), vitamin-A (77 per cent) and riboflavin (73 per cent). About 70 per cent children were either wasted or stunted or both. Almost all of them (98 per cent) were found to suffer from various degrees of malnutrition, 49 per cent of the children were anemic and vitamin A deficiency disorders were more severe than those of 1981- 82 survey.[68]

Deviation from the normative sex-pattern of infant deaths is so large in Egypt that nearly 1/3 of female deaths can be attributed to a sex specific cause lesser care of the female child. This article reports on child neglect which may account for the relatively lower survival rate of the female infant, despite its biological advantage over the male.[69]

Between June 1988 and June 1989, a study of 164 case-control pairs, 1-4 years old, in the Maternal and Child Health-Family (MCH – FP) area in the Matlab of Bangladesh was conducted to examine risk factors of clinical marusmas within gender and age groups. 73% of marasmus cases were females 12-23 months old. Overall, higher maternal education was associated with reduced risk of marasmus; however, this was only statistically significant for boys and for children 18 months or older.[70]

From IFPRI – Gender and Intrahousehold Aspects of Food Policy – Research results in 1998, Bangladesh it was found that pre schoolers appear to be favored in the intra-household distribution of food, particularly pre school boys who receive a disproportionate share of animal and fish products, which are the most expensive sources of energy and account for a high percentage of foods purchased at the margin as income increases. Adult women tend to receive disproportionately lower shares of preferred foods. Although the energy intakes of adult women are, of course, substantially greater than those of preschool children (a multiple of about two) consumption of animal and fish products is about equal between adult women and preschool boys.[71]

Hassan N. and Ahmed K. studied the nutritional status of 1108 children of Dhaka City aged 0-12 years which was assessed by measuring Wt/Age, Wt/Ht and Ht/Age from 11 locations. Only 12% of children were found to have normal Wt/Age and 58% considered as suffering from malnutrition of 2nd and 3rd degree. Wt/Ht was normal in 39% and 21% considered as wasted. Almost 47% stunted, when stunting and wasting are combined, 47% of children could be considered normal and 12% had severe malnutrition.[72]

Bangladesh Bureau of Statistics (BBS) conducted four national level child nutrition survey during 1985-86 [73] , 1989-90 [74] , 1992 [75] and 1995-96 [76]. In the

first survey of 1985-86 [73] it was observed that more than 56.1% of the children in Bangladesh 6-71 months of age were wasted. According to second children nutrition survey of Bangladesh 1989-90 [74] using Gomez classification, 6.8% suffered from 3rd degree malnutrition. Another 47% can categorized as suffering from second degree malnutrition, while only 6.6% can be considered normal in terms of their nutritional status. According to child nutrition survey of Bangladesh 1992 [75] , it was found that only 31% of all children between 6-71 months of age could be classified as not malnourished. The remaining 69% of the children are victims of malnutrition. The total prevalence of stunting was 84.2%. According to child nutrition survey of Bangladesh 1995-96[76] 24.2% of all children (under 6 years) were severely stunted (–3SD and below) and 27.2% were moderately stunted (–2.99 to –2SD).The total prevalence of stunting was 51.4 per cent which was significantly lower than the 1992 prevalence. In the cross classification of stunting and wasting 40.3% wasted, 43.1% stunted and 8.2% both stunted and wasted. [73, 74, 75, 76]

Ivanovic et al studied on the nutritional status of school children in poverty condition from urban and rural areas in Chile. Wt/Age, Ht/Age, Wt/Ht were measured in a representative sample of 4509 school children. Children coming from rural areas had significantly higher percentage of under nutrition than children from urban areas according to Wt/Age (47% vs. 34%) Wt/Ht (7.7% vs. 4.7%) and Ht/Age (10.3% vs. 5.2%).[77]

Karim, et al conducted study among the urban primary school children and showed that according to the weight for age 41 per cent of the children were nutritionally normal, 39 per cent of the children were moderately malnourished and 20 per cent of the children were severally malnourished. Accordingly to Waterlow criterion 51 per cent of the children were nutritionally normal, 15 per cent nutritionally stunted, 33 per cent of the children were nutritionally wasted and 2 per cent of the children were both nutritionally stunted and wasted.

According to Gomez criterion 13 per cent of the children were normal, 49 percent of the children suffered from 1st degree malnutrition, 35 per cent of the children suffered from 2nd degree malnutrition and 3 per cent of the children suffered from 3rd degree malnutrition.[78]

Aryea N. and Dev R. in their study found that, nutrient deficiency especially PEM were more predominant among the children of illiterate mothers. Consumption pattern was better in children with literate mother as compared to children of illiterate mothers. The consumption of milk and milk products, fruits, sugar and juggery were significantly greater in children with literate mothers.[79]

Malnutrition is widespread in Bangladesh and has long been a public health problem affects all sectors of the community, particularly infants and young children who have higher nutritional requirements. In Bangladesh, as in many other developing countries, poverty, ignorance and social taboos negatively affect the food intake of girls and their mothers. While these women most often acquire and prepare food for the household, they usually eat last and least. Tasked with household chores and burdened with repeated pregnancies from early adolescence, young wives and mothers suffer most from the serious consequences of nutritional insufficiency. [80]

A study on the nutritional impact on sex biased behaviour showed that South Asian female children were less well than male children during childhood in regard to health care and in intrahousehold feeding decisions. The reasons for this bias against girls are complex and often rooted in cultural practices which are created disparities in educational and outside employment opportunities. The comparative discrimination against females in health and nutrition, starting in childhood is reflected in girls anthropometric status; the combination of the measurements of a child's weight height and MAC with age, all provide direct

evidence that girls are systematically worse off than boys. Clearly sex biased behaviour is not an isolated phenomenon. The nutritional impact of gender bias is evident by the anthropometric indicators in terms of season, age, landholding and mother's education. In depth analysis also shows that birth order is another important factor leading to sex discrimination. It is imperative that nutrition and comprehensive development programs not only treat the symptoms of under nutrition but also address the social attitudes and norms which lead to systematic gender discrimination.[81]

The most common nutritional problems in women, especially the poor, is chronic energy malnutrition (CED).Women below the age of 20 and above the age of 34 are most likely to suffer from CED. In these women, there is a strong rural-urban differential, with CED much more prevalent among rural women. The prevalence of CED among women of Bangladesh, as revealed by studies of different organizations, has decreased in rural areas from 76 per cent in 1992 to 45 per cent in 2000. The prevalence of CED decreased from 62 per cent to 35 per cent in urban areas over the same period of the time [82].

CHAPTER THREE

3.1 METHODS AND MATERIALS

3.1.1 Type of Study

The study was cross- sectional and descriptive in nature.

3.1.2 Determination of Sample Size

The Sample size was calculated by using the following formula:

$$n = z^2pq /d^2 = 384$$

$$= (1.96)^2 \text{ X } 0.5 \text{ X } 0.5 / (0.05)^2$$

$$= 3.8416 \text{ X } 0.25 / 0.0025$$

$$= 384.6$$

$$= 384$$

Here,

n = Sample size (Required number of children)

P = Prevalence rate (Expected rate 0.5)

Q = (1-P) = (1-0.5) = 0.5

d = 5% level of confidence interval (set at 0.05)

= 0.05

Z = 1.96; Value of the normal variable

which is equal to 1.96 at 95% confidence level of significance.

3.1.3 Formulation of Questionnaire

A mixed (Semi-structured and open) questionnaire was prepared in accordance with the study objectives. The questionnaire included the following areas:

- Socio-economic information
- Anthropometric measurement
- Health and clinical information
- Knowledge & attitude about gender discrimination
- Gender bias in intra-household food distribution
- Intra-household food behavior & cultural aspects

And after making necessary modifications, a final questionnaire was developed. The finalized questionnaire is given in appendix.

3.1.4 Standardization

A code Questionnaire was constructed. Prior to the study, Questionnaires were Pre tested to 30 mothers in shantibagh primary school and after making necessary modifications a final Questionnaire was developed. Questions were mostly closed type, a small number of Questions were however, left open.

3.1.5 Methodology

Data was collected from almost the entire population in a cross sectional manner by the investigator covering 10 Government primary school of Dhaka city corporation area during the month of October 2005 to April 2006. Three hundred and eighty four mothers with at least one primary school going children aged 6 years to 11 years who were studying in class 1 to 5 were included in the study. The mothers were the respondents. The respondents were interviewed using the Questionnaires. Among 384 study children 192 were girls and 192 were boys'.

Anthropometric measurements such as age, height, weight and MAC of children and Height and Weight of respondents were taken. These measurements of children were graded according to Gomes classification, Water low classification and Welcome classification. BMI of respondents were determined and were graded to CED & Obesity.

3.1.5.1 Locations

The study was conducted in primary schools of Dhaka City Corporation (DCC) area. Ten Government Primary School were randomly selected under 4 thanas of Dhaka city corporation area. Schools were selected under Dhanmondi thana, Mohammadpur thana, Lalbag thana and Mirpur thana.

3.1.5.2 Description of the Locations of the School

Data was collected from 10 schools under 4 thanes of Dhaka City Corporation area. The table shows the names of those schools and number of Samples (male & female children) collected from there.

Table: Distribution of names, sample size and locations of schools

Name of the Thana	Name of the School	Male n (%)	Female n (%)	Total n (%)
Dhanmondi	Dhanmondi No.1 Govt. Primary School	12 (3.1)	32 (8.4)	44 (11.5)
	Zigatola Govt. Model Primary School	26 (6.8)	18 (4.7)	44 (11.5)
	Moneshor Govt. Primary School	22 (5.7)	22 (5.7)	44 (11.5)
	Rajmoshuri Govt. Girls Primary School	0 (0.0)	38 (9.9)	38 (9.4)
Mohammadpur	Mohammadpur Ideal Govt. Primary School	10 (2.6)	26 (6.8)	36 (9.4)
	Banghabhandhu Govt. Primary School	10 (2.6)	24 (6.3)	34 (8.9)
Lalbagh	BDR Govt. Primary School	20 (5.2)	14 (3.6)	34 (8.9)
	Azimpur Ideal Govt. Primary School	16 (4.2)	18 (4.7)	34 (8.9)
Mirpur	Sher-E-Bangla Govt. Boys Primary School (Morning)	38 (9.4)	0 (0.0)	38 (9.4)
	Sher-E-Bangla Govt. Boys Primary School (Day)	38 (9.4)	0 (0.0)	38 (9.4)
	Total	192 (50)	192 (50)	384 (100)

3.1.5.3 Consent

Verbally the consent of school authority was taken. After explaining the purpose and objectives of the study, consent from the respondent mother's was also taken.

3.1.5.4 Collection of Anthropometric Data

i. Weight:

Weight of the children and respondent mothers were taken. A bathroom scale was used to record the weight of the subjects. The balance was standardized every day before use. The weight was recorded on standing position in the weighing machine on bare foot and with light clothes. The arms were made to hang loosely at the body sides.

ii. Height:

Height of children and respondent mothers were measured with a specially made portable wooden frame (graduated in centimeter) on a platform with a sliding head piece. During the measurements, subjects were bare footed in standing position and the measurements were taken to the nearest 0 .1 cm.

iii. MAC:

MAC was measured using specialized tape designed for the purpose. The left arm was made hanging freely while the upper arm was measured by a measuring tape placing it gently and firmly around the mid point between acromion process and olecranon process of the ulna avoiding compression of the soft tissue.

iv. BMI

For assessment of adult nutritional status and subsequent classification, the widely accepted index is the body mass index (BMI). The index is calculated by dividing the individual's weight (kg) by the square of his or her height (m); i.e. weight/height^2 in metric units.[82] The ratios are listed below:

BMI	=> 40 kg/m^2	= morbidity obese
BMI	= 30-40 kg/m^2	= obese
BMI	= 25.0-29.99 kg/m^2	= overweight
BMI	= 18.5- 25.0 kg/m^2	= normal
BMI	=<18.5 kg/m^2.	= malnourished
BMI	= < 16.5 kg/m^2.	= severely malnourished

v. CED

The term chronic energy deficiency (CED) has also been introduced based on BMI with different degrees of CED parallel both the Gomez classification for PEM in children and the grades of obesity. The most common nutritional problem in women, especially the poor, is chronic energy deficiency (CED). CED is calculated by measuring height (height> 145 cm) as well as BMI, though the latter is more widely used (WHO,1995).[83] The ratio are listed below :

BMI	=>18.0 kg/m^2	= CED grade 0
BMI	= 18.4-17.0 kg/m^2	= CED grade I
BMI	= 16.9-16.0 kg/m^2	= CED grade II
BMI	=<16.0 kg/m^2	= CED grade III

3.1.5.5 Anthropometric Indices

Anthropometric indices of weight-for- age, height-for-age, weight-for-height are used to assess the degree of under nutrition. These indices are expressed as, Z-scores which are a measure of a child's weight or height in comparison with the distribution of the weight or height of a reference population of well-nourished

children of the same age and sex.[84] Z-scores of weight-for-age, height-for-age, and weight-for-height capture the degree to which a child is underweight, stunted or wasted, respectively. Children who have z-scores less than -2 standard deviations below the reference median are classified as undernourished. Wasting reflects current nutritional status or undernutrition. As stunting takes some time to develop, it reflects past nutritional status or chronic undernutrition. Underweight does not distinguish between chronic and acute undernutrition because a child may be underweight due to stunting and \ or wasting.

The calculation of height for age Z (HAZ), weight-for-age, Z (WAZ), weight-for-height Z (WHZ) scores are shown below:

$$HAZ = \frac{\text{(Observed height) – (Medium height of reference for given age and sex)}}{\text{Standard deviation of reference.}}$$

$$WAZ = \frac{\text{(Observed weight) – (Medium weight of reference for given age and sex)}}{\text{Standard deviation of reference.}}$$

$$WHZ = \frac{\text{(Observed weight) – (Medium weight of reference for given height and sex)}}{\text{Standard deviation of reference.}}$$

3.1.5.6 Indicators of Child Malnutrition

Stunting, wasting and underweight are the typical indicators used to assess the nutritional status of children under the age of 10 years.[85]

Stunting:	Height-for-age	up to -2SD	= Normal
	Height-for-age	< -2SD to -3SD	= Moderate
	Height-for-age	< -3SD	= Severe

Wasting:	Weight-for-height	up to -2SD	= Normal
	Weight-for-height	< -2SD to -3SD	= Moderate
	Weight-for-height	< -3SD	= Severe

Underweight:	Weight-for-age	up to -2SD	= Normal
	Weight-for-age	< -2SD to -3SD	= Moderate
	Weight-for-age	< -3SD	= Severe

3.1.5.7 Classification by Percentage of Reference Median:

The most commonly classification of malnutrition is the well-known Gomez classification[86] Gomez classification categories children into the first, second and third degrees malnutrition. Gomez classification of Weight-for-age defines the three degrees of PEM on the basis of percentage deviation from the reference median, using arbitrary cut-off points as described below:

Weight-for-age	= 89.9- 75.0% of reference median	:	First degree
Weight-for-age	= 74.9 – 60.0% of reference median	:	Second degree
Weight-for-age	= Less than 60% of reference median	:	Third degree

The major difficulty of this classification is that in most countries correct ages of children are not known. In order to overcome this difficulty Waterlow proposed a two way classification.[87]

Height-for-age	90-94% of reference median	: Mild stunted
Height-for-age	85-89% of reference median	: Moderate stunted
Height-for-age	<85 of reference median	: Severe stunted

Weight-for-height	80-89% of reference median	: Mild wasted
Weight-for-height	70-79% of reference median	: Moderate wasted
Weight-for-height	<70 of reference median	: Severe wasted

3.1.5.8 Clinical Assessment:

Clinical observations of children were performed by examining physical condition. The investigator looked for different signs and symptoms of nutritional deficiencies and recorded the condition in the respective place of the Questionnaire.

3.1.6. Data Analysis

Each questionnaire was checked manually and necessary editing was made. Then the raw data were coded. The coded data were entered into computer in dBase program. Then the data were again transferred to statistical Package for the Social Sciences (SPSS/PC+) program and necessary statistical analyses were performed .SPSS was employed to analyze the data. Microsoft excel was used for graphs and charts.

3.1.7 Limitations of the Study:

While collecting the data regarding the age of the respondents own and children, the investigator had some difficulties as they had no birth records and most of the respondent mothers couldn't remember the date of birth of the child. So the interviewer had to use some indirect methods for calculating the age of the child such any festival or after some political or natural disaster or school record to set their actual age.

CHAPTER FOUR

4.1 RESULTS

A total number of 384 mother- children pairs were included in this study to obtain the main objective - any type and extent of gender bias in terms of food distribution and food intake pattern of boys and girls (6-11 years) in intra - household. The salient features of the findings are shown in tabulated and figurative form with brief description which is presented in seven (7) sections namely:

4.1.1 Background information

4.1.2 Socio-economic information

4.1.3 Health and clinical information

4.1.4 Information on nutritional status

4.1.5 Knowledge, attitude and practice on gender discrimination

4.16 Intra-household food behaviour and cultural information

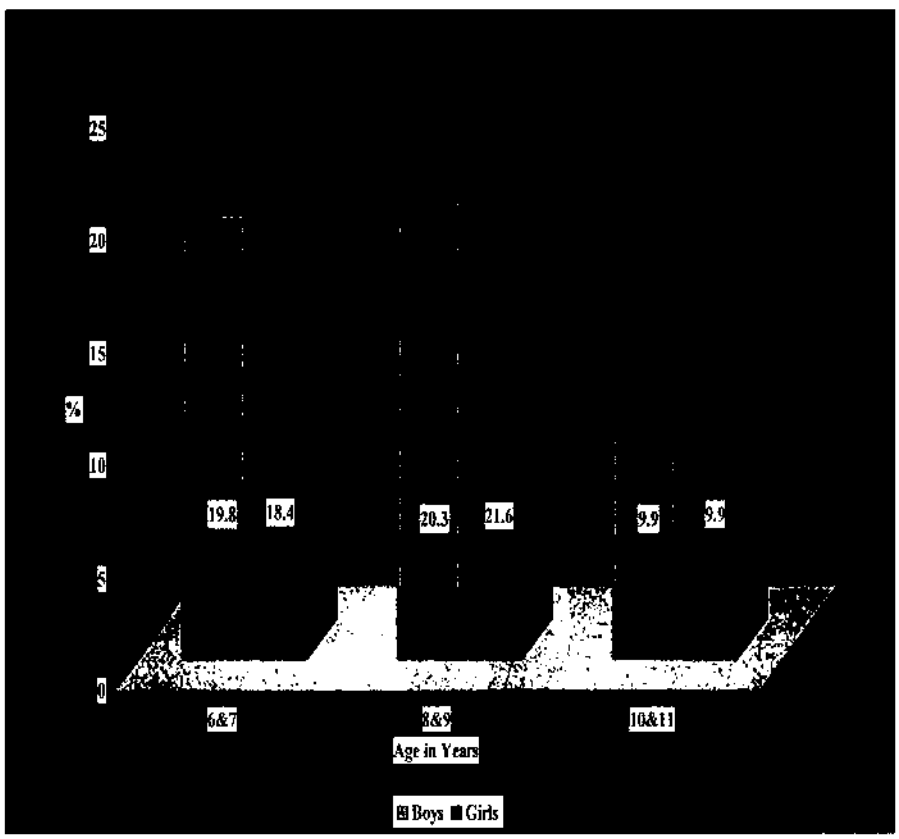
4.1.7 Gender discrimination in food distribution

4.1.1 Background Information

Distribution of the respondents' age, sex, marital status, educational qualification, religion , family size and children's age, sex, birth order, schooling etc. were considered as background information.

Figure-1

Distribution of Children according to Age & Sex (N=384)



The per cent distribution of children according to age & sex is shown in figure-1. As per study objectives it is seen that, almost equal number of boys and girls were in 384 studied children (192 male &192 female children). Of them, the figure shows that approximately equal number of boys and girls resided in three age ranges. About half of them (41.9%) were 8-9 years old, 38.2% were 6-7 years old and 19.8% were 10-11years old.

Figure-2

Distribution of Children according to Class & Sex (N=384)

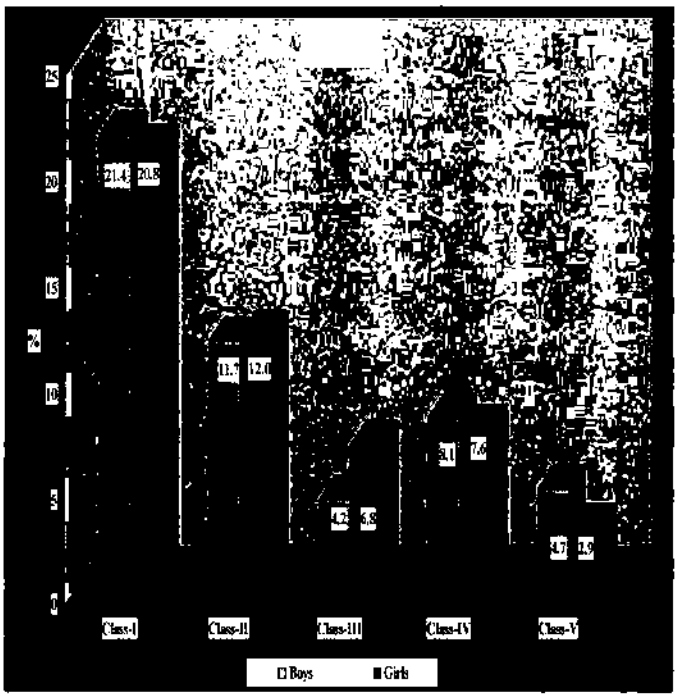


Figure-2 shows the distribution of children according to class & sex and it indicates that about half of the study children read in class- I (Boys 21.4%, girls 20.8 %). Although class represents the major portions (42.2%), student of class-II, Class- III, Class-IV and Class-V represent 23.7 per cent (boy 11.7 & girl 12.0%) 11.0 per cent (boy 4.2% & girl 6.8%), 15.7 per cent (boy 8.1% & girl 7.6%) & 7.6 per cent (boy 4.7& girl 2.9%) respectively, which indicates almost similar proportion of boys and girls read in the same class.

Table-1

Distribution of Years of Schooling of Children

Years	Sex		Total
	Boys n (%)	Girls n (%)	n (%)
1	**87 (22.7)**	**81 (21.1)**	**168 (43.8)**
2	46 (12.0)	49 (12.8)	95 (24.8)
3	19 (4.9)	27 (7.0)	46 (11.9)
4	22 (5.7)	22 (5.7))	44 (11.4)
5	18 (4.7)	13 (3.4)	31 (8.1)
Total	**192 (50)**	**192 (50)**	**384 (100)**

Table-1 shows distribution of years of schooling of children by sex. It indicates that 43.8 per cent children (22.7% boys + 21.1% girls) go to school for one year whereas 24.8 per cent (Boys 12.0%, girls 12.8%), 11.9 per cent (Boys 4.9%, girls 7.0%), 11.4 per cent (Boys 5.7%, girls 5.7%) and 7.6 per cent (Boys 4.6%, girls 3.4%) children go to school for last two, three, four and five years respectively.

Table 2

Distribution of Respondents by Religion

Religion	Frequency	Percentage
Islam	360	93.8
Hindu	24	6.2
Total	**384**	**100**

Table-2 shows that more than ninety percent (93.8%) of respondents were Muslims and only 6.2% were Hindus.

Table 3

Distribution of the Child by birth order in the Family

Birth order of the child	Sex		Total n (%)
	Boy N (%)	Girl n (%)	
First	90 (23.4)	84 (21.9)	174 (45.3)
Middle	46 (12.0)	41 (10.7)	87 (22.7)
Last	56 (14.6)	67 (17.4)	123 (32.0)
Total	**192 (50)**	**192 (50)**	**384 (100)**

Table-3 shows the distribution of the child by birth order in the family. Among 384 children, majority (45.3%) was the first baby of their parents, 22.7 per cent were in middle position and 32 per cent of them were the last baby of the family. But by sex wise distribution, the proportion of boys and girls were quite similar. First position of boys and girls were 23.4 per cent and 21.9 per cent. Similarly the middle & last position of boys and girls were 12.0 per cent & 10.7 per cent and 14.6 per cent & 17.4 per cent respectively.

Table- 4

Number of Male Child by Number of Female Child Cross Tabulation

		No. of female child				Total
		1	2	3	4	
No. of male child	1	206 (53.6)	39 (10.2)	28 (7.3)	2 (0.5)	**275 (71.6)**
	2	63 (16.4)	14 (3.7)	4 (1.1)	2 (0.5)	**83 (21.6)**
	3	16 (4.2)	6 (1.6)	0 (0.0)	0 (0.0)	**22 (5.7)**
	4	0 (0.0)	0 (0.0)	2 (0.5)	0 (0.0)	2 (0.5)
	5	2 (0.5)	0 (0.0)	0 (0.0)	0 (0.0)	2 (0.5)
Total		**287 (74.7)**	**59 (15.4)**	**34 (8.9)**	**4 (1.1)**	**384 (100.0)**

Table-4 shows the cross tabulation of male child and female child. It indicates that among 384 families, 206 families have equal number of boys and girls that means families have single pair (one boy and one girl) children, and 14 families have double pair (two boys and two girls) children.

Table- 5

Distribution of Respondents*by Age

Age in years (Range)	Frequency	Percentage
25-29	148	38.5
30-34	**201**	**51.8**
35-39	30	7.8
40-44	5	1.9
Total (25-44)	**384**	**100**

***All respondents were mothers**

Table-5 shows majority (51.8%) of respondents' age were between 30 – 34 years. As per study objectives only those mothers were chosen who have at least two children (both son and daughter).

Figure-3

Educational Qualification of Respondents

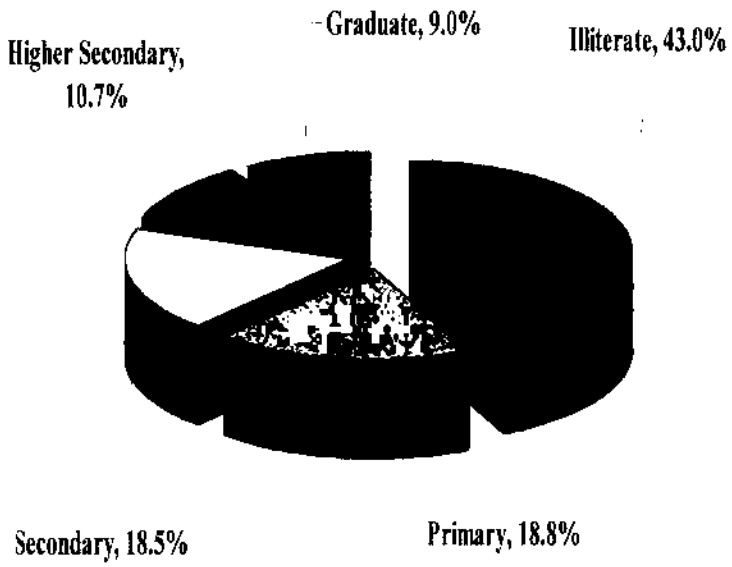


Figure-3 shows that considerable numbers of mothers (~ 62%) were illiterate (43.0%) or primary educated (18.8%). This indicates that their educational qualification was poor, which might have affected nutritional status of the study children as well as make them gender bias. On the other hand, only 9.0 per cent respondent mothers were graduates whereas, 10.7 per cent and 18.5 per cent were higher secondary and secondary educated.

Table-6

Distribution of Respondents by Marital Status

Marital Status	Frequency	Percentage
Married	**333**	**86.7**
Widow	16	4.2
Divorced	15	3.9
Separated	20	5.2
Total	**384**	**100**

Table-6 presents the marital status of respondents. It indicates that 86.7 per cent respondents were married and the percentage of widow, divorced and separated were 4.2, 3.9 and 5.2 per cent respectively.

Table-7

Distribution of Households by Family Size

Family size	Frequency	Percentage
3-4	129	33.6
5-6	**182**	**47.4**
7-8	53	13.8
>8	20	5.2
Total	**384**	**100**

Table-7 shows the distribution of households by family size and it indicates approximately fifty per cent households (47.8%) consist of 5 to 6 members and one third of households (33.6%) consist of 3 to 4 members which proves a greater per cent of families were nuclear families. On the other hand only 5.2 per cent families consist of more than eight members.

Table-8

Distribution of Households by Family Head

Family head	Frequency	Percentage
Father	**327**	**85.2**
Mother	22	5.7
Father-in-law	16	4.2
Others	19	4.9
Total	**384**	**100**

Table-8 presents the distribution of households by family head and indicates almost all (85.2%) household heads were fathers whereas only 5.7 per cent household heads were mothers. In some cases (4.2%) fathers-in-laws were household heads.

Table-9

Distribution of Decision Makers of the Family

Decision maker	Frequency	Percentage
Father	**204**	**53.1**
Mother	18	4.7
Both father & mother	133	34.6
Father-in-law	17	4.5
Others	12	3.1
Total	**384**	**100**

According to Table-9 fathers (53.1%) play an important role in decision making in the families whereas the percentage of the mothers in decision making was only 4.7per cent. But in good number of families (34.6%) both father and mother share in decision making. Again father-in-law took decisions in 4.5 per cent families.

Table-10

Distribution of Decision Makers by Educational Level

Educational level	Frequency	Percentage
Illiterate	89	23.2
Primary	58	15.1
Secondary	115	29.9
Higher Secondary	58	15.1
Graduate	64	16.7
Total	**384**	**100**

Table-10 presents the distribution of decision makers by educational level in the family which indicates about one-forth (23.2%) were illiterate and 15.1 per cent were primary educated. On the other hand, 29.9, 15.1 and 16.7 per cent were secondary, higher secondary and graduate respectively.

4.1.2 Socio Economic Information

Table 11

Occupation of Respondents' Own and Household Head of the Family

Occupation	Respondents' Own % (n)	Household head % (n)
Govt. Service	5.2 (20)	**30.9 (119)**
NGO Service	3.6 (14)	15.1 (59)
Business	1.0 (4)	24.4 (94)
Drivers (Engine driven)	-	12.1 (47)
Living abroad	-	6.7 (26)
Others	7.6 (29)	10.1 (39)
Housewife	**82.6 (317)**	-
Total	**100 (384)**	**100 (384)**

According to Table-11 only 17.4 Per cent respondent mothers were occupied in different works and the majority of the respondent mothers (82.6%) were housewives. About fifty per cent (46.0%) of household heads were occupied in various government and non government services. Among them 30.9 Per cent of the household heads were in Govt. service and 15.1 Per cent in NGO service. On the other hand, 24.4 Per cent household heads were businessmen respectively. Again 6.2 Per cent household heads were living abroad and 12.1 Per cent household heads were drivers. On the other hand, 10.1 Per cent household heads were in other jobs such as rickshaw pullers, carpenters, day labors etc.

Table-12

Major Sources of Household Income

Major sources	Frequency	Percentage
Only husbands' income	**290**	**75.5**
Only self income	18	4.7
Both husband & self income	24	6.3
Both husband & other family member income	28	7.3
House rent	9	2.3
Other family members	15	3.9
Total	**384**	**100**

Table-12 shows the distribution of major sources of household income and it indicates about three-quarters (75.5%) of household income depended on only husbands' income and self income of respondents were 4.7 Per cent. In only 6.3 Per cent families both husbands and respondents shared in family income.

Figure-4

Distribution of Respondents by Monthly Income, Expenditure and Expenditure on Food

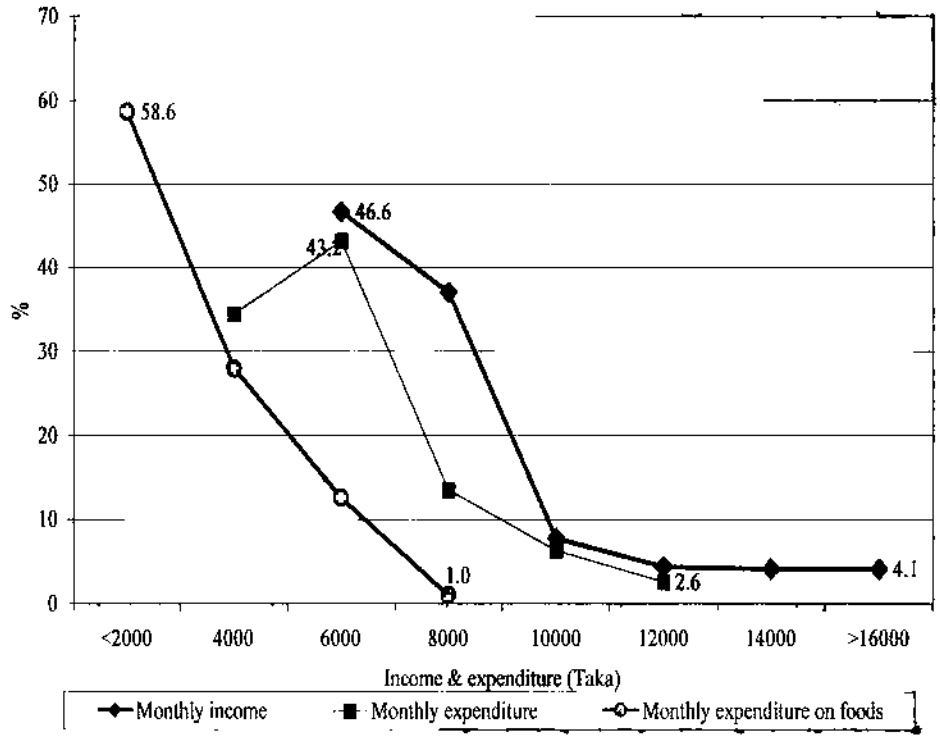


Figure 4 shows monthly income, expenditure and expenditure on foods of households. About fifty per cent (46.6%) of households' monthly income was 4000-6000 taka and the highest monthly income was 16000 taka or above which was found only in 4.1 per cent respondent households. Most of the households' (43.2%) total monthly expenditure were 4000 – 8000 taka. Again 34.4 Per cent households spend below 4000 taka per month, whereas only 13.5, 6.3, and 2.6 per cent households spend 8,000 – 12,000 taka,12000 -16000 taka, and above 16000 taka per month respectively. On the other hand, household monthly expenditure on food were very poor, most of them (58.6%) spend only taka 2,000 or below per month on food . Again 40.4 per cent households spend 2000- 6000 taka and only one per cent households spend above 6000 taka per month on food.

Table-13

Loan and Saving Conditions of Households

Responses	Loan n (%)	Savings n (%)
Yes	118 (30.7)	160 (41.7)
No	258 (67.2)	210 (54.7)
Non response	8 (2.1)	14 (3.6)
Total	**384 (100)**	**384 (100)**

Table-13 shows the distribution of loan and saving conditions of households. More than forty percent (41.7%) of households have own savings whereas 30.7 per cent families have got into debt.

Table-14

Housing Status of Households

Housing status	Frequency	Percentage
Own house	30	7.7
Rented house	**264**	**68.8**
Government house	46	12.0
Stays in other's houses	26	6.8
Others	18	4.7
Total	**384**	**100**

According to Table-14 more than two- thirds (68.8%) of the families were living in rented houses and only 7.7 per cent in their own houses. Besides this, 12.0 per cent of the families were living in Government quarters and 6.8 per cent household's members were residing in other's house.

Table-15

Housing Conditions of Households

Housing conditions	Frequency	Percentage
Brick house	**175**	**45.6**
Brick wall with tin roof	152	39.6
Timber wall with tin roof	25	6.5
Bamboo wall with tin roof	24	6.2
Others	8	2.1
Total	**384**	**100**

Table-15 shows the distribution of the housing conditions of the living places and it indicates that 45.6 per cent of families were living in brick built houses and 39.6 per cent were living in brick wall with tin roof houses. Besides this, 6.5 per cent and 6.2 per cent of the families were living in timber wall with tin roof and bamboo wall with tin roof houses respectively.

4.1.3 Health and Clinical Information

Table-16

Morbidity of Children in the Last Three Months

Responses	Frequency	Percentage
Yes	**292**	**76.0**
No	92	24.0
Total	**384**	**100**

Table-16 shows the morbidity rate of the surveyed children in last three months and it indicates the rate of morbidity was more than three quarters (76%).

Figure-5

Types of Different Morbidity Rate and Suffering Times (days)

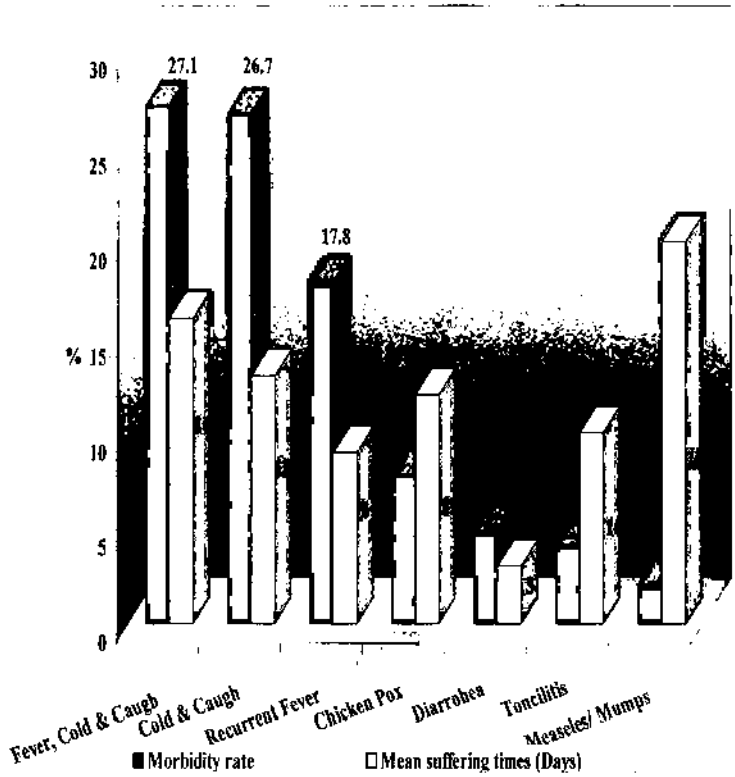


Figure 5 shows the types of different morbidity rate and suffering times (days) of study children. It indicates fever, cold and cough were the major causes of illness (27.1+ 26.7 = 53.8%) and recurrent fever (17.8%) was also a big cause of morbidity. Besides this the studied children were suffering from chicken pox, diarrhea, toncilitis and measles/ mumps and the rate of morbidity were 7.8, 4.8, 4.1 and 2.0 per cent respectively. On the other hand, the mean suffering times of diseases fever-cold-cough, cold-cough, recurrent fever, chicken pox, diarrhea, toncilitis and measles/mumps were 3 days to 20 days (16, 13, 9, 12, 3, 10 and 20 days respectively).

Table-17

Distribution of Children by Clinical Status

Clinical status	Boys[+] n (%)	Girls[+] n (%)
Gum swollen	36 (18.75)	54 (28.13)
Dental carries	29 (15.10)	35 (18.23)
Tongue: red & glossitis	19 (9.90)	25 (13.02)
Visible thyroid gland	1 (0.52)	5 (2.60)
Skin lesion	20 (10.42)	24 (12.5)
Eye Problems*	91 (47.40)	97 (50.52)
No sign & symptoms	59 (30.73)	24 (12.5)

[+] Equal numbers (192 of each group) of boys and girls.

*** Eye problems include light sensitivity, Shade tears, itching, Xerophthalmia.**

Table-17 shows the distribution of clinical status of children in the last three months. Clinical manifestations of children that have been examined were gum swollen, dental carries, tongue glossitis, visible goiter, skin lesion, eye problems etc. And these problems of boys & girls were 18.75 & 28.13 per cent; 15.10 & 18.23 per cent; 9.90 & 13.02; 0.52 & 2.60; 10.42 & 12.5 and 47.40 & 50.52 per cent respectively. It was also found that, there were no clinical signs and symptoms in 30.75 per cent boys and only in 12.5 per cent girls. It also indicates, the rates of all diseases in girls were more than boys.

Table-18

Pearson Correlation between Educational Levels of Respondents and Morbidity of Children

Educational level of respondents	Morbidity in children			Pearson Correlation Sig. (2-tailed) (n=384)
	Yes (%)	No (%)	Total (%)	
Illiterate	157 (41.2)	8 (1.8)	165 (43.0)	-0.015*
Primary	60 (15.9)	12 (2.9)	72 (18.8)	
Secondary	62 (16.7)	9 (1.8)	71 (18.5)	
Higher Secondary	9 (1.8)	32 (8.4)	41 (10.7)	
Graduate	4 (1.0)	31 (8.1)	35 (9.1)	
Total	**292 (76.0)**	**92 (24.0)**	**384 (100.0)**	

* Significant at 95% confidence interval (P<0.05)

Table 18 shows Pearson correlation between educational levels of respondents and morbidity in children. Educational level significantly affect the child morbidity at 95% confidence interval (P<0.05). It indicates if the educational level of mothers increases, it decreases the morbidity rate of children. In case of illiterate and primary educated mothers, the rate of morbidity of children were 41.2 and 15.9 per cent whereas in case of graduate mothers it was observed only 1.0 per cent respectively.

4.1.4 Information on Nutritional Status

Table-19

Age, Weight, Height and Mid Arm Circumference (MAC) of Children

Measurements	Range	Mean ±SD
Age (Years)	6-11	8.0 ± **1.5**
Weight (Kg)	13.0-38.0	20.6 ± **5.0**
Height (Cm)	91.0-142.0	118.0 ± **13.5**
MAC (Cm)	13.0-24.5	16.9 ± **1.9**

Table -19 shows the age, weight, height and mid arm circumference (MAC) of the children. The mean age of the children was 8 years and standard deviation was ±1.5 years and the age range was 6-11 years. The mean weight of the children was 20.6 kg (SD ±5.0 kg), the mean height of the children was 118.0 cm (SD ±13.5 cm) and mean MAC was 16.9 cm (SD ±1.9 cm) respectively.

Figure-6

Graphic Representation of Anthropometric Status based on Weight-for-Age of Boys and girls

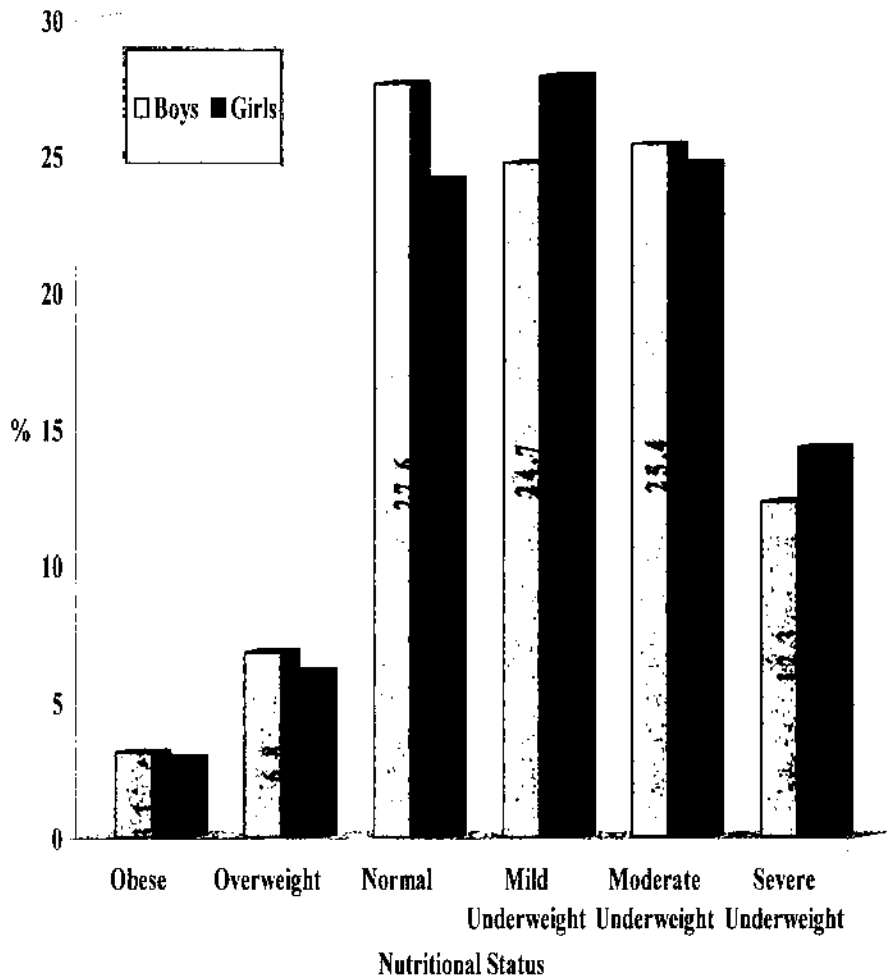


Table-20

Weight-for Age (Underweight) Status of Children

WAZ -score	Anthropometric status	Boys %	Girls %
≥3.00 SD	Obese	3.1	2.9
2.99 SD to 1.00 SD	Overweight	6.8	6.1
0.99 to -.99 SD	Normal	27.6	24.1
-1.00 to -1.99 SD	Mild Underweight	24.7	27.9
-2.00 to -2.99 SD	Moderate Underweight	25.3	24.7
≥-3.00 SD	**Severe Underweight**	**12.2**	**14.3**

Figure 6 and Table 20 both show the anthropometric status based on weight-for-age (Underweight) of children (boys & girls). According to weight for age, 62.4 per cent boys and 66.9 per cent girls were underweight in different categories. For example, 24.7 per cent boys & 27.9 per cent girls were mild underweight. Similarly 25.4 per cent boys & 24.7 per cent girls and 12.3 per cent boys & 14.3 per cent girls were moderate and severe underweight respectively. On the other hand, only 27.6 per cent boys and 24.1 per cent girls were normal and a considerable number of children (both boys and girls) were overweight (boys 6.8% and girls 6.1%) and obese (boys 3.1% and girls 2.9%).

Figure 7

Graphic Representation of Anthropometric Status based on Height-for-Age of Boys and Girls

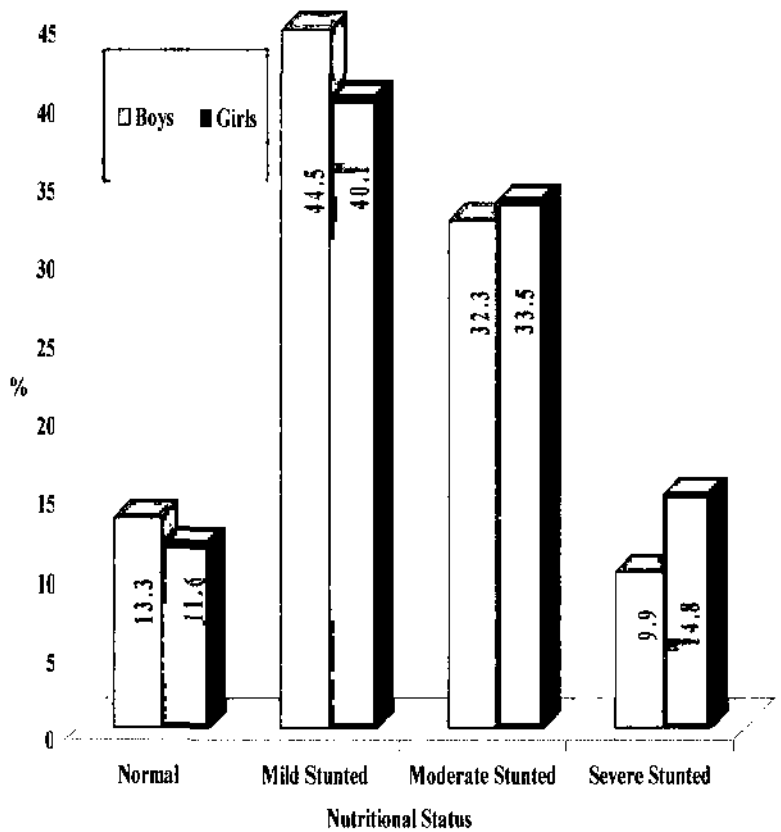


Table-21

Height-for- Age (Stunting)) Status of Children

HAZ -score	Nutritional status	Boys %	Girls %
>0.99 to -.99 SD	Normal	13.3	11.6
-1.00 to -1.99 SD	Mild Stunted	44.5	40.1
-2.00 to -2.99 SD	Moderate Stunted	32.2	33.5
>-3.00 SD	**Severe Stunted**	**9.9**	**14.8**

Figure 7 and Table 21 both show the nutritional status based on height-for-age (stunted) of children. According to height for age, 13.3 per cent boys and 11.6 per cent girls were normal. On the other hand, 42.2 per cent boys and 48.3 per cent girls were stunted (moderate & severe) in different categories which indicated that severe stunting was higher in girls than boys.

Figure 8

Graphic Representation of Anthropometric Status based on Weight-for-Height of Boys and Girls

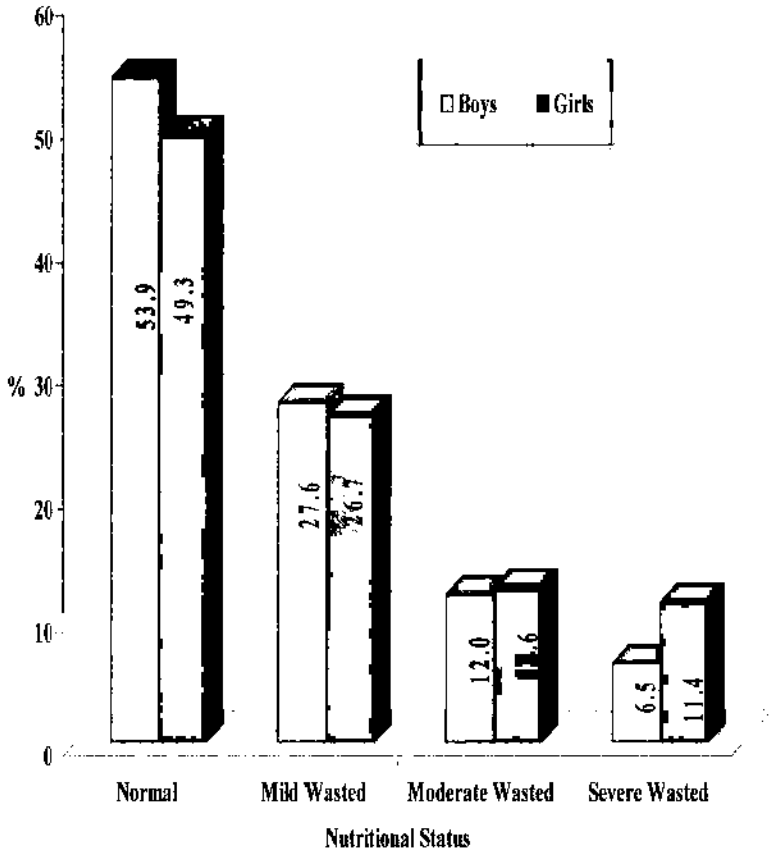


Table-22

Weight-for Height (Wasting) Status of Children

WHZ -score	Nutritional status	Boys %	Girls %
>0.99 to -.99 SD	Normal	53.9	49.3
-1.00 to -1.99 SD	Mild Wasted	27.6	26.7
-2.00 to -2.99 SD	Moderate Wasted	12.0	12.6
≥ -3.00 SD	**Severe Wasted**	**6.5**	**11.4**

It has been seen that underweight and stunting were big problems, at the same time wasting also had a great effect on nutritional status. Figure 8 and Table 22 both show the nutritional status based on weight for height (wasting) of children. According to weight for height 53.9 per cent boys and 49.3 per cent girls were normal. It was found that the prevalence of wasting was higher in girls than boys. This table also indicates that, 18.5 per cent boys & 24.0 per cent girls were (moderate to severe) wasted.

Figure-9

Prevalence of Different Types of Anthropometric Status According to Sex

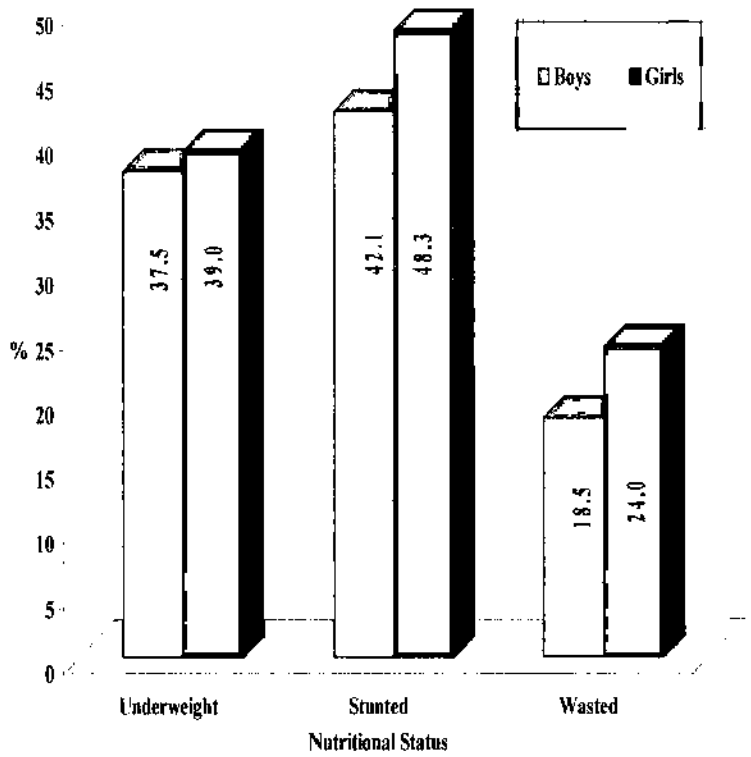


Figure 9 shows at a glance that malnutrition rate of the girls were higher than the boys in all categories of nutritional status. The prevalence of underweight, stunted and wasted in boys and girls were 37.5 per cent & 39.0 per cent; 42.1 per cent & 48.3 per cent, and 18.5 per cent & 24.0 per cent respectively.

Table 23

Distribution of Age, Weight and Height of Respondents

Measurements	Range	Mean ±SD*
Age (Years)	25-44	30.9 ± 6.2
Weight (Kg)	33.0-97.0	52.0± 11.2
Height (Cm)	138.0-167.0	156.6 ± 12.5

***=Standard deviation**

Table-23 shows the average age, weight and height of respondents' and it indicates their mean age was 30.9 years (SD ±6.2 Years) and ranged 25-44 years. Mean weight and height were 52.0 kg (SD ±11.2 kg) and 156.6 cm (SD ±12.5cm) respectively and the range of the weight and height were 33.0 to 97 kg and 138.0 to 167.0 cm respectively.

Figure 10

Nutritional Status of Respondents based on BMI

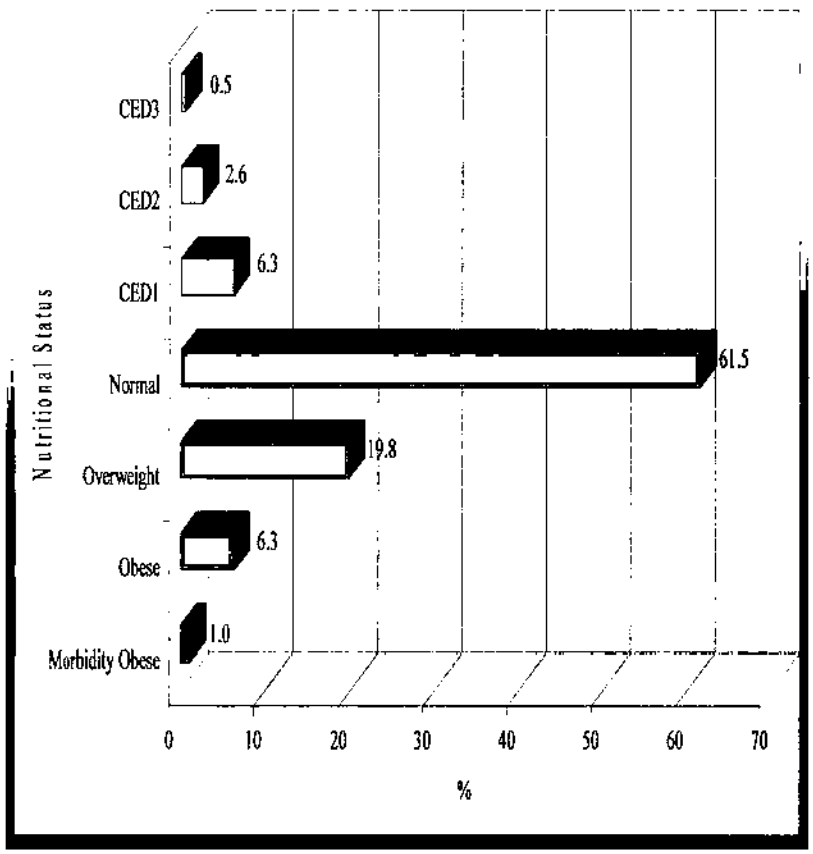


Table-24

Nutritional Status of Respondent Mothers according to Body Mass Index (BMI)

Nutritional Status	BMI	n (%)
Morbidity Obese	≥ 40.00	4 (1.0)
Obese	30.00-40.00	24 (6.3)
Overweight	25.00-29.99	76 (19.8)
Normal	**18.50-24.99**	**236 (61.5)**
CED_1	17.00-18.49	24 (6.3)
CED_2	16.00-16.99	10 (2.6)
CED_3	<16.0	2 (0.5)

Figure 10 and Table 24 both show the distribution of the nutritional status of respondents based on Body Mass Index (BMI). According to BMI respondent mothers were well nourished. About two-thirds (62.5%) of them were normal in BMI and only 9.4 per cent of them were suffering from different grades of chronic energy deficiencies (CED) i.e. 6.3, 2.6 and 0.5per cent respondent mothers were suffering from CED_1, CED_2, and CED_3 respectively .On the other hand, 27 per cent respondent mothers were over weight (19.8%) and obese (6.3%). Morbidity obese (1.0%) has also seen which indicates an alarming health problem.

4.1.5 Knowledge, Attitude and Practice on Gender Discrimination

Figure 11

Mothers' knowledge on Equal Role of Boys and Girls in the Society

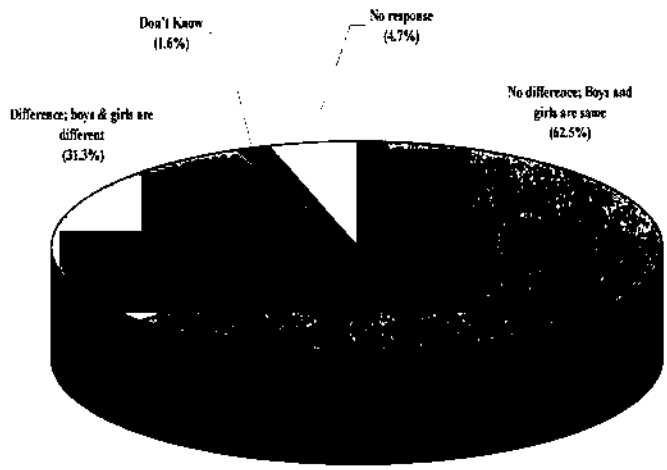


Figure-11 shows mothers' knowledge on equal role of boys and girls in the society. Most of the respondent mothers (62.5%) opined that boys and girls play equal role in the society and they thought that there are no difference between boys and girls. On the other hand, about one-third (31.3%) of the mothers opined that there were differences between boys and girls.

Table-25

Distribution of Respondents' Opinion about Equal Role of Boy and Girl in the Society

Respondents' Opinion	Frequency	Percentage
Now a days women are also earning money and helping their parents financially like men	**217**	**56.5**
Educated lady can work outside and can bring social respect to their parents	67	17.4
I didn't have knowledge about equal role of boys & girls before, now different programs in TV have opened my eyes, now I can realize it	60	15.7
All are equal if they become educated	181	47.1
Now a days both male and female can earn money	127	33.0

Table-25 shows the distribution of Respondents' opinion on equal role of boys and girls in the society. It indicates that about sixty per cent (56.5%) of them thought that now a day women are also earning money and helping their parents financially like men. Half of them (47.1%) opined that all are equal if they become educated.

Table-26

Distribution of Respondents' Opinion about Different Position of Boys and Girls in the Society

Respondents' opinion	Frequency	Percentage
A male child is able to do those work which a female child is not	90	22.4
Boys can earn money and help their parents financially	**119**	**31.0**
Girls can't go outside the home all the time	104	27.0

Table-26 shows the distribution of the respondents' opinion about different role of boys and girls in the society. And it indicates about one thirds (31.0%) of them opined that boys can earn money and help their parents financially.

Table 27

Knowledge about Equal Importance of Sending to School for Boys and Girls

Equal importance of sending to school	Frequency	Percentage
Yes	304	79.2
No	53	13.8
Non response	27	7.0
Total	**384**	**100**

Table-27 shows that about eighty percent (79.2%) of respondent mothers believed in equal importance needed on sending both boys and girls to school. On the other hand, only 13.8 per cent of respondent mothers did not give equal importance on sending both boys and girls to school.

Table-28

Respondents' Opinion about Importance of Sending Children (Boy & Girl) Equally to School (n=304)

Respondents' opinion	Frequency	Percentage
Both of my son and daughter need the light of education	120	31.3
Both of them will work outside after finishing their studies	67	17.4
Educated children bring glory and respect to the family	83	21.6
For future security of their life	101	26.3
To make them self dependent	143	37.2
No one can fraud them if they become educated	123	32.0
If they become educated they will be happy to their own life	**181**	**47.1**

Table-28 shows the distribution of respondents' opinion about importance of sending both children equally to school. About one-third (31.3%) of respondent mothers' thought that both the son and the daughter are needed the light of education where 17.4 per cent thought both of them will work outside after finishing their studies. "Educated children bring glory and respect to the family" says 21.6 per cent respondents but about one-forth (26.3%) of them told education was needed for future security of their life. "To make them self dependent" said 37.2 per cent, "No one can fraud them if they become educated" said 32 per cent and about half of them (47.1%) believed that if they become educated they will be happy in their own life.

Table-29

Respondents' Opinion about Less Importance of Sending Children (Boy & Girl) Equally to School (n=53)

Respondents' opinion	Frequency	Percentage
Can not give education due to poverty	**42**	**79.3**
Girls will go to in laws' house	3	5.7
Over education will cost more money for marriage	4	7.5
Others	4	7.5
Total	**53**	**100.0**

Table-29 shows the distribution of the respondents' opinion about less importance of sending both children equally to school. About eighty per cent (79.3%) of respondent mothers expressed that they cannot give education to their children due to poverty. Girls will go to in laws' house and over education will cost money for marriage- these types of comments were given by 5.7 and 7.5 per cent respondent mothers respectively.

Table-30

Respondents' Opinion on Giving Reasons for Educating Sons

Respondents' opinion	Frequency	Percentage
His income will help parents in future	**154**	**40.1**
He is the successor of the family	64	16.7
He will be the future head of the family	79	20.6
He will be self reliant	74	19.2
Family is educated, so he must be educated	13	3.4
Total	**384**	**100.0**

Table-30 shows respondents' opinion about reasons for educating sons. About forty percent (40.1%) of respondent mothers opined that their sons' income will help them in future. One fifth of respondents (20.6%) opined that sons will be the future head of the family. About seventeen per cent (16.7%) believed that sons will be the successor of the family. Again 19.2% respondents gave reasons for educating sons to make them self reliant.

Table-31

Respondents' Opinion on Giving Reasons for Educating Daughters

Respondents' Opinion	Frequency	Percentage
It will help her in case of her financial crisis	38	30.5
Will enable herself to have better marriage	**132**	**34.6**
To have self identity	69	18.0
To be able to educate her children in future	20	5.2
It will be helpful for maintaining her family in future	32	8.3
Her income will be helpful for parents in future	14	3.6

Table-31 shows respondents' opinion about reasons for educating daughters. More than one-third (34.6%) of respondent mothers educate their daughters to have better marriage and 18.0 per cent to have self identity. Again 30.5 per cent of them told it would help their daughters during their financial crisis.

Figure -12

Household Activities Done by Children

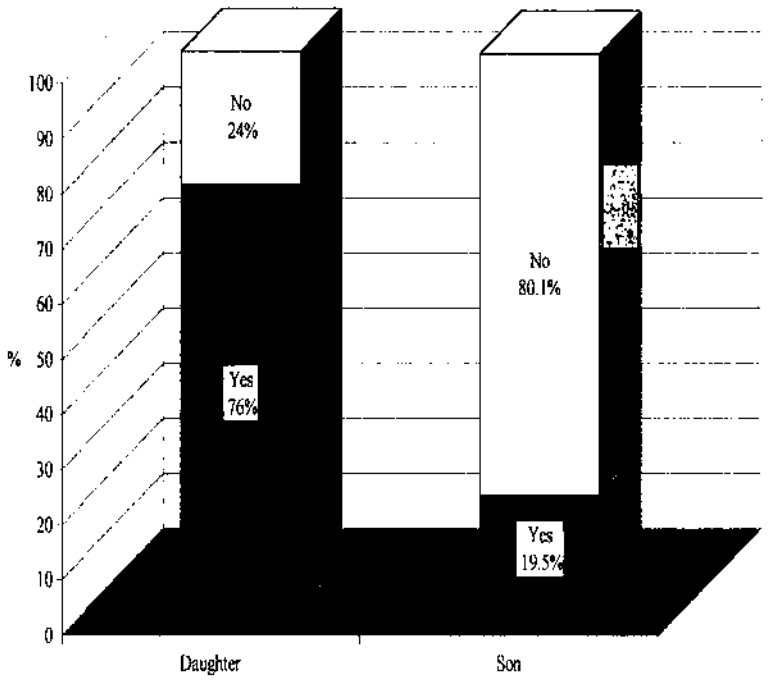


Figure-12 shows the household activities done by children. Maximum number (76%) of girl children worked in different types of household activities. On the other hand, only 19.5 per cent of boys helped in household activities and 81.1 per cent boys didn't participate in any type of household activities.

Figure-13

Different Types of Household Activities Done by Children

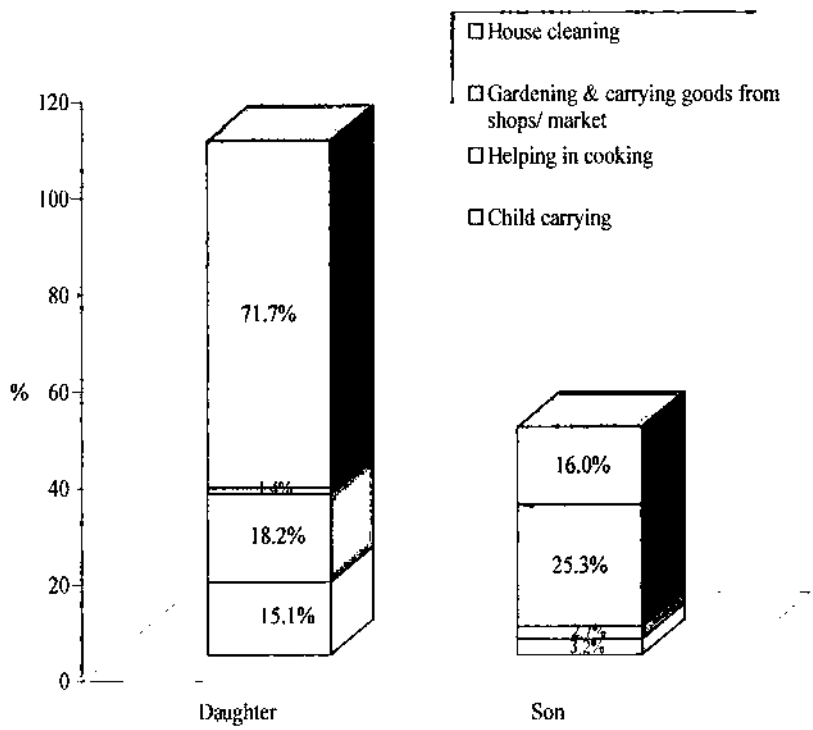


Figure 13 shows that, maximum number (76%) of the girl children worked different types of household activities; amongst 71.7 per cent of them did house cleaning, 18.2 per cent helped in cooking and 15.1 per cent did child carrying. On the other hand, only 19.5 per cent of boys helped in household activities. Amongst them 25.3 per cent helped in gardening and carrying goods from shops or from market. Again 16.0 per cent boys helped in house cleaning.

Table -32

Different Reasons for Household Activities Done by Boys & Girls

Reasons for household activities done by children	Daughter n (%)	Son n (%)
Desired by the guardian	**123 (42.1)**	**20 (26.7)**
Entertainment	42 (14.4)	22 (29.3)
Family tradition	60 **(20.5)**	6 **(8.0)**
Maintaining Health	12 (4.1)	4 (5.3)
For earning / saving family income	35 (12.0)	8 (10.7)
Desired by the guardian & saving family income	20 (6.9)	15 (20.0)
Total	**292 (100)**	**75 (100)**

Table-32 indicates that 42.1 per cent daughters and 26.7 per cent sons participated in different types of household works desired by their guardian. Twice the number of boys (29.3%) did these activities for entertainment than girls (14.4%). Family tradition plays a role for 20.5 per cent girls and only 8.0 per cent for boys in doing household activities.

Figure-14

Opportunity to Play Outside

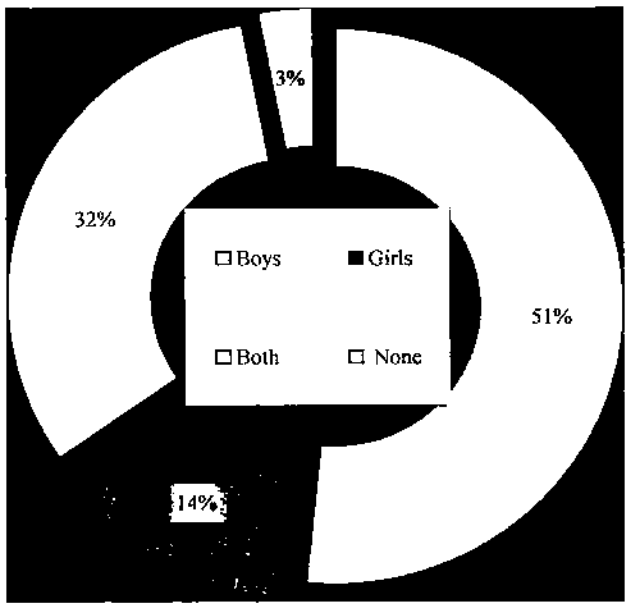


Figure -14 shows the opportunity to play outside by the children. According to the opinion of respondent mothers 83 per cent boys (51% + 32%) got the opportunity to play different outdoor games whereas only 46 per cent girls (14% + 32%) got this opportunity having multiple choice answers like 32 per cent respondents opined for both sexes together. Three per cent respondents told that none of them got this opportunity.

Table-33

Importance of Sending both Boys and Girls Equally to Field (n=332)

Respondent's importance	Frequency	Percentage
Yes	136	41.1
No	**191**	**57.7**
Not response	4	1.2
Total	**331**	**100.0**

According to figure 14 opportunity to play outside was very poor for girls (46%) compared to boys (83%). But Table 33 shows majority of the respondents (57.7%) verbally said that they did not give equal importance on sending both children (boys & girls) to play outside.

Figure-15

Respondents' Belief about More service in Old Age from their Sons or Daughters

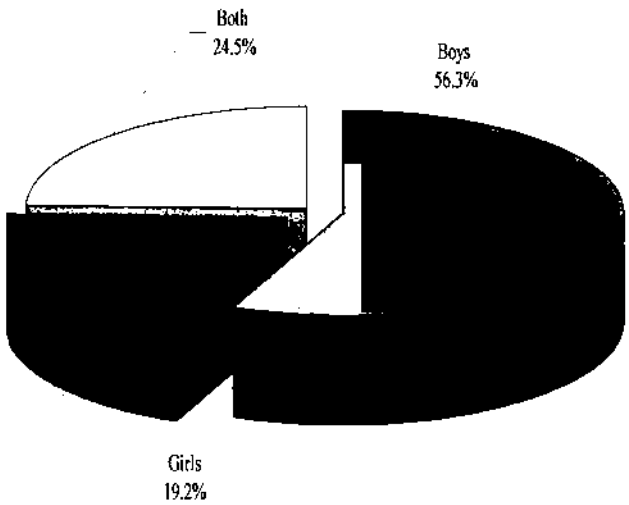


Figure-15 shows the respondents' belief about more service in old age from their sons or daughters. Majority (56.3%) of respondent mothers believed that sons will give more service in their old age and only 19.2 per cent of them thought girls will give more service in their old age. Again 24.5 per cent of them thought that both boys and girls will give equal service in their old age.

Table-34

Respondents' Attitude towards Sons being More Helpful (n =216)

Respondents' opinion	Frequency	Percentage
Tradition: son will stay with me in my house and he will take care and daughter will be living with husband	73	33.8
My son will help me financially and daughter-in-law will help me in household activities	64	29.6
My son will bury me after my death	26	12.0
He will be my shelter in my old age	53	24.5
Total	**216**	**100.0**

Table-34 shows the respondents' attitude towards sons for being more helpful in their old age. One third of respondents (33.8%) considered sons as old age security. They thought, sons will take responsibilities of their parents in their old age, though sons will stay with them because of social tradition. .On the other hand, daughters will be living with their husbands. Certain number of respondents' (29.6%) opined that in their old age their sons will help them financially and daughter-in-law will help them in household activities. One-forth of them (24.5%) believed sons will be shelter in their old age. Again 12.0 per cent of respondents opined that their sons will bury them after their death

Table-35

Respondents' Opinion on Daughters being More Helpful (n=74)

Respondents' opinion	Frequency	Percentage
Daughters can realize their parents limitations and sorrows more than sons	**32**	**43.2**
Daughters feel their parents and take care them even more than their sons	24	32.4
Now a days women are also earning money and helping their parents financially like men	18	24.4
Total	**74**	**100.0**

Table-35 shows that majority of respondents (43.2%) thought that daughters can realize their parents' limitations and sorrows more than their sons. Again certain per cent (32.4%) respondents opined that daughters can feel their parents and take care of them even more than sons. On the other hand, 24.4 per cent of respondents thought that, in these days woman also earn money and contribute financially to parents like men.

Table-36

Respondents' Attitude towards their Sons of being Blessings for the Family

Attitude towards their sons being blessings for the family	Frequency	Percentage
Yes	**356**	**92.7**
No	20	5.2
Not response	8	2.1
Total	**384**	**100.0**

Table-36 indicates that almost all (92.7%) of the respondents' thought that their sons are the blessings for their families.

Table 37

Distribution of the Reasons of Respondents' Opinion about Sons being Blessings for the family (n = 356)

Respondents' opinion	Frequency	Percentage
They will earn in future	82	23.0
Sons are the security of the family	84	23.6
They will be the successor of the family	**114**	**32.0**
He will burry me after my death	14	4.0
Sons are the security & will be successor	62	17.4
Total	**356**	**100.0**

According to Table-37 one-third of respondents (32.0%) opined that their sons would be the successor of the family and 23.6 per cent thought that sons were the security of the family. Again certain percent (23%) of respondents opined that their sons would earn money for the family in future. On the other hand, 17.4 per cent of the respondents opined that Sons are both the security & the successor of the family.

Table 38

Respondents' Attitude towards Consulting a Doctor or Nutritionist for Health Problems of their Children

For whom	Attitude to consult a Doctor (%)	Attitude to consult a Nutritionist (%)
Boys	50 (13.0)	47 (11.9)
Girls	4 (1.0)	11 (2.8)
Both	304 (80.2)	58 (15.2)
None	26 (6.8)	274 (71.3)
Total	**384 (100)**	**384 (100)**

Table-38 shows that remarkable differences were observed in case of attitude towards consulting doctor or nutritionist for health problems of their children. About 93.2per cent respondents consulted doctors; whereas only 28.7 per cent respondents consulted nutritionist when there were health problems of their children. Again boys got preferences to go to doctors or nutritionists than girls.

Table 39

Correlations between Different Socio-Economic Conditions and Knowledge on Gender Discrimination

Correlations / Responses	Occupation of the Household heads	Educational qualification of the house-hold heads	Occupation of the mothers	Educational qualification of mothers
Mothers knowledge on sex discrimination (no difference between boys and girls)	**P<0.05****	**P<0.01***	**P<0.01***	**P<0.01***
Equal importance of sending to school	**P>0.05**	**P<0.05****	**P<0.05****	**P<0.01***
Boys and girls need equal foods	**P>0.05**	**P<0.01***	**P<0.01***	**P<0.01***

***Correlation is significant at the 0.01 level (2-tailed)**

****Correlation is significant at the 0.05 level (2-tailed)**

Blue color indicates not significant at the 0.05 level (2-tailed)

Table-36 shows the correlations between different socio-economic conditions and knowledge on gender discrimination. It has been seen that mothers' knowledge on sex discrimination was strongly correlated with mothers' education and occupation. It is also seen that occupation of the household heads was significantly correlated with mothers' knowledge on gender discrimination. Equal importance of sending children to school was correlated with (P<0.05) educational qualification of household heads but not significant to their occupation (P>0.05). Equal importance of sending children to school was strongly correlated with mothers' education than mothers' occupation. On the response of boys and girls need equal foods was strongly correlated with both parents' educational qualification and mothers' occupation .But it was insignificant (P>0.05) to the occupation of household heads.

4.1.6 Intra- Household Food Behavior and Cultural Information

Table-40

Distribution of Responsible Person for Buying Food Staff from Market

Responsible person for buying food staff from market	Frequency	Percentage
Respondent own	140	36.5
Husband	154	40.1
Both husband & wife	64	16.7
Father-in-law & mother- in-law	14	3.6
Others	12	3.1
Total	**384**	**100.0**

Table-40 shows the distribution of the responsible person for buying food staff from market and it indicates that more than one-third of respondents (36.5%) bought food staff from market. On the other hand, in case of 40.1 per cent households husbands did this job. 16.7 per cent respondents said, both the husband and the wife were responsible for household food purchase.

Table-41

Distribution of Responsible Person for Cooking Family Foods

Responsible person for cooking family foods	Frequency	Percentage
Respondents own	142	36.1
Husband	14	3.6
Elderly female members	102	26.5
Elderly female members & respondents own	111	28.9
Others	15	3.9
Total	**384**	**100.0**

Table-41 shows the distribution of the responsible person for cooking family foods and it indicates that elderly female members and respondents themselves were the main responsible person for cooking family foods and the percentage of which was 91.5%. In 3.6% cases respondents husbands cooked family foods.

Table-42

Distribution of Responsible Person for Child Feeding

Responsible person for child feeding	Frequency	Percentage
Respondent own	**342**	**89.1**
Servant	14	3.6
Elderly female members	10	2.6
Elderly female members & respondent own	11	2.9
Others	7	1.8
Total	**384**	**100.0**

Table-42 shows the distribution of responsible person for child feeding and it indicates that respondents themselves (89.1%) were the main responsible person for child caring and feeding. In case of 3.9 & 2.6 per cent respondents' children were fed by servants, and elderly female members respectively.

Table-43

Respondents' Consciousness about Food Intake of their Children

Consciousness about food intake	Frequency	Percentage
Yes	323	84.1
No	49	12.7
Don't know	6	1.6
Non response	6	1.6
Total	**384**	**100.0**

Table-43 shows the distribution of respondents' consciousness about food intake of their children. Almost all of the (84.1%) respondents believed that they were conscious about food intake of their children.

Table-44

Distribution of Respondents' Thought about Sufficient Food Intake of their Children

Knowledge about sufficient food intake	Frequency	Percentage
Yes	215	56.0
No	149	38.8
Don't know	14	3.6
Non response	6	1.6
Total	**384**	**100.0**

Table-44 shows the distribution of the respondents' opinion about sufficient food intake of their children and it indicates that more than half of respondents (56.0%) believed that their children intake sufficient amount of foods according to their requirements. On the other hand, 38.8 per cent respondent mothers thought that food intake of their child was not adequate. A certain number of (3.6%) respondent mothers didn't know whether the food intake of their children was sufficient or not.

Figure-16

Opinion of Respondents Who Needs More Food for Growth

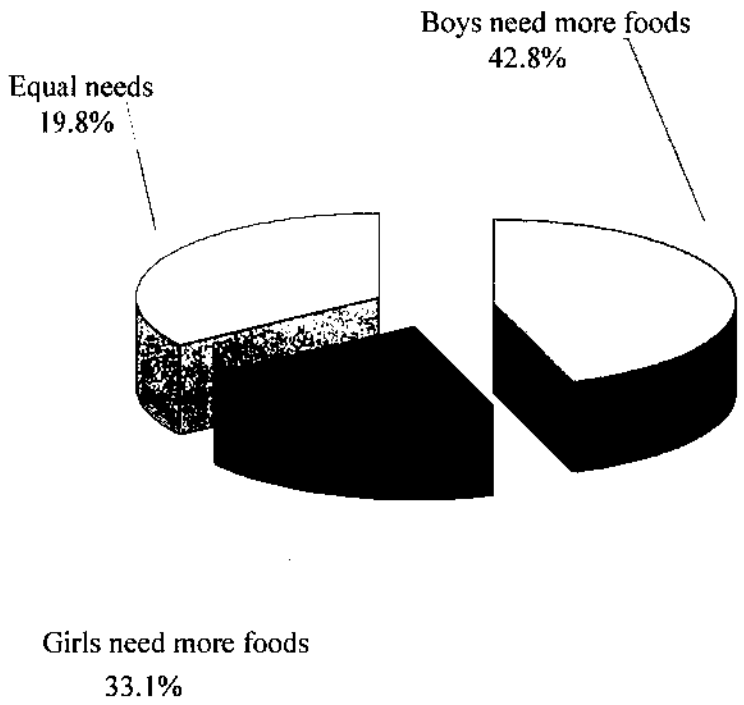


Figure-16 shows that 42.8 per cent respondent mothers opined that boys need more foods. On the other hand, 33.1per cent respondent mothers thought girls need more foods. Again only 19.8 per cent of the respondents' thought that both boys and girls need equal amount of foods.

Table 45

Distribution of Respondents' Opinion about Reasons for Sons Need More Food (n = 164)

Respondents' opinion	Frequency	Percentage
For growth & development	**63**	**38.4**
For more activity	45	27.4
Sons are the future security for family	56	34.1
Total	**164**	**100.0**

Table-45 shows the distribution of respondents' opinion about reasons for sons need more foods (n = 164). About forty percent (38.4%) respondents opined that sons need more food for better growth and development. Again 27.4 per cent opined for more activity sons need more food. One fourth of (34.2%) respondents believed that sons were the future security for the family, that's why they need more food.

Table- 46

Respondents' Knowledge about Types of Special Food Needs for their Children for growth

Types of special foods	Boys need n (%)	Girls need n (%)
Milk & egg	139 (36.2)	64 (16.7)
Meat	61 (15.9)	56 (14.6)
Fruits	34 (8.9)	24 (6.3)
Vegetables	6 (1.6)	41 (10.7)
Noodles, Halim and Soup	26 (6.8)	16 (4.2)
Costly foods	62 (16.1)	54 (14.1)

Table-46 shows respondents' knowledge about types of special food needs for their children. Milk and eggs were considered as special foods for their sons by 36.2 per cent mothers whereas only 16.7 per cent mothers considered these foods as special for their daughters. On the other hand, 10.7 per cent mothers told vegetables were the special food for their girls whereas only 1.6 per cent mothers told it was special for their boys.

Figure 17

Knowledge of Equitable Distribution of Foods for their Children in Households

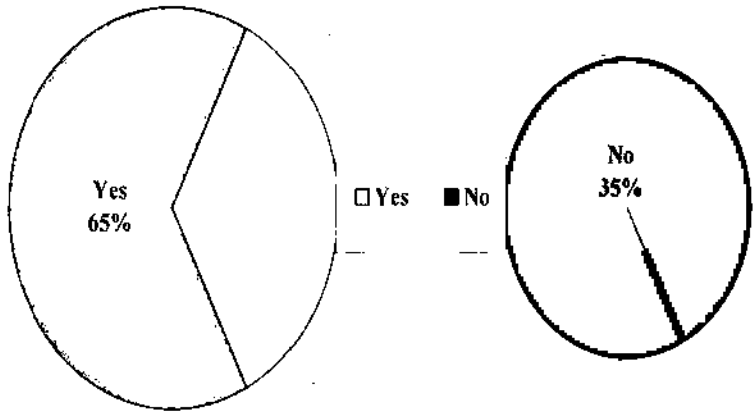


Figure 17 shows that 65 per cent respondent mothers opined that equitable distribution of foods in the household among male and female children is important.

Table: 47

Respondents' Attitude towards Equitable Distribution of Foods among their Children

Equitable distribution of foods	Frequency	Percentage
Yes	143	37.2
No	**241**	**62.8**
Total	**384**	**100.0**

Table -47 shows respondents' attitude towards equitable distribution of foods among their children. Although knowledge on equitable distribution of foods among their children was 65 per cent obtained, the attitude towards equitable distribution of foods among them were comparatively low. Only 37.2 per cent distributed foods among their male and female children equitably.

Table-48

Respondents' Practice on Cooking Special Foods for their Children within last Three (3) Days Prior to Data Collection

Cooking special foods	Frequency	Percentage
For Son	**189**	**49.3**
For Daughter	38	9.9
For Both	74	19.3
None	83	21.6
Total	**384**	**100.0**

Table 48 shows respondents' practice on cooking special foods for their children within last 3 days prior to data collection and it indicates that about fifty per cent (49.3%) of them cooked special foods for their sons whereas only 9.9 per cent respondents' cooked special foods for their daughters. On the other hand 19.3 per cent respondents told that they cooked special foods for both sons and daughters. Again 21.6 per cent respondents didn't cook any special food in last three days prior to data collection.

Table-49

Distribution of Respondents' Opinion about Factors Considered in Food Selection

Factors	Frequency	Percentage
Food availability	75	19.5
Food prices	119	31.0
Nutritive values	68	17.7
Food demand	31	8.1
Food prices and nutritive values	32	8.3
Food availability and food prices	59	15.4
Total	**384**	**100.0**

Table-49 shows the distribution of respondents' opinion about the major concerning factors to be determined during food selection. It indicates that about one-third (31.0%) of respondents considered food prices, 19.5 per cent considered food availability and 17.7 per cent considered nutritive value of foods during food selection for their children.

Table 50

Intra-Household Meal Taking Pattern of Households

Food distribution pattern	Frequency	Percentage
All members take meals together	74	19.2
Male members take first and then female	**237**	**61.8**
All take meal together except myself	48	12.5
There is no compulsory rule	25	6.5
Total	**384**	**100.0**

Table- 50 shows the intra-household meal taking pattern of the households and it indicates that only 19.5 per cent of respondents took meals together with all family members. 12.5 per cent said all members took meal together except respondents. On the other hand majority (61.8%) of the respondents told male members took first and then female, which indicates that intra-household meal taking pattern was very poor in sense of gender bias.

Table-51

Correlations between Different Socio-Economic Conditions and Equity in Food Distribution

Correlations / Responses	Household monthly income	Mothers' income	Monthly expenditure on foods	Educational qualification of mothers
Equitable distribution of foods between boys and girls		P<0.01*	P<0.01*	

*Correlation is significant at the 0.01 level (2-tailed)

Correlation is significant at the 0.05 level (2-tailed)

Table 51 shows the correlations between different socio economic conditions and practice of equitable distribution of foods among male and female children. Equitable distribution of foods between boys and girls were strongly correlated with mothers' income and monthly expenditure on foods.

4.1.7 Gender Discrimination in Intra Household Food Distribution

Figure 18

Distribution of the Preferences of Different Types of Foods between Boys and Girls

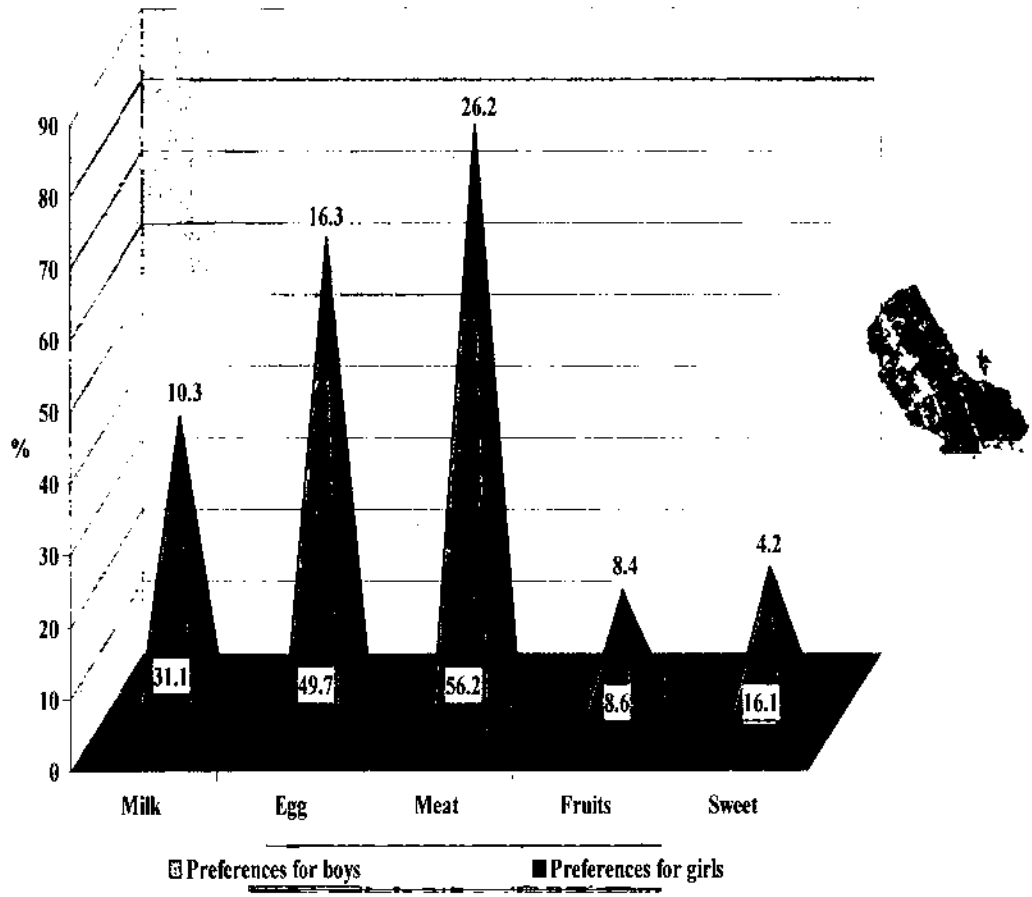


Figure-18 shows the distribution of preferences of different types of foods between boys and girls and it indicates that good quality and expensive foods for example milk, egg, meat, fruits and sweets etc were always preferred for boys in intra -household food distribution as compared to girls.

Figure 19

Respondents' Practice about Reserving Special Foods for their Children

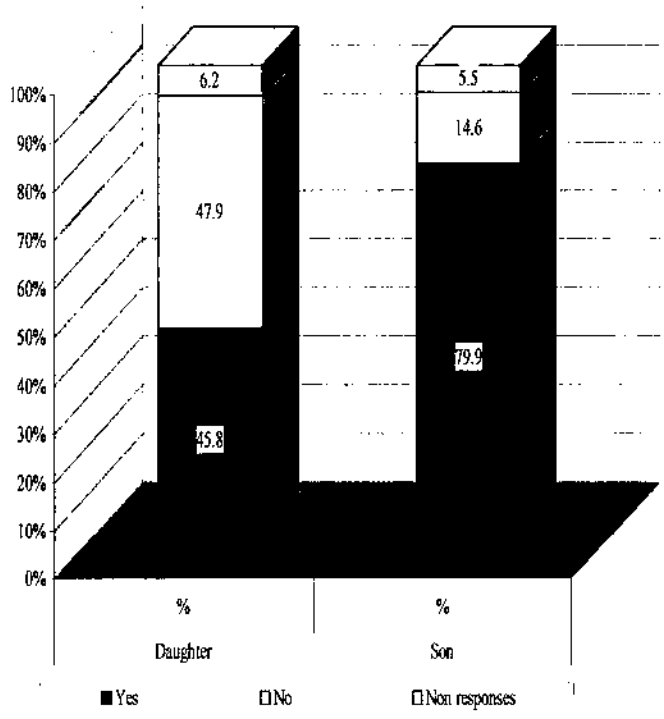


Figure 19 shows respondents' practice about reserving special foods for their children. About eighty per cent (79.9%) respondent mothers reserved special foods for their sons whereas, only 45.8 per cent reserved special foods for their daughters which represent a remarkable gender discrimination in intra-household food distribution system.

Table 52

Respondents' Practice on Reserving Special Food Items for their Children

Special food Items reserved for son and daughter	Son n (%)	Daughter n (%)
Special pieces of fish	52 (13.5)	25 (6.5)
Special pieces of meat / poultry	**119 (31.0)**	**39 (10.1)**
Egg	40 (10.4)	24 (6.2)
Chicken head / liver	38 (9.9)	18 (4.7)
Milk	18 (4.7)	16 (4.1)
Fruits	18 (4.7)	16 (4.1)
Sweets	10 (2.6)	4 (1.0)
Total	**307 (79.9)**	**176 (45.8)**

Table-52 indicates that all types of special foods were more reserved for their sons compared to their daughters. For example, in case of special pieces of fish and special pieces of meat/poultry 13.5 and 31.0 per cent respondent mothers reserved those for sons, whereas only 6.5 and 10.1 per cent of respondent mothers did that for their daughters respectively. Again, 9.9 per cent respondent mothers reserved chicken head or liver for sons which were reserved by only 4.7 per cent respondent mothers for daughters. Furthermore, 10.4 per cent mothers reserved eggs for sons which were only 6.2 per cent for daughters.

Table 53

Distribution of Respondents by Reasons for Reserving Special Foods for Boys (n =307)

Reasons for reserving special foods	Frequency	Percentage
For love /self satisfaction	**111**	**65.8**
For growth and development	78	25.4
More food will supply more energy	19	6.2
Others	8	2.6
Total	**307**	**100**

Table-53 shows reasons for reserving special foods by respondent mothers for their sons. From Figure 19 it has been seen that 79.9 per cent respondent mothers reserved special foods for their sons. This table indicates that 65.8 per cent respondent mothers reserved special foods for their sons because of love or for self satisfaction. On the other hand, 25.4 per cent respondent mothers reserved special foods for their sons' for growth and development. 'More food will supply more energy' 6.2 per cent respondent mothers gave this reason for reserving special foods for their sons.

Table-54

Distribution of Respondents by Reasons for Reserving Special Foods for Girls (n = 176)

Reasons for reserving special foods	Frequency	Percentage
All children are equal	**67**	**38.1**
Girls cannot take food outside	48	27.3
For growth and development	16	9.1
After marriage her food intake may be reduced	38	21.6
Others	7	3.9
Total	**176**	**100**

Table-54 shows distribution respondents by reasons for reserving special foods for girls. From Figure 19 it has seen that 45.8 per cent respondent mothers reserved special foods for their daughters. This table indicates 27.3 & 21.6 per cent respondent mothers reserved special foods for their daughters due to their thoughts that girls could not take food outside and after marriage their daughters' food intake might be reduced. 38.1 per cent expressed their views that all children were equal; though she reserved special foods for son for the same reason she reserved special foods for daughter. And only 9.1 per cent respondent mothers reserved special foods for daughters for their growth and development.

Table-55

Distribution of Respondents by Reasons for Not Reserving Special Foods for Girls (n =184)

Reasons for not reserving special foods	Frequency	Percentage
More food will make girls greedy	34	18.5
Girls need no special foods	**84**	**45.6**
Family food is sufficient, so special foods does not need	32	17.4
More important for her father & brother than her	25	13.6
Others	9	4.9
Total	**184**	**100**

Table-55 shows reasons for not reserving special foods for girls. From figure 19 it has seen that a greater number (184 out of 384) of respondents didn't reserve any special foods for their daughters. It was found that 45.6 per cent respondents thought girls didn't need any special foods. So they didn't reserve any special foods for daughters. 18.5 per cent respondents said "more foods will make girls greedy". On the other hand, 17.4 per cent mothers thought regular family food was sufficient for girls, so they needed no special foods. Again 13.6 per cent respondents thought it was more important to supply special foods for their fathers and brothers than girls.

Table-56

Distribution of Respondents' Attitude towards Buying / Giving Snacks for their Children

Attitude towards buying /^giving snacks for their children	Frequency	Percentage
Yes	302	78.6
No	70	18.2
Non response	12	3.2
Total	**384**	**100.0**

Table-56 shows the distribution of the respondents' attitude towards buying / giving snacks for their children. It indicates that about eighty per cent (78.6%) of respondents' attitude was positive towards buying / giving different kinds of snacks for their children.

Table 57

Respondents' Preference about Buying More Snacks for Boys or Girls

More snacks for whom	Frequency	Percentage
For boys	**224**	**58.3**
For girls	48	12.5
Equal for both	100	26.0
Non response	12	3.2
Total	**302**	**100.0**

Table 57 shows the respondents' preference about buying more snacks for boys or girls. Previous tables and figures show that respondents' knowledge and attitude was favorable for boys, e.g. they thought boys needed more foods and they reserved more special foods. Similarly most of the respondents (58.3%) gave preference to buy more snacks for their male children.

Table-58

Distribution of Respondents' Attitude towards Giving Tiffin to their Children

Attitude towards giving Tiffin for their children	Frequency	Percentage
Yes	**252**	**65.6**
No	116	30.2
Non response	16	4.2
Total	**384**	**100.0**

Table 58 shows the respondents' attitude about giving any tiffin to their children to school. About two-thirds (65.6%) of respondents were positive and 30.2% were negative about giving tiffin to their children to school.

Table-59

Distribution of Respondents' Preference for Giving Different Kinds of Tiffin (n = 252)

Different kinds of Tiffin	Frequency	Percentage
Regular family foods	**110**	**43.7**
Home made fast foods	42	16.7
Fast foods from shop	46	18.2
Fast foods from shop & home made	54	21.4
Total	**252**	**100.0**

Table-59 shows the distribution of respondents' preference for giving different kinds of tiffin. Majority (43.7 + 16.7 = 60.4%) of the respondents made tiffin at home of which 43.7 per cent gave regular family foods and 16.7 per cent gave home made fast foods. On the other hand, 18.2 per cent of them gave fast food from shops and 21.4 per cent respondents gave some times fast food from shops and sometimes home made tiffin.

Table-60

Response Regarding Reserving Special Food Items for Themselves and Husbands

Response for reserving special foods	For respondent themselves n (%)	For husbands n (%)
Yes	**34 (8.8)**	**313 (81.6)**
No	342 (89.1)	56 (14.6)
Non response	8 (2.1)	15 (3.8)
Total	**384 (100)**	**384 (100)**

Table-60 shows the response regarding reserving special food items for them and their husbands. It indicates that majority of respondents (81.6%) reserved special food items for their husbands. Only 14.6% respondents didn't reserve any special foods for their husbands. Among total respondents, only 8.8% respondents reserved special food items for themselves. On the other hand, about ninety per cent (89.1%) respondents didn't reserve any special food items for themselves.

Table-61

Distribution of Respondents by Reasons for Reserving Special Food Items for their Husbands (n = 313)

Reasons for reserving special foods	Frequency	Percentage
He is the head of the family	48	15.3
He works hard	77	24.6
He earns money	31	9.9
He disserves and it is tradition	80	25.6
He is the head of the family & earns money	46	14.7
He works hard & earns money	26	8.3
Others	5	1.6
Total	**313**	**100**

Table-61 shows the distribution of respondents' reasons for reserving special food items for their husbands. From the traditional concept, 25.6 per cent respondents reserved special food items for their husbands. Similarly, 24.6 per cent respondents thought their husbands worked hard, 15.3 per cent believed that husbands were the family heads. So they deserved special food. On the other hand, 9.9 per cent of them said their husbands earned money for their families. Again 14.7 per cent respondents thought that, husbands were both the family heads and earned money for their families. That's why they reserved special food items for their husbands.

Table-62

Distribution of Respondents by Reasons for not Reserving Special Foods for Themselves

Reasons for not reserving special foods	Frequency	Percentage
I need no special foods	**134**	**39.2**
I don't disserves it, is not traditional rule	67	19.6
It is shameful for me	32	9.4
More important for husband & children	94	27.4
Others	15	4.4
Total	**342**	**100**

Table-62 shows the distribution of respondents by reasons for not reserving special foods for them. As reasons 39.2 per cent showed they did not need special foods for own, 19.6 per cent thought it was not traditional rule and 9.4 per cent said it was shameful for them to have special food. On the other hand, 27.4 per cent respondents said that, it was more important to reserve special foods for husbands and children rather than for themselves.

Figure- 20

Food Priority Pattern of Households (In case of special foods e.g. one egg)

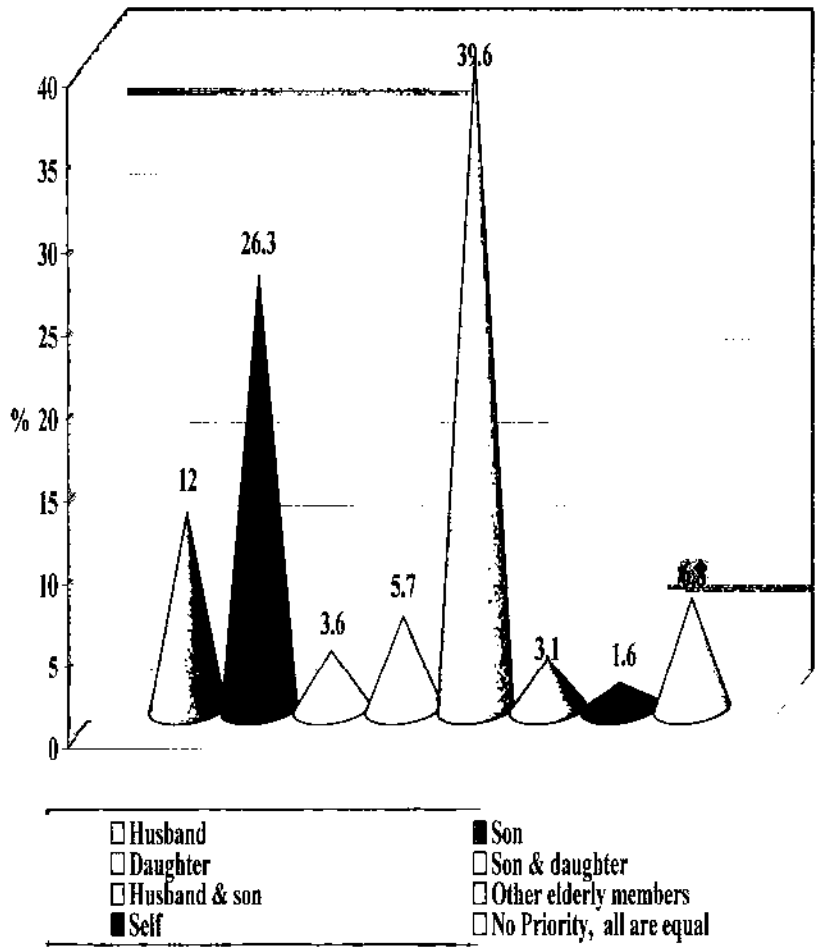


Figure-20 shows the food priority patterns of the households (in case of special foods) and indicates that if limited number of special foods, e.g. only one egg available in the house then 39.6 per cent respondent mothers gave it to their husbands and sons, 26.3 per cent of them gave it to sons and only 3.6 per cent of them gave it to daughters which highly reflected the gender bias in food allocation in the intra-household food priority.

Table 63

Respondents' Practice of Giving Milk to their Children Regularly

Practice of giving milk	Frequency	Percentage
Regular for son	77	**20.1**
Regular for daughter	30	7.8
Regular for both	26	6.8
Sometimes for both	185	48.2
None	66	17.2
Total	**384**	**100.0**

Table- 63 shows the respondents' practice of giving milk to their children regularly and it indicates that 20.1 per cent of respondents gave milk to their sons regularly which were only 7.8 per cent for their daughters. Again, 48.2 per cent of them gave milk sometimes to both children, whereas 17.2 per cent of them could never gave milk to their children because of poverty.

Table-64

Correlations between Different Socio-Economic Conditions and Practice in Reserving Special Foods for their Sons and Daughters

Correlations / Responses	Household monthly income	Mothers' income	Monthly expenditure on foods	Educational qualification of mothers
Reserved special foods for sons	P>0.05	P<0.01*	P<0.05**	P>0.05
Reserved special foods for daughters	P<0.05**	P<0.01*	P<0.01*	P<0.05**

***Correlation is significant at the 0.01 level (2-tailed)**

****Correlation is significant at the 0.05 level (2-tailed)**

Blue color indicates not significant at the 0.05 level (2-tailed)

Table-64 shows the correlation between different socio-economic conditions and practice in reserving special foods for their sons and daughters. Educational qualifications of mothers were significantly correlated with reserving special foods in case of gender differentiations (P<0.05). It was also involved similarly with household monthly income, but in case of mothers' income it was highly significant in food reservation for both the son and the daughter (P<0.01). It indicates that mother's income decreased gender discrimination in food reservation.

Table 65

Correlations between Household's Monthly Income & Educational Qualification and Equal Distribution of Foods (milk and egg) regularly

Correlations / Response	Household monthly income	Educational qualification of Mothers
Equal distribution of milk regularly	P>0.01	P<0.01*
Equal distribution of egg regularly	P>0.01	P<0.01*

*Correlation is significant at the 0.01 level (2-tailed)

Table 65 shows the correlations between household monthly income & educational qualification of mothers and equal distribution of milk and egg regularly. Household monthly income was insignificantly correlated with equal distribution of milk and egg among boys and girls regularly whereas, educational qualification of mothers was highly correlated (P<0.01) with these factors.

CHAPTER FIVE

5.1 DISCUSSION

Gender bias in terms of food distribution and food intake pattern of boys and girls (6-11 years) in intra-household was the main observation of the study. A total number of 384 mother-children pairs were included in this study in different areas of Dhaka city corporation area. Ten (10) Government Primary Schools were randomly selected under four thanas of Dhaka city corporation area. The schools were selected from Dhanmondi, Mohammadpur, Lalbag and Mirpur thana. A total number of 384 mother-children pairs were included in this study to obtain the main objective –any type and extent of gender bias in terms of food distribution and food intake pattern of boys and girls (6-11 years) in intra-household.

As per study objectives, almost equal number of boys and girls were in 384 studied children (192 male &192 female children). Of them, approximately equal number of boys and girls resided in three age ranges The per cent distribution of children according to age & sex, it has been seen that about half of them (41.9%) were 8-9 years old, 38.2 per cent were 6-7 years old and 19.8 per cent were 10-11years old (Fig-1). Again, similar pattern was maintained in their schooling, almost similar proportion of boys and girls read in the same class (Fig -2 & Table-1). Among 384 families, 220 families have equal number of boys and girls; 206 families have single pair (one boy and one girl) & 14 families have double pairs - two boys and two girls (Table 4). According to birth order of the child in the family, majority (44.2%) was the first baby of their parents, 22.7 per cent were in middle position and 32 per cent of them were the last baby of the family (Table3).

All respondents were mothers. More than ninety percent (93.8%) of respondents were Muslims and only 6.2 per cent were Hindus (Table-2). As per study objectives only those mothers were chosen who have at least two children (both son and daughter). Majority (51.8%) of respondents' ages were between 30–34 years (Table5). Amongst them a considerable number of mothers (~ 62%) were

illiterate (43.0%) or primary educated (18.8%). On the other hand, only 9.0 per cent respondent mothers were graduates. This indicates that their educational qualification was poor, which might have affected nutritional status of the study children as well as make them gender bias (Fig -3).

Family size of households indicates about half of the households (47.8%) consist of 5 to 6 members and one third of the households (33.6%) consist of 3 to 4 members which proves a greater per cent of families were nuclear families. On the other hand only 5.2 per cent families were consisting of more than eight members (Table-7). Almost all (85.2%) household heads were fathers whereas in case of only 5.7 per cent households' family heads were mothers (Table-8). Another comparison showed that fathers (53.1%) played an important role in decision making in the families whereas the percentage of the mothers in decision making was only 4.7 per cent. But in good number of families (34.6%), both father and mother share in decision making (Table-9). Educational level of decision makers in the family indicates more than one third of them (38.3%) were illiterate (23.2%) or primary educated (15.1%). On the other hand, only 16.7 per cent decision makers were graduates (Table-10).

Only 17.4 per cent respondent mothers were occupied in different jobs and the majority of the respondent mothers (82.6%) were housewives (Table-11). The same table showed that 100 per cent household heads were occupied in various works. Forty six per cent of them were occupied in government (30.9%) and non government (15.1%) services. One fourth of (24.4%) household heads were businessmen, 6.2 per cent were living abroad, 12.1 per cent were drivers and 10.1 per cent household heads were in other jobs such as rickshaw pullers, carpenters, day labors etc. Major sources of household income mainly depended on only husbands' income (75.5%) and in only 6.3 per cent families both husbands and respondents share in family income (Table-12). Approximately fifty percent (46.6%) of households' monthly income was 4000-6000 taka and the highest monthly income was 16000 taka or above which was found only in 4.1 per cent

respondent households. Most of the households' (43.2%) monthly expenditure was 4000 – 8000 taka. 34.4 per cent households spend below 4000 taka per month, whereas only 2.6 per cent households spend above 16000 taka per month. Similarly households' monthly expenditure on food were very poor, most of them (58.6%) spend taka 2,000 or below per month on food. 40.4 per cent households spend 2000- 6000 taka and only 1 per cent households spend above 6000 taka per month on food (Figure 4). More than forty percent (41.7%) of households have own savings whereas 30.7 per cent families have got into debt (Table-13).

More than two- thirds (68.8%) of the families were living in rented houses and only 7.7 per cent in their own houses. Besides this, 12.0 per cent of the families were living in Government quarters and 6.8 per cent were homeless (Table-14). Housing conditions of the living places indicated that 45.6 per cent of families were living in brick built houses and 39.6 per cent were living in brick wall with tin roof houses. Besides this, 6.5 per cent and 6.2 per cent of the families were living in timber wall with tin roof and bamboo wall with tin roof houses respectively (Table-15).

Morbidity rate of the study children in the last three months showed that rate of morbidity was more than three quarters (76%). Fever, cold and cough were the major causes of illness (53.8%) and recurrent fever (17.8%) was also a big cause of morbidity. Besides this the studied children were suffering from chicken pox, diarrhea, tonsillitis and measles/ mumps and the rate of morbidity were 7.8 per cent, 4.8 per cent, 4.1 per cent and 2.0 per cent respectively. On the other hand the mean suffering times of diseases were 3 days to 20 days (Figure-5). Clinical manifestations of children that have been examined were gum swollen, dental carries, tongue glossitis, visible goiter, skin lesion, eye problems etc. The rates of all diseases were more in girls than boys (Table-17). It was also found that, there were no clinical signs and symptoms in 30.75 per cent boys compared to 12.5 per cent girls. A similar study revealed that several indices of severe infections were identified more frequently among females than males [34].

Pearson correlation between educational levels of respondents and morbidity in children indicated that educational level significantly affect the child morbidity at 95 per cent confidence interval ($P<0.05$) which means if the educational level of mothers increased, it decreased the morbidity rate of children. In case of illiterate and primary educated mothers, the rates of morbidity of children were 41.2 per cent and 15.9 per cent whereas in case of higher secondary and graduate mothers it was observed only 1.8 per cent and 1.0 per cent respectively (Table-18). A study in Matlab research area of Bangladesh provides similar information that, literacy of mothers is demonstrated to affect positively the nutritional status of boys.[59]

The mean age of the children was 8 years and the age range was 6-11 years. The mean weight, mean height and mean MAC of the children were 20.6 kg (SD ±5.0 kg), 118.0 cm (SD ±13.5 cm) and 16.9 cm (SD ±1.9 cm) respectively (Table -19). According to weight for age 62.4 per cent boys and 66.9 per cent girls were underweight in different categories. On the other hand, only 27.6 per cent boys and 24.1 per cent girls were normal and a considerable number of children (both boys and girls) were overweight & obese (boys 9.9% & girl 9.0%) (Fig-6). According to height for age, 13.3 per cent boys and 11.6 per cent girls were normal. On the other hand, 86.7 per cent boys and 88.6 per cent girls were stunted in different categories and it indicated severe stunting was higher in girls than boys (Figure-7). It has been seen that underweight and stunting were big problems among study children, at the same time wasting was also a great affect on nutritional status. According to weight for height, 53.9 per cent boys and 49.3 per cent girls were normal. It was found that the prevalence of wasting was higher in girls (51.7%) than boys (46.1%). This table also showed, 6.5 per cent boys & 11.4 per cent girls were severely wasted (Fig-8 and Table-22). At a glance malnutrition rate of the girls was higher than the boys in all categories of nutritional status. The prevalence of underweight, stunted and wasted in boys and girls were 37.5 & 39.0 per cent; 42.1 & 48.3 per cent and 18.5 & 24.0 per cent respectively (Fig -9). In 1992 Begum J.A. and Haque A.A.S.M. studied on health and nutritional status of girls in rural Bangladesh found similar result that 30.36% girls and 12.36% boys

were with in the range of 70-80% of the Harvard Standard [38]. Another study reported percentage of malnourished privileged boys and girls were 8 per cent and 28 per cent; underprivileged malnourished boys and girls were 20 per cent and 45 per cent respectively. This data in terms of male female disparity within social class highlights the risks to female children[49]. Another report showed malnourished, stunted, wasted and under weight is markedly higher among female in comparison with male which indicated sex discrimination against females in intra-family distribution of food [6].

Average age, weight and height of respondents' indicates their mean age was 30.9 years (SD ±6.2 years) and ranged 25-44 years. Mean weight and height were 52.0 kg (SD ±11.2 kg) and 156.6 cm (SD ±12.5cm) respectively and the range of the weight and height were 33.0 to 97 kg and 138.0 to 167.0 cm respectively (Table-23). According to BMI respondent mothers were well nourished. About two-thirds (62.5%) of them were normal in BMI and only 9.4 per cent of them were suffer from different grades of chronic energy deficiencies (CED) i.e. 6.3, 2.6 and 0.5 per cent respondent mothers were suffering from CED_1, CED_2, and CED_3 respectively .On the other hand 27 per cent respondent mothers were over weight (19.8%), and obese (6.3%). One per cent respondents were morbidity obese (BMI > 40 kg/m^2 means morbidity obese [82]), which indicates an alarming health problem (Fig -10 and Table-24). The prevalence of CED among women of Bangladesh, as revealed by studies of different organizations proves the present study that; CED has decreased in rural areas from 76 per cent in 1992 to 45 per cent in 2000. The prevalence of CED decreased from 62 per cent to 35 per cent in urban areas over the same period of the time [88].

Most of respondent mothers (62.5%) opined that there was no difference between the boy and the girl child in the society because they thought in these days women are also earning money and helping their parents financially like men (56.5%). They also believed that, all are equal if both of them become educated (47.1%) and educated lady can work outside & can bring social respect to their parents (17.4%) (Fig-11 & Table 25). Mothers' knowledge on equal role of boys and girls

in the society were strongly correlated (P<0.01) with mothers' education and occupation (Table-39). About one-third (31.3%) of the mothers believed in different role of boys and girls in the society (Figure-11).They opined boys can earn money and help their parents financially (31%), girls can't go outside the home all the time (27%) (Table-26). It was also observed that 79.2 per cent of respondent mothers believed in equal importance needed on sending both boys and girls to school (Table-27). Because they thought that both the son and the daughter are needed the light of education (31.3%), both of them will work outside after finishing their studies (17.4%). Besides these they thought, both child will bring glory and respect to their families (21.6%), education was needed for future security of their life (26.3%), for being self dependent (37.2%). "No one can fraud them if they become educated" said 32 per cent respondents (Table-29). Equal importance of sending children to school were correlated (P<0.05) with educational qualification of the household heads (Table-39). Respondents' opinion about less importance of sending both children equally to school indicates about eighty per cent (79.3%) of respondent mothers expressed that they cannot give education to their children due to poverty .Girls will go to in laws' house and over education will cost money for marriage- these types of comments were given by 5.7 per cent and 7.5 per cent respondent mothers respectively (Table-29). About forty per cent (40.1%) respondents gave reasons for educating sons that, their sons' income will help parents in future. Further more they believed, sons will be the future head (20.6%), will be the successor (16.7%) of the family. That's why they need education (Table-30). At the same time more than one third (34.6%) of the respondents educate their daughters to have better marriage, and to have self identity (18.0%). Again 30.5 per cent of them told it would help their daughters during their financial crisis (Table-31).

Another figure showed that maximum number (76%) of girl children worked different types of household activities; amongst them 71.7 per cent did house cleaning, 18.2 per cent helped in cooking and 15.1 per cent did child carrying (Figure-13). On the other hand, only 19.5 per cent of boys helped in household

activities which were mostly gardening and caring goods from shops or from market (Figure 12 &13).Another comparison showed that 42.1 per cent daughters and 26.7 per cent sons participated in different types of household works desired by their guardian. Twice the number of boys (29.3%) did these activities for entertainment than girls (14.4%). Family tradition plays a role for 20.5 per cent girls and only 8.0 per cent for boys in doing household activities (Table-32). In 'SAMATA' Bangladesh Decade Action Plan for the Girl child, 1991-2001, Ministry of Social Welfare, Government of People's Republic of Bangladesh, in their article 'Situation of the Girl Child in Bangladesh' revealed almost similar trend to the current study that, forty per cent of all girls are engaged in household work where the number is very negligible in case of boys. Though there were several laws in Bangladesh restricting child labour, labour participation of girls (10-14 years) has increased, while the participation of boys has declined.[18]

A remarkable difference was found between boys and girls on giving opportunity to play outside. According to the opinion of respondent mothers 83 per cent boys got opportunity to play outside whereas only 46 per cent girls got this opportunity (Figure 14).

Majority (56.3%) of respondent mothers opined that sons will give more service in their old age. They believed sons will take responsibilities of their parents in their old age, though sons will stay with them because of social tradition (33.8%). One third of respondents (33.8%) considered sons as old age security. Again certain per cent (12.0%) of respondents opined that their sons will bury them after their death (Table 38). About twenty per cent (19.2%) of respondents thought girls will be more helpful in their old age. Major portions of the respondents (43.2%) thought that daughters can realize their parents' limitations and sorrows more than their sons. Again 32.4 per cent respondents opined that daughters can feel their parents and take care of them even more than sons. On the other hand, 24.4 per cent of respondents thought that, in these days women also earn money and contribute financially to parents like men (Table-35).

Almost all of respondents (92.7%) considered sons as blessings for their families. They believed that their sons would be successor (32.0%) and the future security (23.6%) of the family. Again 23 per cent respondents opined that their sons would earn money for the family in future (Table-36 & Table 37).

Remarkable differences were observed in case of attitude towards consulting a doctor or nutritionist for health problems of their children. About 93.2 per cent respondents consulted doctors; whereas only 28.7 per cent respondents consulted nutritionist when there were health problems of their children. Again boys got preferences to go to doctors or nutritionists than girls (Table-38). According to 'Situation of the girl child in Bangladesh' parents seem to be slower in seeking medical help for a sick girl [18]. It was demonstrated in a study that among the children of under 5 years of age male hospitalization exceeds female hospitalization, which reflects a possible reflection of sex biased in child care and provides sex preference in intra-familial food allocation.[31] The same trend was also seen in Pandey et al that qualified health professionals were consulted more often and sooner for boys than girls, for which parents also traveled longer distances for boys. Expenditure per treated episode differed significantly. Results of logistic regression analysis showed that chance of spending more money was 4.2 times higher for boys [67].

Intra- household food behavior and cultural information were obtained from respondents. More than one-third of respondents (36.5%) bought food staff from market. On the other hand in case of 40.1% households husbands did this job. A limited number of respondents (16.7%) said both the husband and the wife were responsible for household food purchase (Table-40). Elderly female members and respondents themselves (91.5%) were the main responsible person for cooking family foods (Table-41). Respondents themselves (89.1%) were the main responsible person for child caring and feeding. In case of 3.9 per cent & 2.6 per cent respondents' children were fed by servants, and elderly female members respectively (Table-42). Almost all of the (84.1%) respondents believed that they

were conscious about food intake of their children (Table-43). More than half of respondents (56.0%) believed that their children take sufficient amount of foods according to their requirements (Table-44).

From Figure-16 and Table-45 it can be seen that 42.8 per cent respondent mothers believed that boys need more food than girls and they thought more food is needed for their son's growth and development (38.4%). Rohner and Chaki showed similar trend that girls are told boys need more for their health. So a sister should be affectionate to her brothers regarding feeding them good food.[57]

Majority of respondents (65%) opined that equitable distribution of foods in the household among male and female children is important (Figure 17). But only 37.2 per cent respondents distributed foods between male and female children equitably (Table-47). A study indicates there is a considerable variation in the distribution of food items among the family members[36]. Equitable distribution of foods between boys and girls were strongly correlated with mother's income and monthly expenditure on foods (Table 51).

Milk and eggs were considered as the special foods for their sons said 36.2 per cent mothers whereas, 16.7 per cent mothers told those were special for their daughters. On the other hand 10.7 per cent of the mothers told vegetables were the special food for girls whereas only 1.6 per cent mothers told it was special for boys (Table-46). An ethnographic study conducted in eastern India provides information on child caring practices and some notes on feeding. The evidence indicates favoritism toward sons in higher-caste groups: men and boys are served first at a family dinner, and they are served the best of every dish, especially milk, fish, and eggs[57]. Another study revealed that although both sexes receive the same number of calories, girls are given more cereals, while boys receive more high valued milk and fats[50].

About fifty per cent (49.3%) of respondents' cooked special foods for their sons and only 9.9 per cent respondents' cooked special foods for their daughters within last 3 days prior to data collection (Table 48). Another table presents respondents' opinion about major concerning factors to be determined during food selection. It indicates that about one-third (31.0%) of respondents considered food prices, 19.5 per cent of respondents considered food availability and 17.7 per cent of respondents considered nutritive value of foods during food selection for their children (Table-49) .

From another comparison it has been seen that only 19.5 per cent of respondents took meals together with all family members. In 12.5 per cent households all members took meal together except respondents. On the other hand, majority (61.8%) of the respondents told male members took first and then female, which indicates that intra-household meal taking pattern, was very poor in the sense of gender bias (Table- 50). In the UNICEF's annual report 'The State of the World's Children stated that from girlhood to womanhood, the females of many societies are fed last and least [7]. Another study in Bangladesh in 2004 proves that though women acquire and prepare food for the family, they usually eat last and least [80]. Again another study by Bhuyan et.al shows that rural women (62%) took their meals after male members [36].

Preferences of different types of foods between boys and girls indicates that good quality and expensive foods for example milk, egg, meat, fruits and sweets etc always preferred for boys in intra -household food distribution compared to girls (Figure-18). A similar result was found in "Intra familial distribution of food in rural Bangladesh" that females in all age groups had a lower intake of fish than males which is a great source of protein [25]. Another study shows that at lunch, first servings are quite equitably distributed but the "choices" pieces of fish go to the boys. Notably, girls do not get second servings, while their brothers do. The study also shows if fishes in less quantity are available then those are given to boys and people explained this generally equitable distribution pattern of food [58]. Besides this, a study on child caring practices and some notes on feeding shows that men

and boys are served first at a family dinner, and they are served the best of every dish, especially milk, fish, and eggs [57].

Respondents' practice about reserving special foods for their children indicated about eighty per cent (79.9%) respondent mothers reserved special foods for their sons, whereas, only 45.8 per cent reserved special foods for their daughters which represent a remarkable gender discrimination in intra-household food distribution systems (Figure 19). It was also observed that all types of special foods were more reserved for their sons compared to their daughters. For examples in case of special pieces of fish and special pieces of meat/poultry 13.5 per cent and 31.0 per cent respondent mothers reserved those for sons, whereas only 6.5 per cent and 10.1 per cent of respondent mothers did that for their daughters respectively. Again, 9.9 per cent respondent mothers reserved chicken head or liver for sons which were reserved by only 4.7 per cent respondent mothers for daughters. 10.4 per cent mothers reserved eggs for sons which was only 6.2 per cent for daughters (Table-52). A study on pre school boys proves that boys always get the lion's share of animal and fish products [71].

Reasons for reserving special foods by respondent mothers for their sons indicated that 65.8 per cent respondent mothers reserved special foods for their sons because of love or for self satisfaction. On the other hand, 25.4 per cent respondent mothers reserved special foods for their sons for growth and development. "More food will supply more energy" 6.2 per cent respondent mothers gave this reason for reserving special foods for their sons (Table-53). On the other hand, respondents' reasons for reserving special foods for daughters indicates 27.3 per cent & 21.6 per cent respondent mothers reserved special foods for their daughters due to their thoughts of girls couldn't take food outside and after marriage their daughters' food intake might be reduced. 38.1 per cent expressed their views that all children were equal; though she reserved special foods for son, for the same reason she reserved special foods for daughter. And only 9.1 per cent respondent mothers reserved special foods for their daughters due to their daughters' growth and development (Table-54).

It has seen that a greater number (184 out of 384) of respondents didn't reserve any special foods for their daughters (Figure 19). It was found that 45.6 per cent respondents thought girls didn't need any special foods. So they didn't reserve any special foods for daughters. 18.5 per cent respondents said "more foods will make girls greedy". On the other hand, 17.4 per cent mothers thought regular family food was sufficient for girls, so they needed no special foods. 13.6 per cent respondents thought it was more important to supply special foods for their fathers and brothers than girls (Table-55). An ethnographic study conducted in a West Bengal village in eastern India consistently indicates favoritism toward sons. Girls are told, "The boys need more for their health. A sister should be affectionate to her brothers and feed them well".[57]

Educational qualifications of mothers were significantly correlated with reserving special foods in case of gender differentiations ($P<0.05$).It was also involved similarly with household monthly income, but in case of mother's income it was highly significant in food reserving for both the son and the daughter ($P<0.01$), It indicates that mother's income decreased gender discrimination in food reservation (Table 64).

Respondents' attitude towards buying /giving snacks for their children showed about eighty per cent (78.6%) of respondents' attitude was positive towards buying /giving different kinds of snacks for their children (Table-56). Most of the respondents (58.3%) gave preference to buy more snacks for their male children (Table 57). Respondents' attitude about giving tiffin to their children to school showed about two-thirds (65.6%) of respondents were positive and 30.2 per cent were negative about giving tiffin to their children to school (Table 58). Respondents' preference for giving different kinds of tiffin indicates majority (43.7 + 16.7 = 60.4%) of respondents made tiffin at home of which 43.7 per cent gave regular foods and 16.7 per cent gave home made fast foods. On the other hand, 18.2 per cent of them gave fast food from shop and 21.4 respondents gave some times fast food from shop and sometimes home made tiffin (Table-59).

Response regarding reserving special food items for them and their husbands indicate that majority of respondents (81.6%) reserved special food items for their husbands. On the other hand, about ninety per cent (89.1%) respondents didn't reserve any special food items for themselves (Table-60).From the traditional concept, 25.6 per cent respondents reserved special food items for their husbands. On the other hand, 24.6 per cent respondents thought their husbands worked hard, 15.3 per cent respondents believed that husbands were the family heads, so they deserved special food. That's why they reserved special food items for their husbands (Table-61). Similar result was found in a study on intra familial distribution of nutrients that the male head of the family receives the largest share of the family diet in relation to other members of the family [5]. Nutrition survey of rural Bangladesh indicates that, the intake of food is remarkably higher for males in all age groups than females. [10].

Respondents' reasons for not reserving special foods for themselves showed that 39.2 per cent thought that they needed no special food, 19.6 per cent thought it was not traditional rule and 9.4 per cent said it would be shameful for them to have special food. On the other hand, 27.4 per cent respondents said that, it was more important to reserve special foods for husbands and children rather than for themselves (Table-62).

Respondents' practice of giving milk to their children regularly indicates that 20.1 per cent of respondents gave milk to their son regularly which was only 7.8 per cent for their daughters. Again, 48.2 per cent of them gave milk sometimes to both children, whereas 17.2 per cent of them could never gave milk to their children because of poverty (Table- 63).Correlation between household monthly income & educational qualification of mothers and equal distribution of milk and egg regularly showed household monthly income was insignificantly correlated with equal distribution of milk and egg among boys and girls regularly whereas, educational qualification of mothers was highly correlated ($P<0.01$) with these factors (Table 65). From the study of Aryea and Dev it was found that consumption pattern was better in children with literate mother as compared to

children with illiterate mothers. The consumption of milk and milk products, fruits, sugar and juggery were significantly greater in children with literate mothers.[79]

Food priority patterns of the households (in case of special foods) indicates that if limited number of special foods, e.g. only one egg available in the house then 39.6 per cent respondent mothers gave it to their husbands and sons, 26.3 per cent of them gave it to sons and only 3.6 per cent of them gave it to daughters which confirmed the gender bias in food allocation in the intra-households (Figure-20). Similar study on sex bias in intra-household food distribution conducted in India indicates that since prehistoric times and is present now as cultural characteristic of diverse social and ethnic groups, generally females especially young females are the group most discriminated against.[8]

5.2 CONCLUSION

The study reveals that gender bias in food allocation among boy and girl children exists among the selected primary school children in different dimensions. Actually most of the respondent mothers knew that, there should not be any differentiation between boy and girl child, however in reality the respondent mothers have been found to behave differently. Exposure to various electronic and print media may improve this bias regarding food allocation along with contributions from nutritionists & health professionals.

The new knowledge generated from this research is that the mothers are aware of the detrimental effects of gender bias in food allocation but most of them really do not practice it. This needs to be reassessed and emphasized through various government and non government organization activities of the country for future improvement of nutritional status of our next generation.

5.3 RECOMMENDATIONS

On the basis of the study, certain recommendations are proposed to minimize the intra-household gender bias especially in food allocation among the primary school children:

1. High priority should be placed on nutrition education programs for educating mothers through primary schools in their guardians meeting. Indeed they are the main providers of meals, care, and nutrition information in the household and they have a fundamental role in assuring improved nutritional status for all especially girl children who are mostly victim of gender bias.

2. Mothers and fathers should have equal access to programs on family life education. In addition to improving education of women and in determining the nutritional status of household members the nutrition education of men and boys should be enhanced.

3. Special motivational programs should be undertaken to eradicate the misbelieve that boys are more helpful for parents instead of girls during old age as both of them have equal potential.

4. Government, non-government, private and voluntary organizations should take steps to formulate and implement effective nutrition education programs for decision makers and other members of the family, with emphasis on various aspects of gender bias in food allocation which eventually hinders national productivity and development.

5 Appropriate campaign though mass media like radio, television and print media on equal rights of male and female children. All forms of discrimination including detrimental practices against women as well as girls must be eliminated. In order to promote and ensure meaningful equality between male and female children the role of female children must be under stood. This will facilitate the sharing of their work load and responsibilities with other household members. Equality in the allocation of food between girls and boys must be promoted, especially in the quantity and quality of the daily dietary intake should be emphasized for elimination / decrease in gender bias on food allocation.

6. At the community level the mother clubs, or other related social organizations should be made aware about the current happening in their surrounding regarding gender bias in food allocation and other associated factors for taking remedial measures.

7. As the girls are future mothers, special attention should be given to improve the nutritional status of girl child from the early childhood for having well nourished babies.

8. Further research on gender bias covering more geographical areas of Bangladesh is thus suggested for future effective policy direction.

CHAPTER SIX

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CHAPTER SEVEN

ANNEXURE – 1

QUESTIONNAIRE

QUESTIONNAIRE

Institute of Nutrition and Food Science
University of Dhaka.

Title: Gender bias in intra-household food distribution among primary school children in Dhaka city.

Identification No. _____

Date of Interview _____

1.0 Back Ground Information

1.1 General Information:

1.1.1 Thana:

1.1.2 Word:

1.1.3 Road:

1.1.4 Name of the School:

1.2. Information of Children:

1.2.1 Name :

1.2.2 Age :

1.2.3 Sex :

1.2.4 Student of Class [ ]

1.2.5 Studying in the school for [ ] years.

1.2.6 Religion :

[1] Muslim [2] Hindu [3] Christian [4] Buddhist

1.2.7Birth order of the child

[1] First [2] Middle [3] Last

1.3 Information of Respondent:

1.3.1 Relationship with the child:

1.3.2 Name :

1.3.3 Age :

1.3.4 Educational level

[1] Illiterate [2] Primary [3] Secondary

[4] Higher Secondary [5] Graduate and above

1.3.5 Marital Status

[1] Married [2] Widow

[3] Divorced [4] Separated

1.3.6 How many children do you have? ----------

1.3.7 Sex of Children:

[1] Male [2] Female

1.4 Household Information:

1.4.1 How many person live in your household? Number [ ]

1.4.2 Who is the family head?

[1] Father [2] Mother [3] others (please Specify)

1.4.3 Who is the decision maker in the family?

[1] Father [2] Mother [3] Both [4] Others (specify)

1.4.4 What is the educational qualification of the decision maker?

[1] Illiterate [2] Primary [3] Below S.S.C.

[4] H.S.C. [5] Graduate or above

1.4.5 How many primary school going children do you have?

[1] 1 [2] 2 [3] 3 [4] 4 or above

2.0 Socio-Economic Information

2.1 What is the occupation of the decision maker?

[1] Service [2] Business [3] Others (please specify)

2.2 Job status of respondent mother

[1] Service [2] House wife [3] Business [4] Others (specify)

2.3 Average monthly family income

[1] < Tk. 5000 [2] Tk. 5001 –10,000

[3] Tk. 10001– 15,000 [4] Tk. 15,001–20000

2.4 What are the sources of income of your family?

[1] Husbands' income [2] Self income [3] Both income
[4] House rent [5] Other household members' income

2.5 Average monthly expenditure:

[1] < Tk. 4000 [2] Tk. 4001 — 9000
[3] Tk. 9001 — 15000 [4] Tk. 15001 — 19000
[5] > Tk. 19000

2.6 Average monthly expenditure for food :

[1] ~ Tk. 2000 — 4000 [2] ~ Tk. 4001 — 6000
[3] ~ Tk. 6001 — 10,000 [4] > Tk. 10000

2.7 What is your housing status?

[1] Own house [2] Rented house
[3] Non-rented house [4] Government house
[5] Others (please specify)

2.8 What is your housing condition?

[1] Brick house [2] Brick wall with tin roof
[3] Timber wall with tin roof [4] Bamboo wall with tin roof
[5] Others (please specify)

2.9 Do you have any loan?

[1] Yes [2] No

2.10 Do you have any savings?

[1] Yes [2] No

2.11 What steps do you take for entertainment?

[1] Watch TV /listen radio [2] Gardening [3] Cooking
[4] Reading story books [5] Others (Please specify)

3.1 Nutritional status of the child

i) Ht (cm) [ ]

ii) Wt (kg) [ ]

iii) MUAC (cm) [ ]

3.2 Did your child suffer from any disease last 3-6 months?

[1] Yes [2] No

3.3 If yes: _____

Sl. No.	Name of diseases	Suffering time
1		
2		
3		
4		

3.4 Clinical sign & symptoms: _____

(a) Eye – Xerophthalmia –

i. Light sensitivity [1] Yes [2] No

ii. Night blindness [1] Yes [2] No

iii. Bitot's spot [1] Yes [2] No

iv. Corneal opacacity [1] Yes [2] No

v. Others forms of xerophthalmia (If so, please specify) _____

(b) Gum problem [1] Yes [2] No

(c) Dental carries [1] Yes [2] No

(d) Tongue: red & glossitis [1] Yes [2] No

(e) Visible thyroid gland [1] Yes [2] No

(f) Anemia [1] Yes [2] No

(g) Skin lesion [1] Yes [2] No

3.5 Nutritional status of the respondent mother.

Ht (cm) [ ] Wt (kg) [ ]

BMI [ ]

4.0 Knowledge, Attitude and Practice about Gender Discrimination

4.1 Now a days are there any difference among boys & girls in the society?

[1] Yes [2] No

4.2 If yes/no, why (please specify): _____

4.3 Do you send your children to school?

[1] Male baby goes to school [2] Female baby goes to school

[3] None goes to school [4] Both go to school

4.4 Do you give equal importance in sending your child to school regularly?

[1] Yes [2] No

4.5 If Yes, Why (please specify): _____

4.6 If your answer is no, Why?

[1] Can not give education due to poverty

[2] Girls will go to in laws' house

[3] Over education will cost more money for marriage?

[4] Others (please specify)

4.7 Reasons for educating sons:

[1] His income will help parents in future

[2] He is the successor of the family

[3] He will be the future head of the family

[4] He will be self reliant

[5] Others (please specify)

4.8 Reasons for educating daughters:

[1] It will help her in case of her financial crises

[2] Will enable her to have better marriage

[3] To have self identify

[4] To be able to educate her children in future

[5] It will be helpful for maintaining her family in future

[6] Her income will helpful for parents in future.

[7] Others (please specify)

4.9 Does your female child do any household activities?

[1] Yes [2] No

4.10 If yes, what types of activities do your child does?

[1] Child carrying [2] Cooking [3] Gardening [4] House cleaning

4.11 Does your male child do any household activities?

[1] Yes [2] No

4.12 If yes, what types of activities does he do?

[1] Child carrying [2] Housing cleaning [3] Cooking
[4] Gardening [5] Poultry raising [6] Others (specify)

4.13 Why do they do these activities?

[1] Maintaining health [2] Desired by the guardian
[3] Entertainment [4] Family tradition
[5] For earning /savings family income

4.14 Do your children go to field afternoon for play?

[1] Male baby goes to play [2] Female baby goes to play
[3] None goes to play [4] Both of them go to play

4.15 Do you give equal importance in sending your child to play outside?

[1] Yes [2] No

4.16 In old age who will be more helpful for parents?

[1] Male children [2] Female children [3] Both

4.17 If answer is male children, why? (Please specify) _____

4.18 If answer is female children, why? (Please specify) _____

4.19 Do you think that sons are the blessings for the family?

[1] Yes [2] No

4.20 If yes, why do you think so?

[1] They will earn in future
[2] Sons are the security for the family
[3] Daughters will go in laws'house after marriage
[4] Sons will be the successor of the family
[5] Others (Please specify)

4.21 Do you consult doctor/nutritionist while your child is suffering from any health problem?

[1] Yes for male children [2] Yes for female children
[3] Yes for both [4] Yes for none [5] others(specify)

5.0 Intra- Household Food Behavior and Cultural Aspects

5.1 Who usually buy food staff form market for your family?

[1] Husband [2] Myself
[3] Both husband and wife [4] Others (please specify)

5.2 Who cooks food for your family?

[1] Myself [2] Servant
[3] Elderly female member [4] Others (please specify)

5.3 Who helps the child in taking meals?

[1] Himself/Herself [2] Myself
[3] Father [4] Grandmother
[5] Others (please specify)

5.4 Are you conscious about food intake of your children?

[1] Yes [2] No

5.5 According to your requirements does your child consume sufficient food?

[1] Yes [2] No [3] I don't know

5.6 Who needs more food – Young boy or Young Girl?

[1] Boys need more food [2] Girls need more food
[3] Equal need [4] Don't know

5.7 If answer is yes for boy then why does he need more food?

[1] For growth & development
[2] For more activity
[3] Sons are the future security for family
[4] Daughters are the temporary members of the family.
[5] Others (please specify)

5.8 If answer is yes for girl then why does she need more food?

[1] For growth & development
[2] For more activity
[3] Daughters are the future security for family
[4] Daughters will go in laws house after marriage.
[5] Others (please specify)

5.9 What type of special foods a girl needs for growth?

[1] Calorie rich [2] Protein rich
[3] Micro nutrient rich [4] Others (please specify)

5.10. What type of special foods a boy needs for growth?

[1] Calorie rich [2] Protein rich
[3] Micro nutrient rich [4] Others (please specify)

5.11 Do you think you distribute food items equitably among your male & female children?

[1] Yes [2] No

5.12 What factors do you consider in selection of foods?

[1] Food availability [2] Food prices

[3] Nutritive value [4] Food availability & Food

[5] Food price and nutritive value

5.13 Who serves everyday meals to family members?

[1] Self [2] Elderly female member

[3] Maid servant [4] Self service

5.14 Meal taking pattern of households.

[1] All members take meals together

[2] Male members take meal first and than female members

[3] All members take meals together except me

[4] There is no compulsory rule.

5.15 Did you cook any special food for your child for last 3 days prior to data collection?

[1] Yes for male [2] Yes for female

[3] Yes for both [4] No for both

6.0 Gender Bias in Intra- Household Food Distribution

6.1 What types of food do you prefer for your son?

[1] Rice, bread
[2] Meat, fish, egg
[3] Milk & products
[4] Vegetables & fruits
[5] Sweet
[6] Others (please specify)

6.2 What types of food do you prefer for your daughter?

[1] Rice, bread
[2] Meat, fish, egg
[3] Milk
[4] Vegetables & fruits
[5] Sweet
[6] Others (please specify)

6.3 Do you (give) buy any snacks for your son or daughter?

[1] Yes
[2] No

6.4 If yes, for whom do you buy more snacks?

[1] For son [2] For daughter [3] Equal for both son &daughter

6.5 Why, please specify _____

6.6 Do you give any tiffin for your babies?

[1] Yes
[2] No

6.7 If yes, which kind of tiffin do you prefer to give them?

[1] Regular foods
[2] Home made fast foods
[3] Fast foods from shop
[4] Others (please specify)

6.8 Do you reserve any special food for your son?

[1] Yes
[2] No

6.9 If answer is yes than what kind of food reserve for him frequently?

[1] Fish (special piece of fish) [2] Chicken liver [3] Egg
[4] Chicken head or brain [5] Meat (special price of poultry)
[6] Fruits [7] Milk [8] Sweet [9] Others (please specify)

6.10 Do you reserve any special foods for your daughter?

[1] Yes [2] No

6.11 If your answer is yes, why?

[1] All children are equal [2] Girls cannot take food outside
[3] After marriage her food intake may be reduced
[4] Others (please specify)

6.12 If answer is no then why?

[1] More food will make female child greedy.
[2] She needs no special foods.
[3] It's more important to supply special foods for her father and brother
[4] Others (please specify).

6.13 Do you reserve any special food for your husband?

[1] Yes [2] No

6.14 If answer is yes, why?

[1] He is the head of the family [2] He works hard [3] He earns money
[4] He disserves and it is rule traditional rule [5] Others (please specify)

6.15 Do you reserve any special food for your self?

[1] Yes [2] No

6.16 If answer is no – why?

[1] I need no special food

[2] I don't disserve it, is not traditional rule

[3] It's more important to supply special foods for husband & children

[4] Though I take meal last of all, so there is no extra food available for me

[5] Its shame for me [6] Others (please specify)

6.17 Do you think equitable distribution of food between male & female is important?

[1] Yes [2] No

6.18 Do you give milk to your child (cow's or tin) regularly?

[1] Yes for female [2] Yes for male [3] No for male

[4] No for female [5] Sometimes for both

6.19 You have only one egg available in the house, whom will you serve it?

[1] Husband [2] Son [3] Daughter

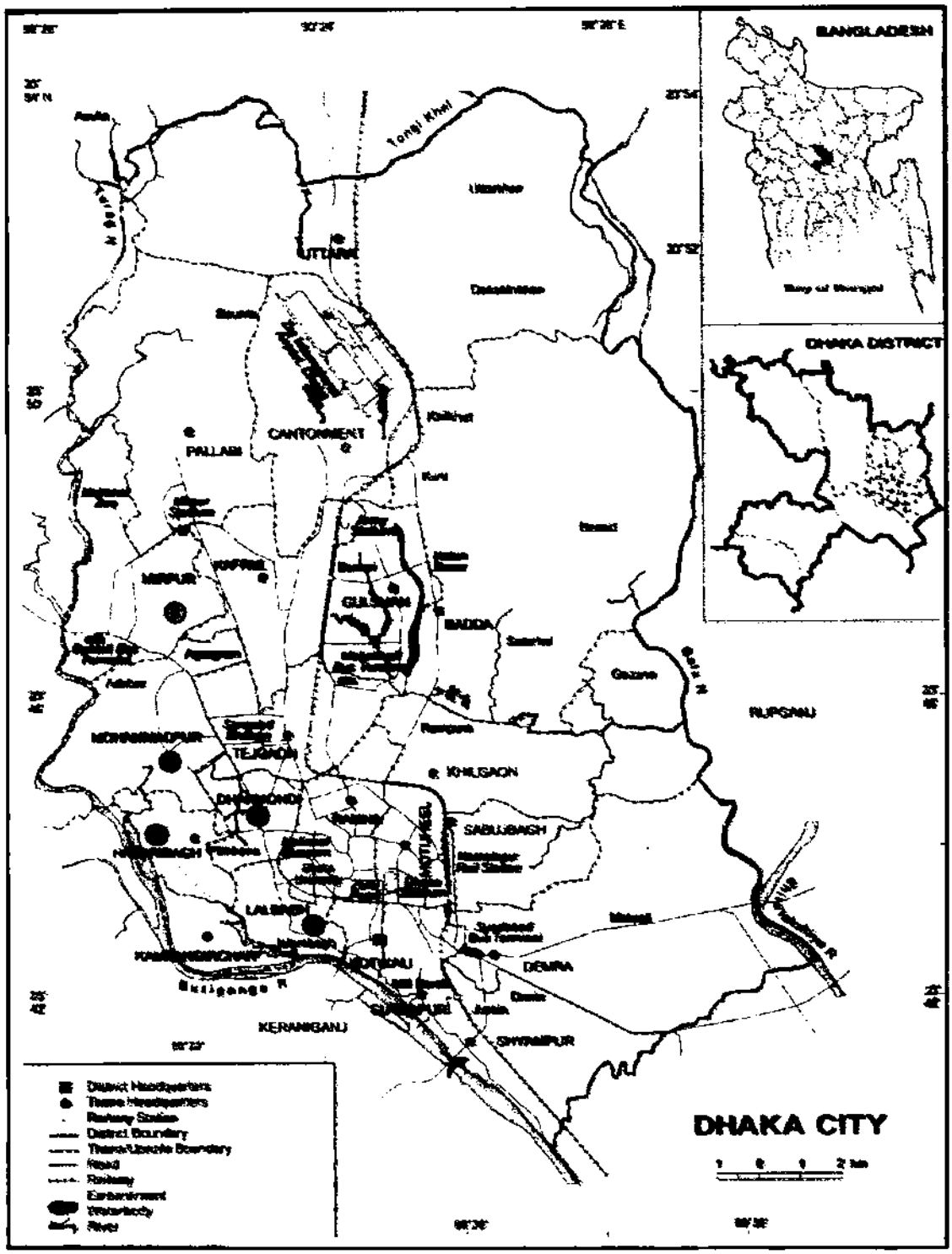
[4] Son & daughter [5] Husband & son

[6] Other elderly members [7] Self

[8] No priority, all are equal

ANNEXURE-2

Map of Dhaka City Corporation Showing Study Thanas



●The red circles indicate Study Thanas