OCCUPATIONAL HEALTH HAZARDS OF FEMALE WORKERS IN GARMENT SECTOR-A STUDY IN GAZIPUR DISTRICT OF BANGLADESH

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A THESIS

BY

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DEDICATED
TO
MY BELOVED PARENTS
AND HUSBAND

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CERTIFICATE

This is to certify that the thesis entitled **"OCCUPATIONAL HEALTH HAZARDS OF FEMALE WORKERS IN GARMENT SECTOR-A STUDY IN GAZIPUR DISTRICT OF BANGLADESH"** submitted to the Department of Development and Poverty Studies, Faculty of Agribusiness Management, Sher-e-Bangla Agricultural University, Dhaka in partial fulfillment of the requirements for the degree of MASTER OF SCIENCE in DEVELOPMENT AND POVERTY STUDIES, embodies the result of a piece of bonafide research work carried out by **REYA ROUSHON JAHAN**, Registration number: **07-02550** under my supervision and guidance. No part of the thesis has been submitted for any other degree or diploma.

I further certify that any help or source of information, received during the course of this investigation has been duly acknowledged.

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ABSTRACT

The study was undertaken to analyze the occupational health hazards of the selected female garment workers as well as the health status. In this study, primary data were collected from the study area named Bank para, Auch para, Muktar bari, Guthia under the Gazipur district which was selected purposively where garment workers were available. The sample of the study consisted of 60 garment workers. Firstly, the areas were selected according to the purposively four cluster. Then judgment sampling was used to draw the sample from each cluster. Secondary data were also used in the study. Tabular and statistical techniques were applied to analyze the data. Logistic regression was used to measure the risk factors that are associated with the selective health hazards.

The study revealed that the average age of the female workers was only 24 years and respondents appeared to be less educated. It was found that all the female workers were not household head in the family. So, in this study the percentage of household head of male are comparatively higher than female. Findings showed that the particular nature of work in the Ready-Made Garment created various types of health hazards. In this study, garment workers were affected by various diseases. These diseases were headache, fever, musculoskeletal pain, eye strain, less appetite, chest pain and respiratory trouble. Result of the study showed that the most frequent illness reported by 56.67 percent workers were affected by headache and 18.33 percent workers were affected by fever. It occurred due to the type of work, sources of drinking water, mental pressure in the working place and lack of healthy meal.

The study also revealed that headache, fever and mental pressure were the important factor for contributing to low work output.
Furthermore, the study recommends some options for improving the health status of the female garment workers such as ensuring a good sources of drinking water, provide facility of baby care centre and create canteen facility with cost effective balanced diet.

ACKNOWLEDGEMENTS

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LISTS OF ACRONYMS

RMG	:	Ready Made Garments
EPB	:	Export Promotion Bureau
WHO	:	World Health Organization
BGMEA	:	Bangladesh Garment Manufacturers and Exporters Association
ILO	:	International Labour Organization
TLV	:	Threshold Limit Value
GoB	:	Government of Bangladesh
NGOs	:	Non Government Organizations
GDP	:	Gross Domestic Product
IFFCO	:	Indian Farmers Fertilizers Cooperative Ltd
U.S	:	United States
SE	:	Standard Error
OR	:	Odds Ratio

CHAPTER 1
INTRODUCTION

1.1 Background of the Study

The garment industry is one of the largest export industries, and it exemplifies the growth in global manufacturing. Most nations produce for the international textile market, making this among the most global of all industries. Often a starting point for countries looking to move into export-oriented industrialization, it played a lead role in East Asia's early export growth. In many countries, the garment sector is the largest employer. The Ready-Made Garment (RMG) sector has a greater potential than any other sector in terms of employment and foreign exchange to reduce poverty and make a contribution to the national economy. However working conditions in this vital sector are poor. The RMG factories of Bangladesh fall short on social compliance. In Bangladesh the industry was expanded mainly on the easy availability of labor especially of the female labor accessibility.

The RMG industry created employment opportunities i.e. especially for female workers and now this sector is considered as one of the main sources of employment for female workers of Bangladesh. This industry has provided the largest employment opportunities for women in the industrial sector where more than 85 percent of the production workers are women (Islam and Zahid, 2012). In a developing country like Bangladesh, Ready-Made Garment (RMG) sector plays an important role in the overall economic development. Most of the female workers in these garment factories are almost always illiterate. They have very limited knowledge of human rights, working conditions and labour standard. Many researchers have investigated working conditions in the Bangladesh garment industry. In fact Working conditions in the

RMG sector are below standard and do not meet the ILO standards. Labour standards and rights are commonly ignored in the RMG factories in Bangladesh: poor practices of trade unions, informal recruitment, and irregular payment, sudden termination, wage discrimination, excessive work, and abusing child labour. The scope of industrial health had widened as the time and technology advanced. The health hazard is no more confined to only developed countries but also developing countries due to rapid industrialization. As new industries expand, the labour force grew in the economy of those countries, at the same times the health hazard for those workers present there in various occupational diseases highly prevailed along with those industries and accidents among the workers.

Female force engaged in the garment industries in all types of knitwear, woven and sweaters, are generally suffer from malnutrition, anemia, gastric, dysentery, diarrhoea, respiratory problem, gynecological problems, tuberculosis and urine infection etc. Thus health care in public sector is also quite costly for low paid female workers. As a result, more than 87% female workers suffer from different types of ailments and diseases. Married female workers suffer from various problems. But women were exploited easily due to lack of technical knowledge and training. According to WHO (1948), "Health is a state of complete physical, mental and social wellbeing and not merely the absence of diseases or infirmity".

1.2 Occupational Health Hazard

Occupational health hazards are hazards of exposure to pollution, noise and vibrations in the working environment. Occupational health hazard is related with health hazard to work environment. Now a days the garment production workers are at risk and faces various types of diseases and illness, such as occupational asthema, contact and irritative dermatitis, eye, nose and throat irritative symptoms, lung, nasopharyngeal and bladder cancers, and noise-induced hearing loss. Additionally, as some processes in this industry involve exposure to heated plastic fumes, metal dust and fumes (especially lead), leather dust, wool dust and hazardous solvents such as dimethyl formamide, the illnesses associated with these exposures may also be seen among garment workers. Electromagnetic field exposures generated by sewing machine motors are an area of increasing concern. Associations have been reported between maternal employment in apparel production and adverse reproductive outcomes.

The health hazard issues are very much related to the working environment on the garments sector. To prevent the emergence of occupational hazards and protect the physical and mental health of the female workers, both at work and home, to accelerate and maintain the productive activity of the workers and to ensure an uncontaminated atmosphere to the community outside the working places, in a word maintenance of healthy environment in the industrial areas is essentially required, which need no special emphasis in occupational health practices.

1.3 Bangladesh Garment Industries Condition

It is found in the Members' Directory of BGMEA, 2010-2011, the Ready-Made Garment sector (RMG) in Bangladesh has become the backbone of the Bangladesh economy, producing around 80% of the country's exports. It is now the second largest garment exporter in the world, exporting over US$17 billion worth of clothing in 2011.

In recent years, the industry has boomed, and the number of factories engaged in garment production has increased rapidly. Bangladesh is now estimated to have between four and five thousand garment factories, ranging from large first tier suppliers to small industrial unit mostly operating as subcontractors to bigger clients. The industry is characterized by low cost, fast production relying on cheap labor to compete with its competitors. Due to the growth of population, people have to migrate themselves in the urban areas for searching a job. Most of the people are engaged themselves in the industrial sector and the majority of whom are young women, are employed in the Bangladesh garment industry and remain the lowest paid garment workers in the world. The lack of alternative employment options combined with widespread poverty mean these women are forced to accept jobs that are poorly paid and carried out in workplaces that fail to adhere to the most basic standards of health and safety.

1.4 Statement of the Problem

In Bangladesh the industry was expanded mainly on the easy availability of labor especially of the female labor. The RMG industry created employment opportunities i.e. especially for female workers and now this sector is considered as one of the main sources of employment for female workers of Bangladesh. These women have a great role for strengthening the RMG industry but the fact that the poor unskilled women have few alternatives or no better employment opportunities. Employers prefer female workers not only because they are cheaper and abundantly available, but also because they are more vulnerable, docile and manageable than male workers. Work is the most significant indication of effective and productive existence of human being. This way the right to work is enshrined in the code of the Universal Declaration of Human Rights.

The term "occupational risk factor" is defined as a chemical, physical, biological or other agent that may cause harm to an exposed person in the workplace and is potentially modifiable. Female workers are still facing some problems which make their livelihood in struggle.

Work is the most significant indication of effective and productive existence of human being. But when it acts as a stress on human, work may effect on health in one or more of the following ways:

a) It may result in occupational diseases or injury.

b) It may be one of the factors leading to chronic diseases.

c) It may lead to aggravation or delay in recovery from already existing disability of non-occupational origin.

The occupational health problems are affecting female workers of our country; in fact female workers of any developing country are liable to be much more complicate and dangerous as compared to that of developed countries because of the following reasons of:

a) Non-industrial illnesses form a major part of the health problem of female garments workers. In fact incidence of many common illnesses like respiratory ailments (flue bronchitis, cough, and asthema), tuberculosis, peptic ulcer, dysentry etc. are higher among industrial workers as compared to the general population. The female workers of our country live mostly in congested slum areas, so the high prevalence of these diseases should not be surprising.

b) Sickness absenteeism the major contributory factor to the total absenteeism. The reasons for thus high sickness absenteeism are very much varied and complicated but there is no doubt that the prevalence of sickness is high among our workers. One of the main reasons may be the payment of medical allowances in cash with wages in lieu of plant level medical treatment in kind (as per industrial workers Wages and Productivity Commission). Effective health care measures taken at the place of employment to render immediate treatment at the early stages of many of these illnesses will cut short the course and will prevent the disablement due to sickness to a great extent.

c) Unfortunately very little is known about the correct picture regarding the prevalence of occupational diseases in our country. In spite of the fact that reporting of some diseases listed as notifiable occupational diseases is statutorily obligatory as per Factories Act.

d) Most of the occupational diseases are very slow and insidious and when clinically manifested the changes in the body systems are usually irreversible

in most of the cases and very little can be done. Only by planned periodic and purposeful monitoring of the health of the workers and their working environment the condition can be detected and suspected early before any damage is done and suitable preventive action can be taken.

e) The harmful effects of the toxic contaminants in the working environment may prove more dangerous to our female workers with poor health status. Unfortunately no serious work has been done in this field to fix the Threshold Limit Value (TLV) for many harmful materials and incorporate them in the national legislations and permissible limits of these materials set by developed countries may not be safe for our workers.

f) Lack of any laboratory facilities for monitoring, analyzing and assessing the harmful contaminants in the work environment and their effect on the health of the workers is causing health hazards.

1.5 Justification of the Study

RMG sector has been playing an important role in enhancing economy of Bangladesh. The sector draws global attention for its quality production and huge employment for women workers. Female workers in these garment factories are almost always illiterate. They have very limited knowledge of occupational safety and health standard in the garment factories. Occupational disease and injury are significant in Bangladesh.

In case of developing countries like Bangladesh, being unskilled in operating new imported machinery, workers suffers from many health hazards. The field is so extensive and problems are so numerous that it will list out all the problems and perhaps group item into categories far case of discussion and presentation.

One of the major problems in most countries is the lack of a definite government policy for provision of occupational health services. Due to the continuous political unrest in our country, garments sector of Bangladesh is facing a tough competition for ensuring its' competitive survival in the world market. Only a few study has been conducted in this sector. So, The present study will help to find what are the main causes of occupational health hazards, how it is affected on the health of the female garments worker and what are the ways to prevent the occupational health hazards.

1.6 Objectives of the Study

➢ To find out the socio-economic characteristics of female workers in garments sectors.

➢ To explore the health status and food habits of female worker's in the industry.

➢ To assess the causes of health hazards faced by the female workers.

➢ To make some recommendations for improving health status of the female workers in garments sector.

1.7 Outline of the Study

The study is divided into seven chapters. After this introduction, review of literature is presented in chapter 2. Chapter 3 deals with the research methods of the study. Socio-economic characteristics of the respondents are discussed in chapter 4. Health status and food habits of the female workers are presented in chapter 5. The causes of health hazards faced by the female workers in garments sector has been analyzed in chapter 6. Finally chapter 7 presents the conclusions and recommendations of the study.

CHAPTER 2

REVIEW OF LITERATURE

2.1 Introduction

Review of literature is a key step in the research process. It refers to an extensive and a systematic examination of literature relevant to research study to generate data of what is known and not known about a particular situation and to provide in depth knowledge base needed to study the selected problem.

The main purpose of this chapter is to review the available studies related to the present one. Literature reviewed in this study was obtained from different libraries and websites. There were few literatures on different aspects of occupational health hazards in Garments sector in Bangladesh and in the world.

2.2 Relevant Reviews

The researchers have investigated working conditions in the Bangladesh garment industry. In fact Working conditions in the RMG sector are below standard and do not meet the ILO standards. Labour standards and rights are commonly ignored in the RMG factories in Bangladesh: poor practices of trade unions, informal recruitment, and irregular payment, sudden termination, wage discrimination, excessive work, and abusing child labour. Workers suffer various kinds of diseases due to the unhygienic environment and a number of workers are died in workplace accidents, fires and panic stampedes. Absence of an appropriate mechanism to ensure the enforceability of the available laws for protecting workers' rights and maintaining workplace safety

continues to be a concern in the RMG sector. As the sector is an important foreign exchange earning component, some changes are required.

N Nahar (2010) analyzed the types and extent of occupational health hazards of the garment workers as well as the relationship of various health hazards with the age of the workers and the length of work in garments. Three garment factories from Konabari upazila under Gazipur district were selected purposively. The sample consisted of 90 workers taking 30 randomly from each of the three garment factories. Results of the study showed that about 95.6 percent of the workers reported that they were affected by headache. In total 90 respondents, 58.89 percent respondents implied that their extent of headache was severe. About 52.22 percent of the respondents opined that they suffered from severe malnutrition, followed by 78.89 percent by musculoskeletal pain, 72.22 percent by eye strain, 68.89 percent by malnutrition respectively.

Kumar (2006) focused on garments workers are concerned with long working hours or double consecutive shifts, personally unsafe work environment, poor working conditions, wage and gender discrimination. Indeed, employers treat the RMG workers as slaves, exploiting workers to increase their profit margins and keep their industry competitive in the face of increasing international competition.

Sibbel (2004) studied on "Working Conditions in Cambodia's Garment Sector". He mentioned that there were no forced labour, some child labour, but that was found only some exceptional discrimination, including sexual harassment. With regard to the payment to wages the study indicated that those problems related not so much to irregularities with regard to the payment of minimum wages. With the exception of minimum wage payments to causal/short term workers, but mostly related to other

payments such as overtime, bonuses, leave entitlements etc. Workers were often forced to work overtime too often and too long. Freedom of Association, including anti-union discrimination was a problem in some factories.

Majumder (2003) conducted a study on the physical and mental health status of the garment workers and how problem affect labour productivity, competitiveness of the garments industry in the world market and the working life of the workers, particularly of female workers. It showed that various illness and diseases were widespread among the garments workers. A large number of workers were found to continue their work even they were suffering from various diseases and illness. Though the garments workers were very young, they suffered anemia, female diseases, dysentery etc. Moreover, the competitiveness of the garments industry in the world market was seriously affected by the ill health of the workers, since ill health decreases the labour productivity to a great extent. Most of the health problems that the garments workers suffered from arose from the occupational hazards including long working hours, absence of leave facilities and safety measures, absence of staff amenities, lack of safe drinking water etc.

Pick et al. (2002) attempted a study on "The Reproductive and Occupational Health of Women Street Vendors in Johannesburg, South Africa". This study examined that the informal sector was rapidly emerging as the major source of employment in poor countries, little attention was paid to the health hazards encountered by the workers in this sector. Women, the majority of informal sector workers in most parts of the world were particularly at risk. Fertility was positively related to age and inversely related to education, while reported infertility was related to gynecological diseases. More than half the women used mainly injectable contraceptives and only 5% reportedly had PAP smears taken. Most of the women sold food and clothing, 51% lifted heavy

weights and small proportion of the women worked with fire. Over half of the women (54%), mainly those over 40 years and the self-employed, complained of a work related illness or injury, mainly burns, cuts, headaches and musculoskeletal problems. The type of health problem was related to ages and 32% had received treatment.

Ver Beek (2001) conducted a study associated with employment in export-oriented industry in Latin America. He mentioned that while women working in the maquiladores in Honduras were more likely to report health problem in the previous month than those who had been working elsewhere and had less leisure. They earned higher wages than workers elsewhere. They were also more likely to report improvements in intra-household relationships and to report help in domestic work from male members. It was reported that the wages increased by 96% and it varies somewhat only 47% but they were satisfied with their job.

Absar (2000) discussed the women workings, why women work, control over income and migration from the villages. The finding of the study showed that young women valued the modern nature of their to be part of network, considered garments work preferable to the agricultural labour, appreciated the opportunity to help their families financially and self-assured and independent. Most of the rural women migrated from villages to Dhaka city because of their economic conditions. Working in the garment industry also empowered the women workers to improve their consumption level and housing condition.

Srivastava and Bihari (2000) provided a study on "Women Play Diverse Roles in Indian Society". Often they handled two or more tasks simultaneously. They were therefore, prone to suffer from work related diseases which were further complicated by social, psychological and physiological issues. Roughly one out of 300 females was suffering from some occupation related diseases and about the same number

cases adds on to the existing cases each year. The lack of occupational health services resulted in this unwarranted sickness. It also examined interplay of different related issues and outlines a strategy for an action programme.

Zohir and Majumder (1996) conducted a study on the "Economic, Social and Health Condition of Garment Workers in Bangladesh". The study identified the socio economic problems faced by the female workers in the garment industry. It also revealed that most of the garment factories in Bangladesh were built without any prior plan. As a result 90 percent of the factories started production in the rented building which was not designed for any factory work. The factory buildings were overcrowded, ventilation was not adequate, staircases were narrow and roofs were low and had no proper lunch rooms and rest rooms. Most of the social insecurity such as death by burning also arises from unplanned buildings of the garment factory. The garment factories in Dhaka city were clustered in a number of locations. About 25 percent of the firms were located in the residential areas. Sometimes two factories were located in the same building. The female workers of the garment factories, situated in the residential areas felt themselves more secured while commuting than those who work in the commercial area. It also showed that insecurity of health was a severe problem for the garments workers. Almost all the workers said that they had healthy life before entering into the garment industry. It had been found that inspite of all those problems, work in the garment industry empowered the female garment workers both socially and economically.

2.3 Conclusion

Having reviewed the literature at home and abroad the lacunas that have been identified for the present study are no previous studied especially in Bangladesh, have tried to determine finally the identification of the factors, explore the socio-economic characteristics of the female workers, which are also undiscovered in Bangladesh. This study has made a rigorous attempt to attempt these lacunas.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

Methodology is an integrated part of any research. A proper methodology selection is of the prime importance for arriving at the correct conclusion which is the purpose of the researcher. The credibility of a scientific research depends to a great extent on the appropriate methodology used in the research. Using appropriate methodology very often leads to an erroneous result. So methodology is very important for any research process and has to be chosen carefully to fulfill the purpose of the study. The selection of the methodology depends on the type of the study taken, the subject matter of the study, objectives of the study and resources availability etc. There are several methods of collecting necessary data and information. The advantage of this method is that its coverage is wider and is less costly. In order to achieve the objectives of the study, the survey method was adopted. Though the study by its nature involves collection of primary data, some secondary data were also collected. Primary data were collected personally from the respondents through a sample survey with the help of interview schedule. Secondary data were collected from journals, research papers etc. Moreover the internet was the important source of different data needed in the study. On the other hand, secondary data were obtained from the secondary sources like Bangladesh Garments Manufacturers and Exporters Association (BGMEA), Export Promotion Bureau (EPB), journals and various published and unpublished reports and books.

3.2 Selection of the Study Area

Selection of the study area is an important step in a research and it largely depends on the objectives of the study. Keeping in mind the objectives, Gazipur district was selected purposively, where garments factories were available.

The main criteria behind the selection of these garments were:

a) Availability of a large number of respondents in the study area;

b) The communication system of the selected area is well developed.

3.3 Sampling Technique

Sampling technique is an important part of the survey and sample is very important for any research. For the convenience of the research, a few number of female respondents were selected which was the representative part of the whole population. Here the sample size was 60. Firstly, the areas were selected according to the purposively four cluster. Then judgement sampling method was used to draw the sample from each cluster.

3.4 Collection of Data

The success of a survey depends on the reliability of data. In order to achieve the objectives, the data were collected from the four areas where the garments workers are available. The selected four areas for collecting the data were Bank para, Auch para, Muktar bari and Guthia under the Gazipur district. But the collection of accurate and reliable data and other necessary information from the field is a troublesome task. The study was based on a set of primary data collected from the selected respondents

by interview schedule designed for this study. To collect the real information, an interview technique was followed. Primary data were collected from the respondents through face to face interview using a standard interview schedule. The data were collected in the month of January and February 2015. A brief introduction regarding the nature and objectives of the study was given to each respondents before final interview. The respondents were given assurance that all information would be kept confidential be used exclusively for research purpose and the study will not affect their interest in any adverse way, rather it might produce some benefits to female garment workers in course of time. Before interviewing, the selected respondents were contracted so that they could be interviewed according to their convenient time. Then the questions were asked systematically in a very simple manner with necessary explanation and the information supplied by the respondents was recorded directly on the schedule. After completion of each interview, the interview schedule was checked to be sure that information to each of the items had been properly recorded. Any items overlooked or found contradictory were corrected in the second visit.

3.5 Processing of Data

Firstly, the data were manually edited and coded. Then all the collected data were summarized and scrutinized carefully. Data were processed and transferred to master sheets to facilitating tabulation in order to meet the objectives of the study. Moreover, data entry was made in computer and analyses were done using the concerned software and STATA/IC 12.0 for Windows (Stata Corp. College Station, Texas, USA).

3.6 Data Analysis Technique

In the first step, the data were stored in the computer and it were cross checked. After data collection, data were checked carefully to ensure correctness and relevancy of data. Subsequently data were entered into the computer. To meet particular research objectives, several analytical methods were undertaken in the present study. This technique was intensively used for its inherent quality of purporting the true picture of the sociological aspects in the simplest form. Relatively simple statistical techniques such as percentage and arithmetic mean or average were taken to analyze data and to describe socio-economic characteristics of respondents and type of work etc. In this study, logistic regression has been used for statistical analyses.

3.7 Logistic Regression Analysis

Statistical data collected through the questionnaires were stored in Microsoft Excel 2010 after that the data was transferred in STATA/IC 12.0 for Windows. A logistic regression model was built for the collected data to test the significant association with selective health hazards. The outcome (dependent) variable was selective health hazards including headache and fever which was coded as 1 (positive outcome) and 0 (negative outcome). Screening of explanatory variables (independent variables) to be offered for multivariate logistic regression model was performed using binomial logistic regression model. Explanatory variables that were only statistically significant (up to at 10% level) in binomial analysis were considered for multivariate logistic regression analysis. Significant correlations between explanatory variables were assessed through cross tabulation using Fisher's exact test and or Chi-square test. Model building strategy described by Hosmer & Lemeshow (1989) was used for

multivariate logistic regression analysis. A preliminary reference model was estimated with all explanatory variables that were selected at binomial analysis. Later, a backward elimination procedure was used by applying iteration maximum- likelihood estimation procedure, statistical significance of individual variable was tested using likelihood-ratio test (Dohoo *et al.,* 2003) continued up to the best fit of the model, had a p value   0.05. Interaction between variables was assessed by building two factor interaction terms for the main significant effect of variables, forcing the variables into a model and examined the changes in the coefficient and p-values.

Multivariate Logistic Regression Model

When the dependent variable is dichotomous, logistic regression model is widely used not only to identify risk factors but also to predict the probability of success. The simple linear logistic regression model can be expressed as

$$\log_e [\frac{f(X_i)}{1 - f(X_i)}] = \beta_0 + \beta_1 X_i$$

Where, the quantity $f(X_i) = E(y_i = 1 | X_i)$ represent the conditional probability that Y=1 given X and expressed as $f(X_i) = \frac{e^{\beta_0 + \beta_1 X_i}}{1 + e^{\beta_0 + \beta_1 X_i}}$.

If one consider a collection of p independent variables denoted by the vector $X' = (X_1, X_2, \ldots, X_p)$ then the multivariate logistic regression model is given by the equation as

$$\log_e [\frac{f(X_i)}{1 - f(X_i)}] = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \cdots + \beta_p X_{pi}$$

3.8 Problems Faced in Collecting Data

During data collection, the following problems and difficulties were faced by the researcher:

1) Necessary data were collected from a specific area covering a small number of samples. Results obtained from the observation of 60 samples were inadequate to represent the actual situation.

2) Most of the female workers were hesitated to answer the questions since the researcher was unknown to them.

3) Most of the female workers in the study area did not have any idea about researcher's study and it was therefore required to explain the purpose of this research to convince them.

4) Another important problem was that the researcher had to depend on the memory of the respondents for collecting necessary information because they did not keep any written record.

5) The respondents were usually busy most of the time in the garment factories and for this reason, more time were needed to get required information from them.

CHAPTER 4

SOCIOECONOMIC CHARACTERISTICS

4.1 Introduction

It is found in the Members' Directory of BGMEA (2010-2011), the Ready- Made Garment (RMG) has been placed largest export earnings of Bangladesh. The first garment factory opened in 1976. The industry has grown dramatically over the past 35 years, which can be treated as a life blood of the Bangladesh economy.

The industry plays a vital role for at least three reasons: (a) it is the single largest earner about 77 % of the yearly foreign exchange earning of the country; (b) it has been the fastest growing industry in the recent years; (c) the industry employees about 3.6 million people and the growth rate of RMG export was over 20% in the last two decades. In Bangladesh the industry was expanded mainly on the easy availability of labor especially of the female labor accessibility.

Employers prefer female workers not only because they are cheaper and abundantly available, but also because they are more vulnerable, docile and manageable than male workers.

Bangladesh is a over populated country. In Bangladesh, per capita income of the people is very low and standard of living is in general low. Behavior of the individual is largely determined by their socioeconomic characteristics. The purpose of this chapter is to discuss the socioeconomic characteristics of the targeted garments female workers household. A number of socioeconomic aspects of the sample household were examined. These were age distribution, sex ratio, level of income,

level of education and socioeconomic etc. A brief discussion of these aspects are presented in the following section:

4.2 Age Distribution of the Respondents

In the present study, age of the respondents which is classified into three categories including   20 years, 21-40 years,   41 years. The average age of the selected respondents was 23.81 years that ranges from a minimum 14 years to a maximum of 50 years.

Table 4.1: Age Distribution of the Respondents

Age groups (Yr)	Number of respondents	Percentage
20	25	41.67
21- 40	34	56.67
41	1	1.67
Total	60	
Mean ages	23.81	
Minimum age limit	14	
Maximum age limit	50	

Source: Field Survey, 2014.

It is clear from Table 4.1 that the highest percentage (56.67) of respondents aged between 21-40 years according for 56.67 percent of the total respondents while respondents aged less than or equal 20 years constitute 41.67 percent. There was only 1.67 percent respondents aged greater than or equal 41 years. It is clear, the majority of the female garments workers were in between the age group of 21-40 years. Figure 4.1 indicates the share of age distribution of the respondents.
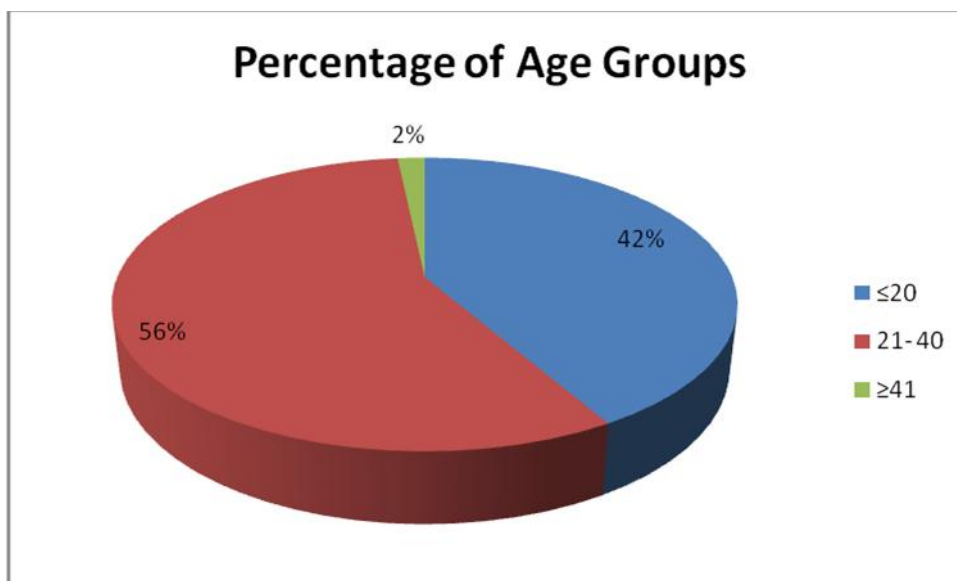
Figure. 4.1 Share of Age Distribution of the Respondents.

4.3 Male- Female Ratio among Household Head

Table 4.2 shows that the percentage of male and female who were counted as household head. In this study, there were 60 respondents. All the female workers were not as household head. So, this table shows that in their family who was counted as household head. The present study finds that in terms of family situation, all the female workers were not counted as household head. In their family, the male were also counted as household head. Figure 4.2 shows that the percentage of household head of male (71.67%) were higher than female (28.33%).

Table 4.2: Male- Female Ratio of Household Head

Category	Number of household head in their family	Percentage	Ratio
Male	43	71.67	
Female	17	28.33	0.4
Total	60		

Source: Field Survey, 2014.
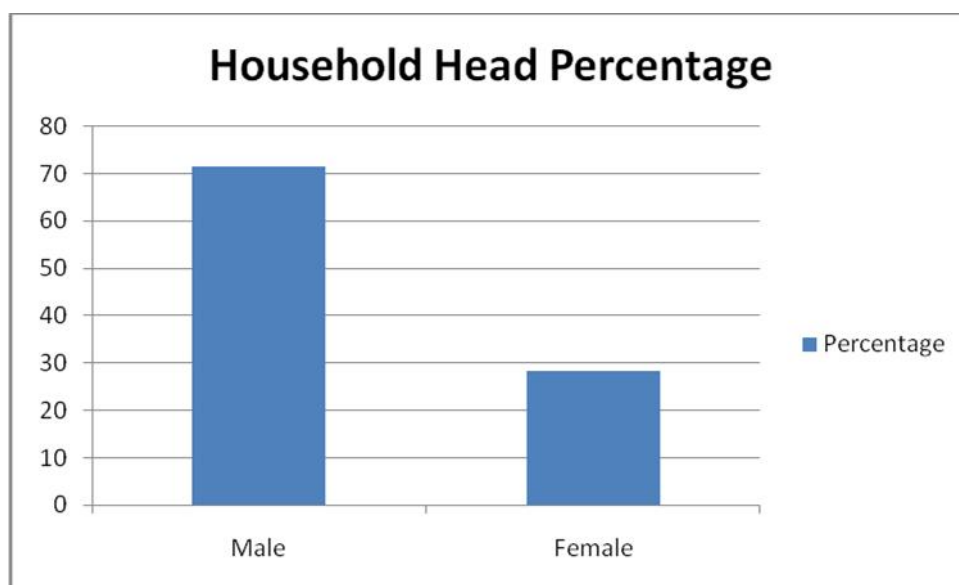
Figure 4.2 Share of Male Female Ratio of the Household Head

4.4 Level of Education of the Respondents

Education is defined as the ability of an individual aged above 6 years to read and write or formal education received up to certain standard. The government and various organizations placed greater emphasis and extended facilities (like free education, stipend etc.) for increasing the literacy rate of our country. Education in its general sense is a form of learning in which the knowledge, skills, values, beliefs and habits of a group of people are transferred from one generation to the next through storytelling, discussion, teaching, training, and or research. Education may also include informal transmission of such information from one human being to another. Education helps a person to have day to day information about the modern techniques to improve their living standards.

To examine the educational status of the respondents, it is classified into three categories such as illiterate, grade I-V (primary education) and grade VI- X (secondary education).

Educational level of the respondents are presented in Table 4.3.

Table 4.3: Educational Level of the Respondents

Education level	Number of respondents	Percentage
Illiterate (may sign at best)	12	21
Grade I- V	31	54
Grade VI- X	17	25
Total	60	

Source: Field Survey, 2014.

It is evident (Table 4.3) that 21 percent of the respondents were illiterate. The Table also shows that 25 percent of the respondents completed grade VI-X (secondary education) and grade I-V (primary education) completed 54 percent. There was however, no workers having higher secondary educational level. Figure 4.3 indicates the share of level of education of the respondents.
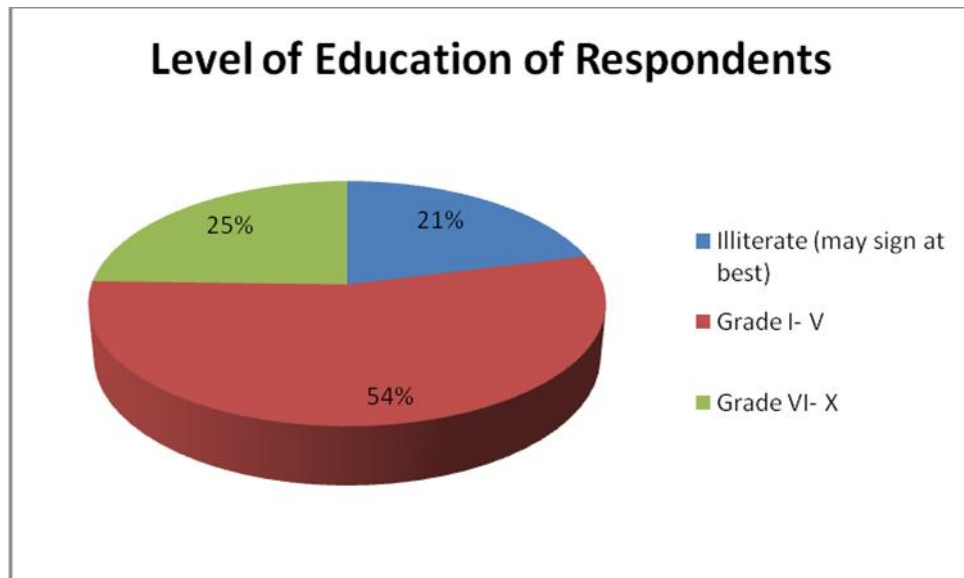
Figure 4.3 Share of Educational Level of the Respondents

4.5 Family Size of the Respondents

In the study, family size (members) is defined as the total number of persons living together and taking meals from the same kitchen under the administration of the same head of the family. The family members includes wife, sons, unmarried daughters, parents, younger brothers and sisters etc.

Table 4.4: Family Size of the Respondents

Family size categories	Number of respondents	Percentage
Small family (1- 3)	6	10
Medium family (4- 5)	53	88.33
Large family (≥ 6)	1	1.67
Total	60	

Source: Field Survey, 2014.

It appears from Table 4.4 that 88.33 percent families of the workers in the study consisted of 4 to 5 members, 10 percent consisted of 1 to 3 members and 1.67 percent consisted of more than or equal to 6 members (Figure 4.4).
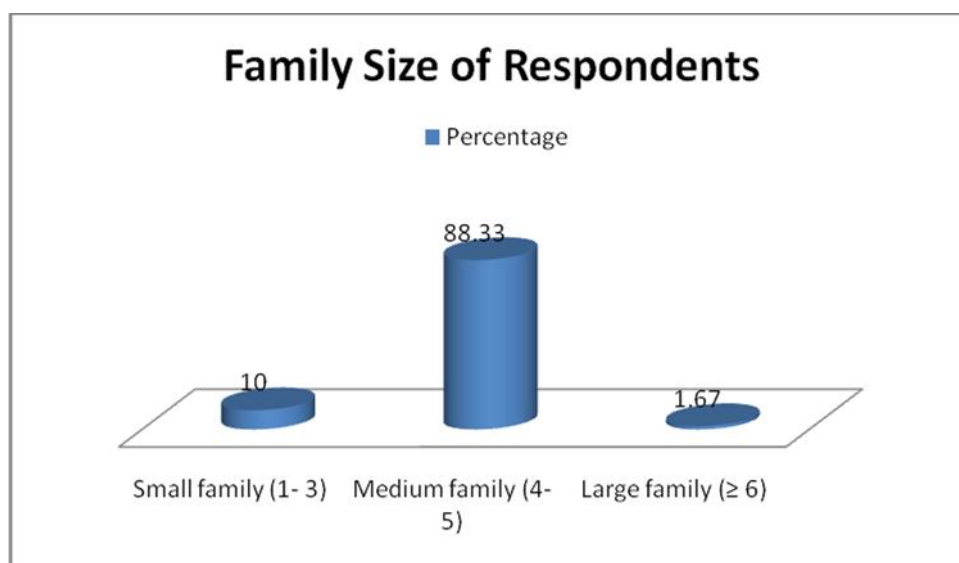
Figure 4.4 Share of Family Size of the Respondents

4.6 Marital Status of the Respondents

A person's marital status indicates whether the person is married or single. In the study, marital status refers one's situation with regard to whether one is single, married, separated, divorced, or widowed.

Table 4.5: Marital Status of the Respondents

Marital status	Number of respondents	Percentage
Unmarried	23	38.33
Married	25	41.67
Widowed	7	11.67
Separated	2	3.33
Divorced	4	6.67
Total	60	

Source : Field Survey, 2014.

The present study is found that the percentage of married women (41.67) was almost similar to unmarried women (38.33). Although divorced, widowed and separated by their partner were found 6.67%, 11.67% and 3.33% respectively. Figure 4.5 indicates the share of marital status of the respondents.
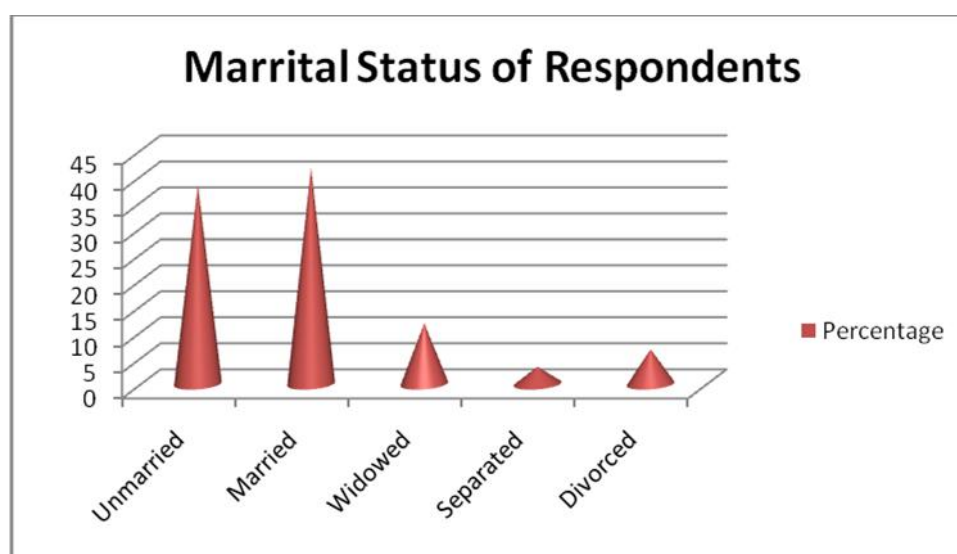
Figure 4.5 Share of Marital Status of the Respondents

4.7 Level of Income of the Respondents

Table 4.6 reveals the average monthly income of the respondents. The highest percentage (56.67) of the respondents was found with an income level between 3000 to 6000 BDT where as 41.67 percent respondents revealed monthly income is above 6000 to 9000 BDT. Figure 4.6 indicates the share of level of income of the respondents.

Table 4.6: Level of Income of the Respondents

Income (BDT)	Number of respondents	Percentage
3000	1	1.67
>3000 – 6000	34	56.67
>6000- 9000	25	41.67
Total	60	

Source: Field Survey, 2014.
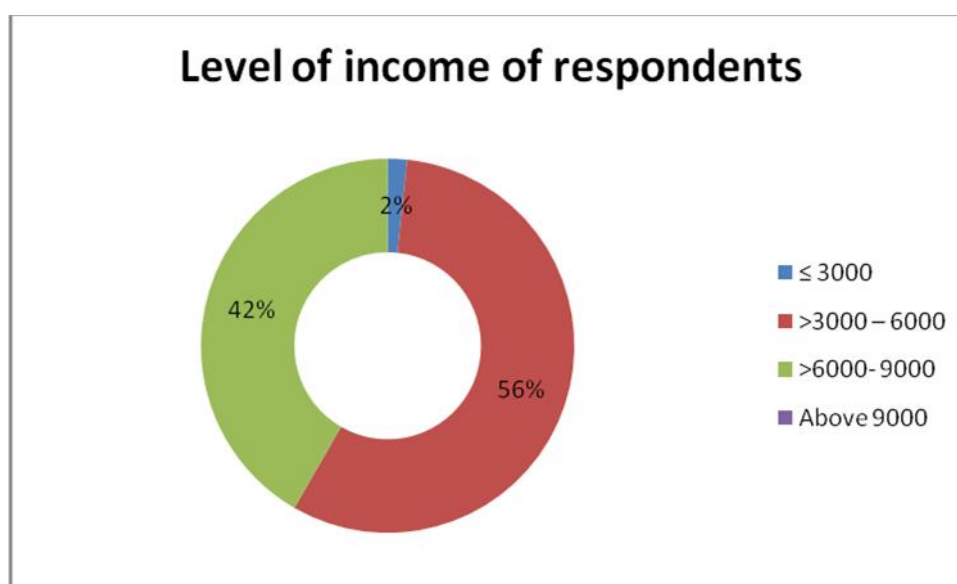
Figure 4.6 Share of Level of Income of the Respondents

4.8 Reasons of Being Involved in RMG

Reasons of being involved in Ready-Made Garments (RMG) are presented in Table 4.7.

Table 4.7: Reasons of Being Involved in RMG

Reasons	Number of respondents	Percentage
To secure more income	23	38.33
To help family financially	16	26.67
To uplift living standard	5	8.33
To get facility in marriage	1	1.67
Others (Miscellaneous)	15	25
Total	60	

Source: Field Survey, 2104.

Among the total respondents about 38.33 percent female workers entered in the garment factory to secure more income. About 26.67 percent and 8.33 percent female workers entered in the garment factory to help their family financially and to uplift living standard respectively. About 25 percent female workers entered in the garment factory for the other reasons.

4.9 Working Patterns of Respondents in the Garment Factory

Different categories of works exist in Ready- Made Garment (RMG). It creates several employment opportunities for a large number of unemployed populations.

Table 4.8 : Types of Work

Pattern of work	Number of respondents	Percentage
Operator	9	15
Supervisor	4	6.67
Quality controller	3	5
Helper	26	43.33
Cutter man	11	18.33
Folding man	7	11.67
Total	60	

Source: Field Survey, 2014.

Table 4.8 shows that about 43.33 percent workers were helper, while 18.33 percent were cutter man. Operators, folding man and supervisor were 15, 11.67 and 6.67 percent respectively.
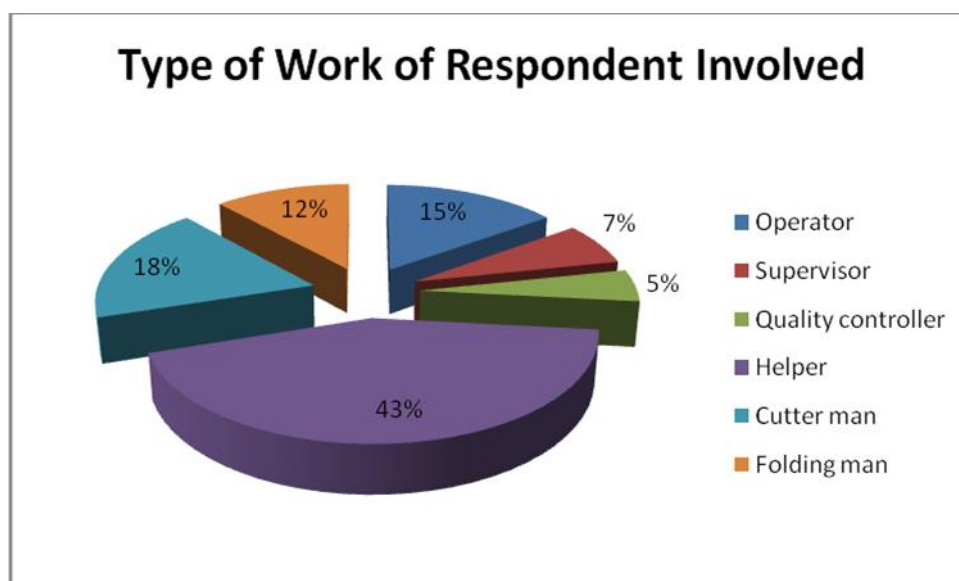
Figure 4.7 Share of Respondents according to Work Type

4.10 Involvement in Family Decision Making of the Respondents

Involvement in family decision making of the respondents is presented in Table 4.9.

Table 4.9: Involvement in Family Decision Making of the Respondents

Involvement	Number of respondents	Percentage
Yes	48	80
No	12	20
Total	60	

Source: Field Survey, 2014.

The present study is found that the highest percentage (80) of the respondents were involved in family decision making. It is important to mention that only 20 percent of the respondents who were not involved in family decision making.

4.11 Involvement with NGOs of the Respondents

Involvement with NGOs of the respondents are presented in Table 4.10

Table 4.10: Involvement with NGOs of the Respondents

NGO involvement	Number of respondents	Percentage
Yes	5	8.33
No	55	91.67
Total	60	

Source: Field Survey, 2014.

The present study is found that the highest percentage (91.67) of the respondents were not involved with any NGO sector. There was only 8.33 percent of the respondents who were involved with any kind of NGO.

4.12 Conclusion

The overall socio-economic condition of the female garments workers are analyzed in this chapter which played an important role in identifying the factors affecting occupational health hazards.

CHAPTER 5

HEALTH STATUS AND FOOD HABITS OF THE FEMALE WORKERS

5.1 Introduction

Women's participation in the labor force shows the important contribution of women to economic productivity, hence, the need for occupational health and safety policies covering women workers. Many research studies are conducted for women workers and their work conditions; there is a need for policy and advocacy work towards protection of their health as well as provision of good labor conditions. Both women and men workers experience occupational hazards but women are more vulnerable to occupational hazards (Lu, 2005).

For instance, women workers in the electronics and garment industries are subjected to extended and intensified work manifesting in the phenomenon called work intensification (Lu, 2009). Additionally, women workers face double hazards from both their work and household responsibilities, thus increasing their vulnerability to occupational illnesses.

Diseases pattern depends upon the types of work. Inadequate information, lack of knowledge and virtually scope for researches are major constrains in furnishing disease profile in respect of occupational health of labor forces. Fundamental change in morbidity and mortality profile has emerged in most countries showing declining trend of infectious diseases with a increase of accident and work related diseases. Though they suffer from common health

problems in the community they also suffer from various diseases which are related to occupational work in the garments industries. Work in the garment factory severely affects workers health, as they are confined in a close environment. The particular nature of work in the RMG creates various types of health hazards. So, at present it is the main industry in Bangladesh and is also the main source of income for the illiterate people. This large number of RMG workers has actually migrated from rural to urban areas. As a consequence, their lifestyle and dietary habits have also changed over the years. Although the garment workers are the most productive section of Bangladesh, their health status has largely been ignored.

Ready-Made Garment (RMG) Sector in Bangladesh has been playing a vital role in creating employment opportunity for the rural marginal people for the last two decades. Health status is very much related to the dietary habits. Many workers do not eat well as they are trying to maximize savings to send home, at the same time they worry about the effects on their health of eating food lacking in nutrition or hygiene. The purpose of this chapter is to assess the health status of the female workers in the garments sector and their dietary habits.

5.2 Patterns of Diseases and Illness

The term disease broadly refers to any condition that impairs the normal functioning of the body. The workers face various types of diseases due to the working environment. The type of diseases which is affected the workers after joining the garments are presented in Table 5.1.

Table 5.1: Pattern of Diseases and Illness

SL No	Type	Number of respondents	Percentage
1	Headache	34	56.67
2	Fever	11	18.33
3	Musculoskeletal pain	7	11.67
4	Less appetite	5	8.33
5	Eye strain	1	1.67
6	Chest pain	1	1.67
7	Respiratory trouble	1	1.67

Source: Field Survey, 2014.

Result of the study shows (Table 5.1) that the most frequent illness reported by 56.67 percent female workers was headache. About 18.33 percent respondents suffered from fever problem. The third common complaint was musculoskeletal pain. Only 8.33 percent of female workers suffer from less appetite. Sometimes this was occurred due to the long hours of work. But very few workers suffered from chest pain, eye strain, and respiratory trouble etc.

5.3 Average Cost of Treatment

When the female garment workers face various types diseases, they take treatment from various types of sources. Average costs of treatment are presented in Table 5.2.

Table 5.2 represents the average cost of treatment with test and average cost of medicine. The highest percentages (56.67) of the respondents were suffered by headache and the average treatment cost with testing was BDT 1001 and the average cost of medicine was BDT 86.5.

Table 5.2 Average Cost of Treatment

SL no.	Type	Average cost of treatment with test (BDT)	Average cost of medicine (BDT)	Average time needed to reach the treatment centre (in mins)	Average waiting time to get treatment (in mins)
1	Headache	1,001	86.5	13.75	8.17
2	Fever	150	137.27	18.18	17
3	Musculoskeletal pain	1,500	400	60	45
4	Less appetite	-	130	17.5	5.8
5	Eye strain	210	20	40	30
6	Chest pain	1,000	2,000	30	20
7	Respiratory trouble	20,000	50,000	60	60

Source: Field Survey, 2014.

Though the percentage of fever were comparatively higher than musculoskeletal pain, in that cases the average cost of treatment of fever and musculoskeletal pain were BDT 150 and BDT 1500 and The average cost of medicine of fever and musculoskeletal pain were BDT 137.27 and BDT 400. However the percentage of respondents suffered by respiratory trouble only 1.67 percent, but the cost was very high. In that cases the cost of treatment was BDT 20000 and the cost of medicine was BDT 50000. In case of musculoskeletal pain and respiratory trouble, the average time to reach the treatment centre and the average waiting time to get treatment were very higher comparatively than the other diseases.

5.4 Source of Treatment Commonly Received

Almost all the female workers in this sector suffer from various types of illness and diseases. They receive treatment from various sources in different categories.

Source of treatment commonly received are presented in Table 5.3.

Table 5.3 : Source of Treatment Commonly Received

SL No	Source	Number of respondents	Percentage
	Untreated	2	3.33
	Treated	58	96.67
1	Kabiraj/ Hakim/ Ayurbed	1	1.67
2	Govt. Doctor (Govt. institute)	11	18.33
3	Govt. Doctor (Private institute)	1	1.67
4	Pharmacy/ Dispensary/Compounder	36	60
5	Self treatment	5	8.33
6	Others	4	6.67

Source: Field Survey, 2014.

Table 5.3 shows that about 96.67 percent of the respondents workers received treatment from different sources. Majority of the respondents received treatment from Pharmacy/ Dispensary/Compounder. However, a portion of the respondents went to the govt. doctor (govt. institute). Sometimes they were taken medicine by themselves.

5.5 Food Habits of the Female Workers

Food habit refers to the way in which different people select, cook, serve and eat food that are available to them. Food habits of the female workers are presented in Table 5.4 and Table 5.5.

Table 5.4: Food Habits of the Female Workers

Variable	Category	No. of respondents	Percentage
1	Times of taking meal in a working day		
	Once	7	11.67
	Twice	32	53.33
	Thrice	21	35
2	Source of the meal		
	Homemade	27	45
	Selling on the work station	14	23.33
	Purchase from outside	19	31.67
3	Times of eating flour in a day		
	Once	8	13.33
	Twice	-	-
	Thrice	-	-
	No	52	86.67

Source: Field Survey, 2014.

The present study is found that about 53.33 percent of the respondents took meal two times in a working day. A major portion of the respondents (23%) brought their food from home. But only few respondents purchased their food from outside. It is important to mention that 86.67 percent of the respondents did not eat flour in a day.

Table 5.5: Food Items and Weekly Consumption

Appendix

SL No	Food items	No. of days in a week							
		1	2	3	4	5	6	7	None
1	Meat	23 (38.33)	1 (1.67)	1 (1.67)	-	-	-	-	35 (58.33)
2	Fish or dried fish	1 (1.67)	17 (28.33)	27 (45.00)	9 (15.00)	1 (1.67)	-	-	5 (8.33)
3	Egg	18 (30.00)	20 (33.33)	14 (23.33)	4 (6.67)	1 (1.67)	-	-	3 (5.00)
4	Milk	1 (1.67)	1 (1.67)	-	-	-	-	-	58 (96.67)
5	Vegetables	-	-	-	7 (11.67)	23 (38.33)	-	29 (48.33)	1 (1.67)
6	Others	-	-	-	-	-	-	-	

Source: Field Survey, 2014.

According to the Table 5.5, about 38.33 percent of the respondents were eaten meat once in a weak. However, 45 percent of the respondents were taken fish or dried fish three days in a weak but the weekly consumption of milk was very low. But majority of the respondents were totally dependent on vegetables in seven days in week.

5.6 Conclusion
Health status and food habits of the female workers in the garments sector were explained in this chapter. Patterns of diseases and illness, average cost of treatment, sources of treatment, food items and weekly consumption of food were explained here.

CHAPTER 6

CAUSES OF HEALTH HAZARDS FACED BY THE FEMALE WORKERS IN GARMENTS SECTOR

6.1 Introduction

It is found in the Members' Directory of BGMEA, 2010-2011 that the Ready-Made Garment sector (RMG) in Bangladesh has become the backbone of the Bangladesh's economy, producing around 80% of the country's exports. It is now the second largest garment exporter in the world, exporting over US$17 billion worth of clothing in 2011.

In recent years, the industry has boomed and the number of factories engaged in garment production has increased rapidly.

The industry is characterized by low cost, fast production relying on cheap labor to compete with its competitors. Now a day's people are engaged themselves in garments sector, the majority of whom are young women, are employed in the Bangladesh garment industry and remain the lowest paid garment workers in the world. The lack of alternative employment options combined with widespread poverty mean these women are forced to accept jobs that are poorly paid and carried out in workplaces that fail to adhere to the most basic standards of health and safety.

Occupational health hazards normally develop over a period of time because of workplace conditions. Such conditions might include exposure to disease-causing bacteria, viruses, chemicals or dust.

Under the Occupational Health and Safety Act, occupational health hazard is defined as a condition that results from exposure in a workplace to a physical, chemical or biological agent to the extent that the normal physiological mechanisms are affected and the health of the worker is impaired.

Occupational health refers to the identification and control of the risks arising from physical, chemical, and other workplace hazards in order to establish and maintain a safe and healthy working environment.

When work was associated with health risk, it may cause occupational disease, is one of the multiple causes of other sickness or may aggravate existing ill-health of non-occupational origin. In developing countries, where work is becoming increasingly mechanized, a number of work processes has been developed that treat workers as tools in production, putting their health and lives at risk. The most successful economies have demonstrated that workplaces designed according to high-quality principles of occupational health, safety and ergonomics are also the most sustainable and productive. In addition, a healthy economy, high quality of products or services and long-term productivity are difficult to achieve in poor working conditions where workers were exposed to health and safety hazards.

6.2 Some Problems that Create Health Hazards

a) Housing: A rise in the number of slums and insanitary dwellings is one of the chief problems in all the industrial areas due to migration of people.

b) Water Pollution: Water pollution is one of the tragic aftermaths of rapid industrialization due to discharge of industrial wastes without treatment, into water courses. Pollution control measures should be instituted in the planning stage itself in the process of industrialization.

c) Air pollution: This is an important problem in industrial area which may have an adverse effect on the health of the population. Air pollution is due to the discharge of toxic fumes, gases, smoke and dusts into atmosphere. It requires proper town planning and zoning to eliminate this hazard.

d) Nutritional problem: In many developing countries like Bangladesh, malnutrition is an important factor contributing to poor health among female workers. Lack of proper nutritional food, the female workers suffers from various diseases.

e) Lack of proper sources of water supply: Due to the lack of proper sources of water supply, the female workers suffer from various hazards related problems. A sufficient supply of wholesome drinking water is one of the basic requirements in all industrial establishments. About 51.67 percent respondents said that they received their drinking water from supply water.

f) Food: If food is sold inside the factory, then its hygienic preparation, storage and handling are essential. Educated food handlers and other measures may be necessary to outbreak of gastro-intestinal disease.

g) Toilet facility: There should be sufficient number of latrines and urinals of sanitary type, separate for male and female. Lack of proper sanitation problem, the workers may face many health related problem. In this study 60 respondents said that they used sanitary latrines.

h) Sufficient space: Sufficient floor space and cubic space are essential to prevent not only respiratory infections but also to ensure a comfortable working environment. The recommended standard is a minimum of 500 Cu. Ft. of space for every worker; space more than 14 feet above the floor level is not to be taken into consideration.

i) Lighting: the results of poor industrial illumination are workers` eye fatigue, increased accidents. There should be sufficient and suitable lighting, natural or artificial or both, in every part of a factory where female workers are working and passing through.

j) Ventilation: Poor ventilation not only increases the chances of infection from person to person, but also affects the mental and physical efficiency of the workers. Proper ventilation is also needed for the control of noxious vapours, fumes, dusts, prevention of fatigue and industrial accidents. Effective and suitable provision should be made in every factory for securing and maintaining in every work room adequate ventilation by the circulation of fresh air and such a temperature as will secure to workers there in reasonable conditions of comfort and prevent injury to health. In this study, about 91.67 percent of the respondents said that there is enough ventilation facilities in the garments.

k) The workers in this sector are living from hand to mouth and they are unable to maintain their basic needs from their income. They cannot afford to maintain

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minimum health care, medical services, hygienic accommodation as well as access to other amenities is a dream to them. So they had to suffer from different types of physical complexity. In addition to this, the working environment of the garment factories is not congenial to ensure good health. Furthermore, garment workers are frustrated about their future due to less earning which also affect on their mental and social stability.

l) The garment worker in Bangladesh have to work from dawn to dusk in a confined environment where proper ventilation of air is absent. For this, they are affected by the disease bearing virus and bacteria that cause various types of diseases in their bodies.

m) The present study found that the particular nature of work in garments create various types of health hazards among the female garment workers such as headache, fever, musculoskeletal pain, eye strain, less appetite, chest pain and respiratory trouble etc.

n) The female workers in the garment sector are always under heavy working pressure in their factories. They are to fulfill their work target each day, otherwise they are penalized. Therefore, they pass their time with workload and mental pressure. For this reason, workers in the garment factory suffer from different types of diseases and illness like: headache, fainting, eye stain, cut injury, fatigue, frustration, heart disease and so on.

o) The income level of the female workers in the garment sector is very poor. Actually the workers cannot fulfill their basic requirements with their income; even they cannot buy balanced and fresh food to survive. So they always suffer from

malnutrition, diarrhoea, dysentery, less appetite, food poisoning, pain in abdomen, and gastric pain.

p) Most of the health problems that the garment workers suffered arose from the occupational hazards including long working hours, absence of leave facilities, congested and over-crowded working conditions, absence of health facilities and safety measures, absence of staff amenities, lack of safe drinking water etc.

q) Female workers in the garment factories sometime have to work over night at the time of shipment or when excessive work order received by the factory. Most of the factories do not have separate rest room for the female. As female and male workers work together at the same place caused unwanted physical contact. Sometime it is also evident that female workers have been sexually harassed by the supervisors or male workers in the garment factory. Therefore, female workers suffer from different types of sexual diseases. Moreover, the garment owners do not want to give job or reluctant to continue the job of female workers when they become pregnant or came to know of having their baby. For this reason, when a female worker became pregnant she does abortion to retain job that results in poor health condition.

6.3 Perception regarding Working Environments in Garment

Working environment is most essential factor to get better performance from the workers. The Table 6.1 has explained perception of workers regarding the working environments in garment.

Table 6.1: Perception of Respondents Regarding the Working Environments in Garment

Working environment is the most important factor to increase the productivity. Perceptions of respondents regarding the working environment in garment are given below:

	Variable	Category	No. of respondents	Percentage
1	Source of drinking water			
		Supply water	31	51.67
		Tube well water	29	48.33
2	Toilet facility			
		Sanitary	60	100
3	Toilet separated for male and female			
		Yes	28	46.67
		No	32	53.33
4	Discrimination of extra wages for overtime for the female			
		Yes	6	10
		No	54	90
5	Facilities for enough ventilation and fire exit doors for workers			
		Yes	55	91.67
		No	5	8.33
6	Any baby care centre in the working place ?			
		Yes	26	43.33
		No	34	56.67
7	Provision of maternity leave for female workers			
		Yes	41	68.33
		No	19	31.67
8	Provision of full time medical care and first aid treatment			
		Yes	57	95
		No	3	5
9	Training on safety issues			
		Yes	20	33.33
		No	40	66.67
10	Management awareness about safety management issues			
		Yes	58	96.67
		No	2	3.33

	Variable	Category	No. of respondents	Percentage
11	Any laboratory facilities for monitoring, analyzing, accessing the harmful contaminants in the working environments ?			
		Yes	23	38.33
		No	37	61.67
12	In case of poor health condition any arrangement for female worker for the better working environment			

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	Yes	28	46.67
	No	32	53.33
13	Due to sickness of the female worker is there any facilities provided by the management team		
	Yes	51	85
	No	9	15
14	Are the female worker suffer any mental pressure in working place ?		
	Yes	23	38.33
	No	37	61.67
15	Is there any pressure given by the other members of the family ?		
	Yes	0	0
	No	60	100

Source: Field Survey, 2014.

Table 6.1 shows that about 48.33 percent of the respondents received their drinking water from the tube well water. About 53.33 percent of the respondents mentioned that there were no separated toilet facility for male and female. About 91.67 percent of the respondents were mentioned that there were enough facilities for enough ventilation and fire exit doors for the workers. It is important to mention that 56.67 percent of the respondents gave their opinion that there were no baby care centers in the work place. So, sometimes it was created problem in the work place.

Though 66.67 percent of the respondents have mentioned that there were no training facilities but the present study found that managements were aware about the safety management issues. Finally the study is found that the highest percentage (61.67) of the respondents showed that there were not enough laboratory facilities for monitoring, analyzing, accessing the harmful contaminants in the working environments.

6.4 Identification of Risk Factors Associated with Health Hazards

Health hazard means a chemical for which there is statistically significant evidence based on at least one study conducted in accordance with established scientific principles that acute or chronic health effects may occur in exposed employees. It is

found that the workers of garments were majority affected by headache and fever. So the study has been tried to identify the associated factors by applying the logistic regression analysis. The results are shown in the Table 6.2.

Table 6.2 Risk Factors Associated with Selective Health Hazards based on Binomial Logistic Regression Analyses

Table 6.2 represents the risk factors which were assumed as possible risk factors of health hazards for the female garment workers. During binomial logistic regression analysis, the selective health hazards were considered in the model are headache and fever which represented highest percentage (56.67 and 18.33) of illness in the workers.

Appendix

			Health hazards				
			Headache			*Fever*	
Variable	*Category*	*OR*	*SE*	*P value*	*OR*	*SE*	*P value*
Age				0.0006			0.251
	20	7.5*	4.855	0.002	0.44	0.326	0.269
	21- 40	1			1		
Weight		1.03	0.046	0.521	0.95	0.060	0.410
Type of work				0.0001			0.556
	Operator	1			1		
	Supervisor	0.80	0.963	0.853	1.17	1.640	0.913
	Quality controller	0.40	0.558	0.512	1.75	2.561	0.702
	Helper	9.60**	9.559	0.023	0.29	0.317	0.258
	Cutter man	0.30	0.285	0.206	1.31	1.377	0.796
	Folding man	0.13	0.169	0.113	1.40	1.622	0.772
Source of drinking water				0.089			0.005
	Supply water	0.40***	0.218	0.093	7.75*	6.479	0.014
	Tube well water	1			1		
Adequate Ventilation				1.000			
	Yes	1			1		
	No	1	0.953	1.000			
Worker suffer any mental pressure in working place				0.020			0.394
	Yes	3.80**	2.291	0.027	0.54	0.400	0.408
	No	1			1		
Source of meal				0.003			0.040
	Homemade	10.47*	8.229	0.003	0.17**	0.136	0.028
	Selling on the work station	1			1		
	Purchase from outside	7.94*	6.492	0.011	0.156**	0.144	0.045

*, ** and *** indicates variables were found significant at 1%, 5% and 10% level

respectively

In binomial logistic regression model, age, type of work, source of drinking water, mental pressure in working place, source of meal were found significantly associated (up to at 10% level) with headache of the workers. The respondents who aged   20 years showed higher odds (7.5) in compare with the respondents who aged over 20 years. Moreover, respondents who were working as a helper found 9.6 times higher susceptible to headache comparing to other workers. Respondents who were suffering from mental pressure at the working place also showed higher odds (3.8) than the non-suffered respondents. Both types of food that were purchased from outside and homemade food were found significantly associated with headache of the workers.

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On the other hand, in term of fever only source of drinking water and source of meal were found significantly associated (1% level and 5% level). The workers who were habituated to drink supply water rather than tube well water and eat homemade or purchase food from outside were significantly associated with headache and fever as well. However, all the variables that were found significant up to at 10% level for both headache and fever were forced in multivariate logistic regression model as considering a potential risk factor or indicator for headache and for fever in the workers.

Table: 6.3 Risk Factors Associated with Selective Health Hazards based on Multivariate Logistic Regression Analysis

In multivariate logistic regression analyses (Table 6.3), source of meal and drinking water remained significant (at 5% level and 1% level) for both health hazards including headache and fever.

		Health hazards					
		Headache			*Fever*		
Variable	*Category*	*OR*	*SE*	*P value*	*OR*	*SE*	*P value*
Model				0.000			0.002
Type of work							
	Operator	1					
	Supervisor	0.05	0.102	0.158			
	Quality controller	0.05	0.099	0.154			
	Helper	10.45	15.68	0.118			
	Cutter man	0.05	0.094	0.105			
	Folding man	0.02**	0.034	0.037			
Source of drinking water							
	Supply water	0.06**	0.073	0.027	9.54*	8.738	0.014
	Tube well water	1			1		
Worker suffer any mental pressure in working place							
	Yes	4.66	5.032	0.154	1.18	1.102	0.863

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No	1					
Source of meal						
Homemade	18.39	19.035	0.065	0.111**	0.117	0.022
Selling on the work station	1					
Purchase from outside	31.42**	52.989	0.041	0.135**	0.147	0.053

* and ** indicates variables were found significant at 1% and 5% level.

In multivariate logistic regression analyses (Table 6.3), source of meal and drinking water remained significant (at 5% level and 1% level) for both health hazards including headache and fever. Workers who commonly took their meals purchasing from the open shops (road side) were not hygienic and healthy enough that more likely cause serious health hazards including headache and fever. Moreover, people who commonly received supply water from the municipality more likely to affect with water-borne diseases which caused fever and headache as well. In multivariate logistic regression analyses, those respondents who were working as a folding man rather helping assistant in garments showed significantly associated with headache. However, age and mental pressure remained no longer significant for headache in multivariate logistic regression model.

6.7 Conclusion

Causes of health hazards faced by the female workers in garments sector were assessed in this chapter. Risk factors associated with health hazards examined here. It was found that most of the female workers were affected by the headache and fever.

CHAPTER 7

SUMMARY, RECOMMENDATIONS AND CONCLUSIONS

7.1 Summary

In our country, garment sector plays a vital role in creating a great source of employment opportunities. However working conditions in this vital sector are poor. The RMG factories of Bangladesh fall short on social compliance. In Bangladesh the industry was expanded mainly on the easy availability of labor especially of the female labor accessibility. Occupational health hazards are hazards of exposure to pollution, noise and vibrations in the working environment. The health hazard issues are very much related to the working environment on the garments sector. Maintenance of healthy environment in the industrial areas is essentially required, which need no special emphasis in occupational health practices. In these contexts the objectives of the present study were-

➢ To find out the socio-economic characteristics of female workers in garments sectors.

➢ To explore the health status and food habits of female worker's in the industry.

➢ To assess the causes of health hazards faced by the female workers.

➢ To make some recommendations for improving health status of the female workers in garments sector.

Gazipur district was selected as the area where female garment workers were available. The study was based on the primary data. The sample size was 60. Firstly, the areas were selected according to the purposively four cluster. Then judgement sampling method was used to draw the sample from each cluster.

Data were processed and transferred to master sheets to facilitating tabulation in order to meet the objectives of the study. Moreover, data entry was made in computer and analyses were done using the concerned software and STATA/IC 12.0 for Windows (Stata Corp. College Station, Texas, USA). In this study, logistic regression has been used for statistical analyses.

Firstly, the socio-economic condition of the female garment workers was examined. The most of the female workers were aged 21-40 years. The percentage of household head of male was comparatively higher than female. Most of the female garments workers completed primary education. About 88.33 percent of the families consisted of 4 to 5 members. The percentage of married women (41.67) was almost similar to unmarried women (38.33). The highest percentage (56.67) of the respondents was found with an income level between 3000 to 6000 BDT where as 41.67 percentage of the respondents revealed with a monthly income above 6000 to 9000 BDT. About 43.33 percent workers were helper, while 18.33 percent were cutter man. Operators, folding man and supervisor were 15, 11.67 and 6.67 percent respectively.

Work in the garments severely affected worker`s health as they were confined in a closed environment. Diseases pattern depends upon the types of work. The most frequent illness reported by 56.67 percent female workers was affected by headache. About 18.33 percent respondents suffered from fever problem. The third common complaint was musculoskeletal pain. Health status is very much related to the dietary habits. Many workers do not eat well as they are trying to maximize savings to send home, at the same time they worry about the effects on their health of eating food lacking in nutrition or hygiene. The highest percentage (56.67) of the respondents was suffered by headache and the average cost of treatment with test BDT 1001 and the

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average cost of medicine BDT 86.5. Majority of the respondents received treatment from Pharmacy/Dispensary/Compounder. About 53.33 percent of the respondents took meal two times in a working day. A major portion of the respondents (23%) brought their food from home. The weekly consumption of milk was very low. But majority of the respondents were totally dependent on vegetables in seven days in week.

Furthermore, the study shows that about 48.33 percent of the respondents received their drinking water from the tube well water. About 53.33 percent of the respondents mentioned that there were no separated toilet facility for male and female. It is important to mention that 56.67 percent of the respondents gave their opinion that there were no baby care centers in the work place. The selective health hazards were considered in the model are headache and fever which represented highest percentage (56.67 and 18.33) of illness in the workers. In binomial logistic regression model, age, type of work, source of drinking water, mental pressure in working place, source of meal were found significantly associated (up to at 10% level) with headache of the workers. . However, all the variables that were found significant up to at 10% level for both headache and fever were forced in multivariate logistic regression model as considering a potential risk factor or indicator for headache and for fever in the workers. . Workers who commonly took their meals purchasing from the open shops (road side) were not hygienic and healthy enough that more likely cause serious health hazards including headache and fever. Moreover, people who commonly received supply water from the municipality more likely to affect with water-borne diseases which caused fever and headache as well. In multivariate logistic regression analyses, those respondents who were working as a folding man rather helping assistant in garments showed significantly associated with headache. However, age

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and mental pressure remained no longer significant for headache in multivariate logistic regression model.

7.2 Recommendation

Ready- Made Garment sector creates employment opportunity in Bangladesh. Any unwanted and unusual health hazards will make a great effect on total population of this sector. Healthy people are productive people. There is no alternative but to keep the people sound physically and mentally to ensure efficient manpower for the country. No recommendation can be successfully implemented if all the actors, that is, the government of Bangladesh, garment employers, NGOs and above all the workers do not work together, since all the policy recommendations made in this study entail a high cost. The following recommendations are put forward for the present study:

- Prohibited child labour - It was observed that in the garments sector, the age group started from the less than 20 years. So child labor still exists in the garments sector. Child labor should be strictly prohibited in the garments sector.

- Improvement of health care facilities- Headache and fever were the important factor for contributing to low work output. These problems must be taken seriously. So, the garment authority should be aware about their health care facilities.

- Ensure pure drinking water and sanitation facilities- The study found that the sources of drinking water was supply water, where there was a lack of environmental sanitation. So, it is recommended to supply the pure drinking water, separated toilets and urinals for male and female.

- Establish health care centre- Though there were various health care facilities in the garments, but it is recommended to establish an improved Health Care Centre which can deliver

    - routine health care of the workers and their families

    - elimination of health hazards including mental stress in working environment

    - specific occupational health measures to minimize risk.

- Establish baby care centre- Increase the facilities of the baby care center is essential. The study recommends that those garments does not have baby care center should be established for the welfare of the workers.

- Established subsidized canteen facilities - Canteen should be established in the garments, where cost effective balance diet should be supplied.

- Supply necessary safety equipments- Female workers comfort and safety issues should be given as a first priority to improve their working environment. Employers should provide equipment such as masks, gloves, caps etc. for safety and hygienic purpose. Workers sometimes do not feel comfort to use these safety kits. Employers need to motivate them and make it compulsory. Management should aware about the female workers suffering from any mental pressure in the working place.

- Strengthen government monitoring- Lastly, the government should take necessary steps for better working environment in the garments sector and should make some policies for reducing health hazards problems in the garments industries.

7.3 Conclusion

A good indicator of economic and social inclusion for women is the availability and access to employment. Paid employment gives a form of autonomy to women. However, certain conditions in the work environment make women workers vulnerable to certain risks. These conditions are poor working environments, unfair labour practices, low wages and occupational hazard exposure. Paid work alleviates financial difficulties, but it can also create risks in the absence of policies and programs that safeguard the work rights of the women workers. It is true that the government of Bangladesh has very limited resources to invest in the health sector, but it could encourage the employers to invest in garments workers` health by providing tax rebate or tax holiday as incentives. The government must be diligent in implementing the labour laws. It is recommended that policies and programs in the workplace should be formulated and adopted for the promotion of the rights and welfare of women workers who are now seen as crucial partners in attaining national economic development.

7.4 Limitation of the Study

Since the study is an empirical one based on field-work through the interviews of female garments workers of Gazipur district, Bangladesh, it has some obvious limitations. The limitations of the study are given below:

❖ Data collection from primary source through interview was a time consuming matter. The respondents sometimes were found non-cooperative with the interviewers. They did not give enough time to the interviewers.

❖ Due to shortage of time, the study could not cover wide areas for collection of necessary information from the female garments workers. The study might provide more meaningful results if it covers a number of garments industry of different districts where garments industries are available.

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- ❖ The last important problem was fear of dismissal from job. They thought that the researcher may be the man of garments authority. For that, they were somewhat uninterested to give the information specially their health problems and health need.

In spite of the above limitations the findings of the study will be generally useful in providing information for decision makers, researcher but a lot of caution should be taken while considering the finding or result of the study for other areas of the country.

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<u>Interview Schedule for Field Survey</u>

**Interview Schedule
On
OCCUPATIONAL HEALTH HAZARDS OF FEMALE WORKERS IN
GARMENT SECTOR-A STUDY IN GAZIPUR DISTRICT OF BANGLADESH**

Objectives of the study

- ➢ To find out the socio-economic characteristics of female workers in garments sectors.

- ➢ To explore the health status and food habits of female worker's in the industry.

- ➢ To assess the causes of health hazards faced by the female workers.

- ➢ To make some recommendations for improving health status of the female workers in garments sector.

**DEPARTMENT OF DEVELOPMENT AND POVERTY STUDIES
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Module 1: Detailed Information about Household Members

Sl No.	Name of the Household member	Relation With HH	Age (in year)	Sex (M=1 F=2)	Marital Status	Height	Weight	Occupation	Education	Whether any member includes in a NGO	Do you participate in decision making of your family? [Yes=1, No=2]	Please rank your socio economic status
1	2	3	4	5	6	7	8	9	10	11	12	13
1.												
2.												
3.												
4.												
5.												
6.												
7.												
8.												
9.												
10.												

3. Relation With household head		6. Marital status	11. NGO members	09. Occupational status of household members	13. Please rank your household socio economic status
1=HH Head	8=Sister	1=Unmarried	0=None	1=Agriculture	1=Ultra poor
2=Wife/Husband	10=Maid	2=Married	1=Ex-member	2=Business	2=Poor
3=Son	11=Grand Child	3=Widowed	2=BRAC member	3=Service	3=Lower middle class
4=Daughter	12=Other	4=Separated	3=Grameen bank	4=Others	4=Middle class
5=Father		5=Divorced	4=ASA		5=Rich
6=Mother		6=Left	5=Proshika		
7=Brother			6=Other NGO specify		

Module 2: Information about recent illness

Sl. No	Type of ailment	Yes=1 No=0	Cost of treatment with test (TK.)	Cost of medicine (TK.)	Time needs to reach the treatment centre (mins.)	Method of Treatment (Use code)	Waiting time to get treatment (minutes.)
	1	**2**	**3**	**4**	**5**	**6**	**7**
1.	Headache						
2.	Malnutrition						
3.	Fever						
4.	Musculoskeletal pain						
5.	Less appetite						
6.	Eye Strain						
7.	Chest pain						
8.	Fainting						
9.	Diarrhoeal diseases						
10.	Hepatitis (Jaundice)						
11.	Food poisoning						
12.	Asthema						
13.	Fungal infection						
14.	Helminthiasis						
15.	Respiratory trouble						
16.	Weakness						
17.	Blood Pressure						
18.	Diabetes						
19.	Cancer						
20.	Others: Please specify...						

Code: 6. Methods of treatment: (Govt. health worker =1, NGO health worker =2, Homeopathic doctor =3, Kabiraj/heikim/ayurbed =4, Govt. doctor (govt. institute) =5, Govt. doctor (Private institute) =6, Private doctor =7, NGO doctor =8, Pharmacy/ dispensary/ compounder =9, Family treatment =10, Self treatment=11)

Module 3: Information about respondents

Sources of income	Monthly (TK.)	Monthly expenditure	Monthly (TK.)	Reasons of being involved in RMG	Types of works	Did you receive any loan (Yes=1, No=0)	How much money did you receive last year?	How much money did you pay?
Own salary		Food						
Overtime		House rent						
Salary of other members who are staying with you		Medical						
		Clothing Cosmetics						
		Transport						
		Festival						
		Spend amount to home						
Others		Others						

Code

Reasons of being involved in RMG	Types of work
1 = To secure more income	1 = Operator
2 = To Help financially	2 = Supervisor
3 = To uplift living standard	3 = Quality controllerd
4 = To become independent	4 = Helper
5 = To get facility in marriage	5 = Cutter man
6 = To get facilities of health care	6 = Folding man
7 = To satisfy basic needs	7 = Others
8 = Others	

Module 4:
Information about other facilities (Use"√ "mark)
1. What is your source of drinking water?
    1. Supply water   2.tube well   3. Pond/River/ Canal
2. What is your toilet facility?
    1. Sanitary   2.pucca (water sealed)   3.others
3. Have you any facilities of which are separate for only male and female?
    1. Yes   2.No
4. Is there any discrimination of extra wages for overtime for the female?
    1. Yes   2. No
5. Are there any facilities for enough ventilation and fire exit doors for workers?
    1. Yes   2. No
6. Is any baby care center in the working place?
    1. Yes   2. No
7. Is there any provision of maternity leave for female workers?
    1. Yes   2. No
8. Is there any facilities provision of full time medical care and first aid treatment which is given by management?
    1. Yes   2. No
9. Is there any facility of training given by the management on safety issues?
    1. Yes   2. No
10. Is management aware about the safety management issues?
    1. Yes   2. No
11. Is there any laboratory facilities for monitoring, analyzing, accessing the harmful contaminants in the working environments?
    1. Yes   2. No
12. Due to the poor health status, is there any facilities for the female workers for the better working environment?
    1. Yes   2. No
13. Due to sickness of the female worker is there any facilities provided by the management if there is a high rate of sickness of absenteeism?
    1. Yes   2. No
14. Are the female worker suffers any mental pressure in working place?
    1. Yes   2. No
15. Is there any pressure given by the other members of the family?
    1. Yes   2. No
16. How many times take meals in a working day?
    1. One   2. Two   3. Three
17. How do you prepare your meal?
    1. Homemade   2. Canteen of work station   3. Purchase from outside
18. How many times eat flour in day?
    1. One   2. Two   3. Three
19. How many days in a week you eat the following food items?

Food items	No. of days in a week
1. Meat	
2. Fish	
3. Egg	

4. Milk	
5. Vegetables	