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OCCUPATIONAL HEALTH RISKS AMONG GARMENT INDUSTRY WORKERS IN BANGLADESH: A PUBLIC HEALTH CONCERN

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ABSTRACT

Bangladesh's readymade garment (RMG) sector is now the world's third largest exporter. RMG provides steady employment for approximately 4,000,000 workers, the majority of whom are women. This remarkable progress, however, has been hampered by a lack of factory safety and industrial mishaps, which characterize health risks. This study aims to examine the occupational health risks of garment workers and assess their connection to broader health trends. A longitudinal dataset covering the period 1994 to 2024 was built using official data in the retrospective analysis, using reported data from government sources. which was done by face-to-face interview by an interviewer. The data was collected on a structured questionnaire. Data was analyzed by computer by SPSS version 17.0. Out of 145 respondents, the majority (36%) were found in the age group of 16-20 years where the mean age was 22.30 years with S.D. of ±6.95 years. Among all the respondents, 85% were female. 40.52% were educated institutionally. 52.4% respondents were machine operators, but the maximum (78%) were unskilled and 72% had a length of job between 2-7 years. 90% of respondents normally worked for 8-9 hours. 84.5% did 2-3 hours overtime. In the last one year 60.8%

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had no accidents but minor cuts, burns or injuries were faced by 29.3%. Moreover, most respondents were unconcerned about physical or environmental pollution, while 68% were concerned about noise pollution. Due to the direct link to health risks, employees complain of headaches, general weakness, and eyestrain. Occupational health in the garment industry is a critical public health concern in Bangladesh. Workers' headaches and eyestrain were caused by inadequate lighting and ventilation system and noise pollution. More importance should be given to the workers to improve their health condition and working environment, so that they can increase their productivity, which can ultimately increase production and add GDP to the country. Industrial health hazards should be minimized by the proper implementation of labor laws by the government.

Keywords: *Safety, Public health, Illness, Ready-made garment, Hazards.*

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1. INTRODUCTION

Bangladesh's Ready-Made Garment (RMG) sector is now the third largest exporter among worldwide. The "*Made in Bangladesh*" tag has also brought glory for the country, making it a prestigious brand across the globe. The sector accounts for 83% of total export earnings of the country (BGMEA, 2019). The sector employs approximately 4.4 million people, predominantly women, and contributes significantly to the country's Gross Domestic Product (GDP) and export earnings (Textiles, 2025). The readymade garment industry contributed 81.49 percent of the total export earnings for the country last year (BGMEA,2024). Thus, this industry can be said the life-

blood for the economy of Bangladesh. The workers in the garment industry have to live a simple life with their low level of earning. They cannot get the minimum requirements of food, shelter, healthcare and other amenities for their lives. On the other hand, a Western journal has highlighted the working conditions in RMG factories are not safe and involve a heavy workload (Faysal, Azad, & Moon, 2022). The effects of work-load pressure include the impact on worker satisfaction, productivity, absenteeism, turnover and health (Saleem, Malik, & Qureshi, 2021). The issues of safety, occupational stress and health risks of the labor force engaged in industry come up again especially after the collapse of the Rana Plaza Building (Hosen & Al Mamun, 2021). However, health problems are the most significant among the workers in the garment industry in Bangladesh (Akram, 2014). Workers in the garment industry are connected with a variety of illnesses that reducing productivity. Musculoskeletal diseases, respiratory difficulties, hunger, and other issues plague sewing machine workers (Ahmed, 2014).

This research identifies and analyzes the major occupational health hazards experienced by garments workers and evaluates how these risks affect workers in Bangladesh. In addition, this research also helps to discover the hazards and efforts taken to solve this issue.

2. REVIEW OF LITERATURE

Occupational stress is seen mainly among garment workers in Bangladesh due to many antecedents of stress (Islam & Alam, Keramat, 2021). Occupational stress and demographic factors are commonly related. Occupational stress of garment industry

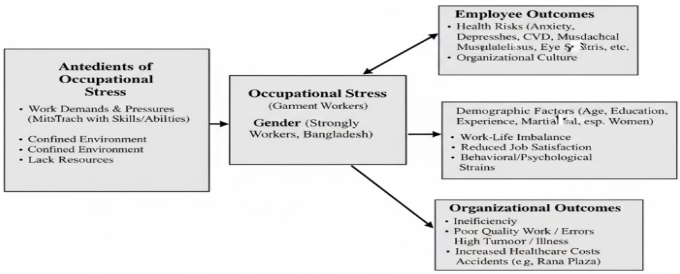
workers is influenced by demographic factors. The availability of studies among garment industry employees finds issues that are concomitant with workplace stress remain a worthy challenge, outcomes from different studies showed that age (Jin, 2020), education, experience, marital status and gender significantly connected with occupational stress. Occupational stress is mainly acknowledged by organizations that have trends of inefficiency, high turnover due to absence, illness, poor quality of work and increasing healthcare costs and reduced employment satisfaction. According to the World Health Organization's (WHO) definition, 'occupational or work-connected stress is the response people may have when presented with work demands and pressures that are not matched to their skills and abilities and which challenge their ability to cope'. Occupational stress can lead to a deterioration in a person's mental condition in response to the workplace which creates a challenge for that employee. In one survey 60% of employed women cited stress as their number one problem at their workplace. Another study finds that in the garment industry occupational stress is strongly linked to gender (Khalid, Li & Wang, 2020).

Stress contributes to decreased organizational performance, decreased employee overall performance, high percentage of error rate and poor quality of work, high staff turndown, absenteeism and health risk. Due to occupational stress, health problems such as anxiety, emotional disorder; work life imbalance; depression and other forms of ailments such as frequent headache, obesity and cardiac arrests. Studies have found that there are many cardiovascular diseases related to stress, with being the main stress-related disease (Serrano &

Costa, 2018). However, the levels of stress-related illness are as high for women as for men. It has been maintained that garment factory workers are confined in a closed environment which has a detrimental effect on their health condition. The nature of the work done in the research area created a variety of health risks for selected respondents such as headaches, malnutrition, muscle aches, eye strain, loss of appetite, chest pain, back pain, unconsciousness, diarrhea, hepatitis, food poisoning, asthma, fungal infections, helminthiasis, dermatitis and loss of vision (Akter & Chu, 2019).

Occupational stress has increased risks of work-related diseases and accidents like the Rana Plaza incident. The research paper argues that stress affects health and may lead to disease, Stressful working conditions can lead to behavioral, physical, and psychological strains (Hafeez, 2018). Based on the above literature review, this research attempts to sketch draw the following proposed research framework. This structure indicates the effect of occupational stress which affects the health risk of RMG industry workers as shown in Figure 1.

Figure 1. Research framework based on literature review findings.



The systematic review findings show that occupational stress is a prevalent and serious issue among the garment workers in Bangladesh. Therefore, this study was conducted to find out the occupational stress and health risk of workers among selected factories, also addressing these stress issues through better working conditions and policy for improving worker well-being and organizational efficiency.

3. RESEARCH METHODOLOGY

The study is conducted based on secondary information collected from different sources. This study cross-sectional survey research design to examine the direct and indirect relation between occupational stress and health risk among RMG workers in Bangladesh. The data of these studies collected from published reports, research articles and verified institutional sources between 1993 to 2024.The most industrial zones of Bangladesh are Dhaka, Chattogram, Gazipur and Narayanganj. The labor force surveys and statistical yearbooks for demographic and labor data for the data of this study were compiled from various sources such as Bangladesh Bureau of Statistics (BBS,2023), International Labor Organization (ILOSTAT,2023), Department of Inspection for Factories and Establishments (DIFE,2024), and peer-reviewed research papers. Information regarding workplace accidents and fatalities was verified using government inspection reports, while stress and health risk data were extracted from academic and institutional studies addressing labor conditions, working hours, and physical strain. A qualitative and comparative analysis method was adopted in this research. The data were manually entered into SPSS for statistical analysis.

4. ANALYSIS

The SPSS software was used to perform the following analysis.

a. The average of working hours, demographic ratios and frequency are summarized into table 1.

Table 1. Descriptive Statistics

Variable	Mean	Minimum	Maximum	Std. Deviation
Working Hours	63.8	50	72	8.41
Female Workforce (%)	63.2	53	80	9.75
Stress Level	3.2	2	4	0.84
Accident Severity	2.8	1	4	1.09

Source: The authors' own work.

In this analysis the mean of weekly working hours across the period was approximately 64 hours. The female workers participation averaged 63% peaking during early industrial expansion. The mean of stress level 3.2/4 indicates high occupational stress across all periods.

b. The completed dataset covered five major industrial periods: (1993–2005, 2006–2012, 2013, 2014–2020, and 2021–2024). The correlation analysis was finding for measure the relationship between working hours, stress levels and accident frequency in table 2.

Table 2. Correlation Analysis

Variables	Working Hours	Stress Level	Accident Severity
Working Hours	1	0.89*	0.72
Stress Level	0.89***	1.000	0.85***
Accident Severity	0.72	0.85*	1.000

*p < 0.05 (significant correlation).
Source: The authors' own work.

This research analysis shows that a strongly positive correlation (r = 0.89) exists between working hours and stress level. It indicating that longer working hours significantly increase occupational stress.

c. The cross-tabulation method was applying for compare accident severity with time period and demographic factors in table 3.

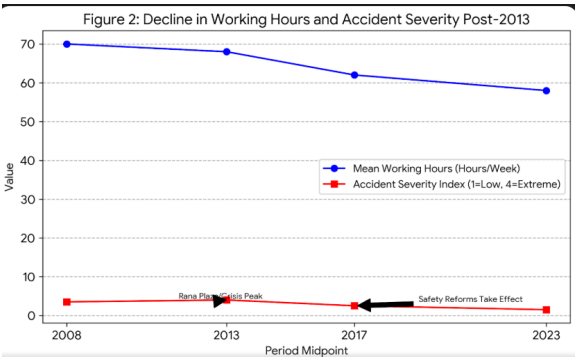
Table 3. Cross-Tabulation of Period by Accident Severity

Period	Low	Moderate	High	Extreme
1993–2005	1	2	2	0
2006–2012	0	1	3	1
2013	0	0	1	4
2014–2020	2	2	1	0
2021–2024	3	1	1	0

Source: The authors' own work.

5 RESULTS & DISCUSSION

The SPSS analysis of secondary data from 1993 to 2024 displayed significant trends in occupational stress, working hours and health sectors risk among factory workers of RMG industry in Bangladesh.



The line chart below shows the gradual decline in average Working Hours and the more dramatic reduction in Accident in 2013.

The average working hours during the finding period ranged between 63.8(table 1). The correlation coefficient ($r = 0.89$, $p < 0.05$) between working hours and stress levels shows a strong positive relationship. It is meaning that longer working hours lead to higher occupational stress.

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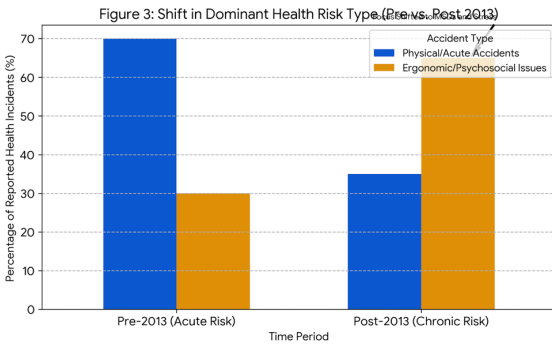

The graph bar below illustrates the nature of health risk, showing acute physical accidents and rise in chronic issues.

The analysis established a context of high occupational strain. The mean Working Hours was 63.8 per week (Table 1) and exceeding the standard 48-hour limit. This study provides a baseline for high occupational stress. The mean Stress Level was moderate to high (3.2/4-point) and accident Severity was 2.8 (Table 1). The Line Chart (Figure 2) shows that while the severity of accidents dropped sharply after 2013 rana plaza disaster, the reduction in mean working hours has been gradual from 68 hours to 58 hours in week. The workforce remains majority female (63.2%) are justifying the focus on gendered health risks.

6. CONCLUSION

Occupational health risk in Bangladesh RMG industry remains a critical public health concern. This research reveals the work-related health hazards among Bangladeshi garment factory workers. The primary conclusion is that excessive working hours and the resulting occupational stress are the most significant caused for worker health risk. However, various work stressors exist everywhere. Lack of advantageous work environment exists in in many industries; lack of proper healthy factory premises and incidence of mental abuse is one of the longest standing forms of the garment industry in Bangladesh. To overcome this problem government should make a policy for industry and proper maintenance of workers' time.

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