

Occupational Safety and Health Risk of the workers of
selected garments factory in Bangladesh.



By

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Statement of authorship

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Table of Contents

Content	Page Number
Statement of authorship	iii
Acknowledgement	iv
List of Tables	viii
List of Abbreviations	ix
Abstract	x
CHAPTER I: Introduction	1-5
1.1 Background	1
1.2 Justification of the Study	4
1.3 Operational Definition	5
CHAPTER II: Literature Review	6-15
2.1 Occupational Health and Safety(OSH)	6
2.2 Hazard	7
2.3 Risk	12
2.4 Work-related Health problems	13
2.5 Safety Measures	14
CHAPTER III: Methodology	16-23
3.1 Study questions, aim and objectives	16
3.1.1 Study questions	16
3.1.2 Aim and objectives	16
3.2 Study design	16
3.3 Study setting and period	17

3.4 Study participant	17
3.4.1 Study population	17
3.4.2 Sampling technique	17
3.4.3 Sample size	18
3.4.4 Inclusion criteria	18
3.4.5 Exclusion criteria	18
3.4.6 Participant recruitment process	19
3.5 Ethical considerations	19
3.6 Data collection	19
3.6.1 Data collection method	19
3.6.2 Survey tool	19
3.7 Data management and analysis	23
3.8 Quality control and Quality assurance	23
CHAPTER IV: Results	24-31
4.1 Socio-demographic characteristics of the participants	24
4.2 Risk	25
4.3 Severity of risks derived from hazards	26
4.4 Health related problems of the participant	28
4.5 Safety measures of the garments factory	30
CHAPTER V: Discussion	32-34
CHAPTER VI: Conclusion	35-39

6.1 Strength and Limitation	35
6.1.1 Strength	35
6.1.2 Limitation	35
6.2 Practice Implication	36
6.2.1 Recommendations for OT educators and Occupational therapists (OTs) in Bangladesh	36
6.2.2 Recommendations for garments factory in Bangladesh	36
6.2.3 Recommendations for further research	36
6.3 Conclusion	37
List of Reference	38
APPENDICES	42-67
Appendix A: Ethical Approval	42
Appendix B: Permission letter for collecting data	43
Appendix C: Information sheet and consent form [English Version]	44
Part II: Certificate of Consent	47
Appendix D: Information sheet and consent form [Bengali Version]	48
Appendix E: Questionnaire (English & Bangla)	53

List of Tables

Serial number of the Table	Name of the Table	Page no
Table 1	Socio-demographic characteristics of the participants	24
Table 2	Different types of risk of the participant	25
Table 3	Severity of risks derived from hazards	26
Table 4	Health related Problems of the participant	28
Table 5	Safety measures of the garments factory	30

List of Abbreviations

OSH→ Occupational Health and Safety

PPE→ Personal Protective Equipment

RMG→ Ready-Made Garments

ILO→ International Labor Organization

MSDs→ Musculo-Skeletal Disorders

IRB→ Institutional Review Board

BHPI→ Bangladesh Health Professions Institute

CRP→ Centre for the Rehabilitation of the Paralysed

SPSS→ Statistical Package for the Social Sciences

Abstract

Occupational Health and Safety (OSH) broadly works in protecting the health, safety and welfare of people engaged in work. For this reason, OSH rules and regulation is needed to be followed in garments industry. Ready-made garments industry has made significant contributions to the country's economic development. But the workers of these industry are not doing well. So, this study aimed to identify the risk of the workers of selected garments factory in Bangladesh.

A cross-sectional study design was used in this study. Face to face survey was done with 250 garments worker of sewing section who were selected by convenience sampling technique. Risk rating matrix tool were used for data collection. Descriptive analysis and multiple response analysis were used to analyze the survey result.

Result indicated that 62% participants were female and 38% male where their mean age was 27 years. Most of the participants were married and completed primary education. The participants were in medium risk in ergonomics (46.4%), physical (64.8%) and psychological category (48%). Most of the participant's severity rate was moderate in physical (30.8%); minor in ergonomics (26%) and psychological (31.6%); negligible in chemical (84%) and biological (86.4%). Most of the participants reported different health related problems where they mainly had back pain, headache, neck pain and other problems. In terms of safety measure they didn't have any noise suppression system, no worker's rotation and rest breaks. The participants also used Personal Protective Equipment sometimes.

More effective control measures should be taken to control the risk and minimize the health problem.

CHAPTER I: Introduction

1.1 Background

Occupational Health and Safety (OSH) studies injury and illness in worker population and offers suggestions for mitigating risk and hazards. Risk is one of the components of Occupational Health and Safety. It may apply to situations with property or equipment loss, or harmful effects on the environment. (Canadian Centre for Occupational Health & Safety,2020). Occupational Safety and Health is an important component for decent work agenda. It means the condition of workplace where workers work is free from all kinds of hazards and risks (Hossain, Akter & Khan,2015). Occupational health and safety broadly works in protecting the health, safety and welfare of people engaged in work (Alli, 2008). It is estimated that globally around 160 million people are affected by avoidable Occupational diseases and more than two million workers die from work related accidents each year. In economic terms, the ILO has estimated that 4 percent of the world's annual GDP is lost as a consequence of occupational diseases and accidents (Hossain et al, 2015). International statistics indicates that implementation of Occupational Safety and Health (OSH) has always been challenging all over the world (Straif, 2018). So the proper implementation of OSH at workplaces is equally important to both individuals and organizations and also indirectly to the country (Alli, 2008). Hazard, risk, risk assessment, exposure, and safety are part of OSH (Department of Occupational Safety and Health & Ministry of Human Resources, 2020).

The Ready-Made Garments (RMG) industry has made significant contributions to the country's economic development over the last four decades (Sharif, Islam and Kabir,2017). The sewing section is the most important and largest department in RMG

industry as most of the foreign currency are earned by this section in the garments industry in Bangladesh (Masum & Alam, 2016). In sewing section, sewing is a big important part of a garment's product. Without good sewing, they cannot introduce products worldwide. Sewing is a process where two pieces of fabric are joined. Many factors are related to sewing. So the sewing section is not only fabric join, it is a core part of the garment manufacturing industry. For this, sewing section is known as the heart of a garments (Raaz, 2016). Bangladesh have four and five thousand garment factories, from large first tier suppliers to small factories who are greatly working as subcontractors to bigger clients (Rashid & Rashid, 2015). But in recent few years this industry is facing threat by inadequate safety issue, bad working environment and demolishing workers' rights (Sharif et al., 2017). For this reason, it is a biggest challenge to ensure the Occupational Health and Safety (OSH) for the garment worker of this section (Masum & Alam, 2016).

In most of the OSH related research, they identified the hazard that the garments workers are being exposed to and their health related problems. Some tried to observe and compare the present condition of the health and safety environment. Some studies only discussed accidents. In different literature, they mainly identified hazard related health problems that a garments worker experience. In Bangladesh, different literature found the hazard and risk factor and their health problems and accidents. In Srilanka, they identified the employee's level of exposure to hazards. In India, they identified hazard related health problems. Analysis of the identified studies indicates that workers in Bangladesh and India face almost the same kinds of health problems, whereas RMG workers in China, Thailand, and Cambodia appear to experience different kinds of health problems. The Indian and Bangladeshi RMG workers mostly experience back/joint pain, headache, jaundice, eye problem, fever,

diarrhea, work stress, gastric pain. On the other hand, the Chinese, Cambodian, and Thai RMG workers experience respiratory symptoms, Occupational allergic contact dermatitis, poor nutritional related health issues. But the RMG workers of Sri Lanka are comparatively healthier than the workers from other developing countries. Different literature shows that the RMG workers of Bangladesh and India are more vulnerable than the other workers of South and Southeast Asian countries.

Occupational Therapy works in hazard and risk identification and risk management to ensure the individual's safety and their maximum level of functioning in a safe environment. They are required to eliminate or reduce the level of risk to employees through the introduction of adequate control measures. They work with employers and employees to adapt or modify the environment or task, facilitate successful return to work after illness or injury, and help prevent illness or injury to promote participation, health, productivity, and satisfaction in the workplace(AOTA). They also identify and provide treatment to the person with disabilities and provide recommendations for building a safe environment for the workers and review it (Alli, 2008). All the OSH issues have been identified and classified as per the Classification of International Labor Organization(ILO) (2001) that has categorized OSH hazards under five specific categories as 'physical hazards', 'ergonomic hazards', 'psychological hazards', 'chemical hazards', and 'biological hazards'.

There are no research and conference paper about identifying the risk of garments worker in sewing section and no research about safety measure available related to the hazard and their severity rate in the sewing section of the readymade garments industry in Bangladesh. For this reason, my aim is to identify the risk of the workers in sewing section of selected garments factory in Bangladesh. This study will help to know about

the condition of garments workers in their workplace and also will help to identify the risk and what kind of measures that the garments factory has taken according to OSH law and regulation in Bangladesh.

1.2 Justification of the Study

Occupational Therapy Professionals broadly work with Occupational Health and Safety status and risk is one of the components of OSH. By this research, the participant will get to know about how they are exposed to hazards and how these hazards are causing risk to their life and causing health related problems. Participant will also get to know about how they are safe in their workplace. By this participant will become aware of the risk and their health problems and can take effective measures to decrease the health problems. The garments factory owners will get to know about how OSH risks are affecting their worker's productivity. If the owner make changes in their factory, then their productivity will increase. It will help to decrease the absence rate of the worker due to health issues. They will also become aware of the risks that is happening in their factory and can take effective control measures. Also other researchers will get to know the OSH status among the garment workers and they can think about different OSH related research in other sectors and also can provide recommendations.

1.3 Operational Definition

- **Occupational Health and Safety:** Occupational Safety and Health (OSH) deals with all aspects of health and safety in the workplace and has a strong focus on primary prevention of hazards to prevent accidents from work-related activities.
- **Hazard:** Hazard is any source of potential damage, harm or adverse health effects on something or someone.
- **Likelihood:** Likelihood is a work related hazardous event or exposure likely to occur.
- **Severity:** Severity is outcome from an event or exposure such as severity of injury or ill health.
- **Risk:** Risk is the chance or probability that a person will be harmed or experience an adverse health effect if exposed to a hazard.

CHAPTER II: Literature Review

This literature review will have how occupational health and safety works for the garments worker. It also includes what are the ergonomic hazards, physical hazard, biological Hazard, chemical hazard, psychological hazard and how they are happening and how they are affecting the lives of the garments worker. Not only Bangladesh these hazards are also happening in other countries because of lack of awareness. For this the garments worker have to face a lot of health problem and safety issues.

2.1 Occupational Health and Safety(OSH)

Occupational Safety and Health (OSH) is an important aspect which allows an organization to systematically manage the safety and health of the workers in a workplace (Thatshayini and Rajini, 2018). OSH is generally defined as the science of the anticipation, recognition, evaluation and control of hazards arising in or from the workplace that could impair the health and well-being of workers and taking into account the possible impacts on the surrounding communities and the general environment (Alli, 2008). International Labour Organization stated that OSH is a discipline with a broad scope involving many specialized fields. The aim is to promote and maintain the highest degree of physical, mental and social well-being of workers in all occupations; prevent adverse health effects caused by their working conditions; protect workers from risks; and maintain occupational environment adapted to physical and mental needs and the adaptation of work. (International Labor Organisation,2010). They are greatly working to achieve their goal. Proper implementation of OSH can reduce employee injury and illness related costs, including medical care, sick leave and

disability benefit costs etc. (Khan, Dipti, Ferdousi, Hossain, Ferdousi, Sony, Ahmed, Paul and Islam,2016). If an organization can prevent occupational health hazards, it can ensure the quality works done by the healthy workers with their efficiency and satisfaction. More workers will be encouraged to gain their skill in complex and challenging works when they will find assurance of healthy environment and health care provisions. The workers are mostly affected by incidents as majority of the workers are illiterate, have no awareness, not educated enough and not well trained to prevent the incidents and can rescue themselves from the incidents (Sharif, Islam and Kabir,2015). There are many hazards that the workers are exposed in garments factory that includes accident hazards like burns and puncture wounds, physical hazards like heat and noise, chemical hazards like exposed to different chemicals leads to allergies, ergonomic hazards like poor posture and improper workstation design, biological hazards like poor nutrition and psychosocial that mainly results from abuse of supervisors and a depressing work environment (Sobuj, 2011). So, it is necessary for workers to be aware of the hazards and take precautions against risk, work related illnesses and injuries. The garments factory should also take safety measures according to OSH law.

2.2 Hazard

In the garments industry, the garments workers are exposed to many kinds of hazards and for this they experience adverse health effects.

Majority of the garments worker are exposed in dust due to dirty and unclear environment (Mehta,2012; Rashid and Rashid,2015; Thatshayini and Rajini,2018; Chumchai, Silapasuwan, Wiwatwongkasem, Arphorn and Ampai, 2015). Mainly the workers of Bangladesh, India, Srilanka and Thailand are mostly exposed with it. But in

Bangladesh through a case study of one garments factory found that they try to follow the full provisions of section 51 of the Bangladesh Labour Act 2006 regarding cleanliness of the work environment. The workers of Bangladesh India and Thailand and Sri Lanka mostly exposed to noise. They Are also exposed to humid environment, excessive temperature but the Sri Lankan workers are less exposed to heat (Mehta,2012; Thatshayini and Rajini,2018; Ahmed, Karmaker and Ahmed,2019). The Bangladeshi workers have to work in poor ventilation because there is lack of space for air circulation (Ahmed et al.,2019; Akhter, Salahuddin, Iqbal, Malek and Jahan, 2010). Poor ventilation occurs due to home based factory working because the structure of homes is inappropriate, with unsupported space (Chumchai et al.,2015). But the Sri Lankan workers work in a ventilated area (Thatshayini and Rajini,2018). In Bangladesh garments worker have to work in poor and improper lighting while the Sri Lankan are less exposed to poor lighting (Thatshayini and Rajini,2018; Rashid and Rashid, 2015; Ahmed et al.,2019). India conducted a descriptive study to find out the health status of the worker with the type of hazards and also find out the musculoskeletal disorders(MSD). In this study there is no information about data collection tool and data collection analysis process and less information about hazard identification. This study only identified the hazard related status and MSDs. In Bangladesh three study was conducted, where they are two case studies and one cross sectional study. The case study identified work place health, safety and environment risk factors in the garments industry. In this study there is no information about sampling and recruitment and data collection tool and less information about hazard. The another case study identified that if the garments company followed the Bangladesh Labor Law 2006. The area of the study is limited to observe and compare the present condition of the health and safety environment of the organization. Some participants were not able to provide concrete

fact or figure. The cross sectional study is conducted to identify the health and safety issues of the female workers in Bangladesh. This study found out very limited information about hazards. A comprehensive literature review is conducted to identify the level of exposure to hazard in Sri Lanka. This study identified different OSH hazards but they didn't identify the health problems and given no information about safety measures. A cross sectional study was conducted in Thailand to determine the prevalence and risk factors associated with respiratory symptoms. This study only found the respiratory problems and only the respiratory problem related hazards. There is no study about risk identification of garments worker.

Another hazard called ergonomic hazards which is very common to cause musculoskeletal injuries. In India most of the garments worker are exposed to vibration and they work in awkward posture for a long of time (Mehta,2012). The Sri Lankan garments worker are also exposed to work in awkward posture (Thatshayini and Rajini,2018). It is also stated that the workers have to work for prolonged hour (Thatshayini and Rajini,2018; Kabir, Maple, Usher and Islam, 2019). So it affects the body muscles, joints, tendons, ligaments, bones and nerves. The workers have to engage in repetitive work where the ergonomic design is poor but with less poorly design machines. Due to home based factory in Thailand the structure of the home is inappropriate and the home have poor space to work (Thatshayini and Rajini,2018; Chumchai et al.,2015). In Bangladesh they hardly identified ergonomics hazards. Most of the OSH related studies mainly identified work related health issues and MSDs. The Indian descriptive study gives a letter information about ergonomics hazards. The Thailand's cross sectional study stated about ergonomics because of their home based factory. But the Sri Lankan study give a lot of information about ergonomics hazard because their aim is to identify the level of exposure to different hazards.

The Garments worker in washing section are mostly exposed to detergent and bleaches that causes skin allergies because it contains harmful chemicals (Mehta,2012). In Bangladesh workers are also exposed to hazardous chemicals which hinder their safety (Ahmed et al.,2019). But the Sri Lankan workers are less exposed to dangerous chemicals. They are mostly exposed to cotton dust but inhale little dust from machines (Thatshayini and Rajini,2018). On the other hand, the worker from Thailand and the Southeast Asia are mostly exposed to fabric and cotton dust and dust of raw materials (Chumchai et al.,2015; Kabir et al.,2019). In southeast Asia, the garments worker has to work with smoke, mist and fumes (Kabir et al.,2019). Garments worker mostly experience allergy due to inhaling color fabric dust and small fabric particles (Chumchai et al.,2015). As the cross sectional study of Thailand is to identify the prevalence and risk factor associated with respiratory symptoms that's why this study only identified all the hazards that causes respiratory distress where other hazards are not included. The systemic review of South and Southeast Asian region aimed to identify health problems with their causes and their consequences of these problems. So they identified health problems are mostly focused on female health that's why it is not clear whether or not male workers are less vulnerable. This Study identified the cause and effect but no study mentioned to identify the Risk of the garments worker. On the other hand, the comprehensive literature review in Sri Lanka identified all the hazards in garments section. And the Bangladeshi garments worker mostly work with dangerous chemicals which may become very unsafe for them to work in garments factory.

Another hazard of OSH is biological hazard which includes bacteria, viruses, insects, plants, birds, animals, and humans which cause adverse health effects. In Bangladesh some garments factory ensures purified water but which is not sufficient (Rashid and

Rashid,2015). Some factory didn't provide pure drinking water (Ahmed et al.,2019). There is some factory who doesn't provide pure drinking water (Akhter et al.,2010). For this reason, the garments worker experience different health issues. In the garments factory workers work in a poor hygienic environment where the hygiene in sanitary and dining facility is poorly available (Ahmed et al.,2019; Akhter et al.,2010; Rashid and Rashid,2015; Kabir et al.,2019). The garments worker in Bangladesh and South and Southeast Asian region are mostly expose in this hazard. They are also exposed to for nutritional status (Kabir et al.,2019). Sri Lankan workers are less exposed to biological Hazard except poor nutrition (Thatshayini and Rajini,2018). The workers also have imbalanced diet (Thatshayini and Rajini,2018; Kabir et al.,2019). This Result help to identify that Sri Lankan workers are less exposed to biological hazard than the Bangladeshi and South and Southeast Asian worker. In Bangladesh most of the worker don't get pure drinking water and they exposed in lack of hygiene. But Sri Lankan workers only have poor nutrition and imbalanced diet. For this reason, the worker may experience nutritional deficiency.

A psychological hazard is any hazard that affects the mental well-being or mental health of the worker. The South and Southeast Asian, Sri Lankan and Chinese worker are mostly exposed to mental stress (Yua, Yub, Li c, Wangb, Sund, Linc, Wand, Qiub and Xieb,2012; Thatshayini and Rajini,2018; Kabir et al.,2019); where the Chinese workers mental stress is associated with injury (Yua et al.2012). And the Southeast Asian are stressed out because they worry about mistakes in work, time pressure, lack of freedom and have job in security (Kabir et al.,2019). Both the south and Southeast Asian and Sri Lankan have a lot of workload (Thatshayini and Rajini,2018; Kabir et al.,2019). Bangladeshi female worker mostly experiences sexual harassment, emotional abuse and abusive language (Akhter et al.,2010); where Sri Lankans are less exposed to any

kind of harassment (Thatshayini and Rajini,2018). In Bangladesh female workers are discriminated in wages than men (Akhter et al.,2010). They also don't get recognition for their work (Kabir et al.,2019). The comprehensive literature review in Sri Lanka shows that the workers are exposed to stress due to repetitive movement improper design of workstation and noisy environment. They have a lot of pressure to fulfil the target and become fatigue. On the the other hand the cross sectional study in China stated that the workers stress is related to past and future injury risk. The systemic review of Southeast Asia shows that their stress is because of long working hour, worries about mistakes, time pressure, exposure to abusive language and emotional abuse, and physical demand; where Bangladeshi female worker are most exposed to harassment and discrimination as well as workload. So the Bangladeshi garments worker are the most vulnerable people.

2.3 Risk

Risk is something that every individual lives with on a day to day basis. And this risk occurs when a person is exposed to hazard that causes health effects. In a conference paper of Bangladesh, they identified 19 kinds of accidents in which risk score was 6 to 20. In this paper they mentioned that around 14 types of accidents where the score was greater than 10. Some workers had permanent disability (Talapatra & Mohsin, 2020). In this paper they interviewed 50 employees of sewing section which is very limited to show whole picture of Bangladesh. Another study in finishing unit where the risk is identified according to different activities. Here different kinds of mechanical activities, contact with hot or cold object or parts classified in in low risk, gravitational activities, thermal or explosive materials, electrical component, noise and vibration, environmental included air, ground, water contamination, chemical substance, radiation included non- ionizing radiation source, biological, manual

handling activities, psychological or, mental, social and medical, work environment in different areas all were in medium risk (K & Das, 2019). In this study the geographical area and participant number is not included.

2.4 Work-related Health problems

The garments worker is exposed to different kind of hazards which leads to various work related health issues and problems. The garments worker are mostly experience MSDs. The garments worker is exposed to different kind of hazards which leads to various work related health issues and problems. The garments worker are mostly experience MSDs. In India around 120 respondent participate in this study where majority of the participant have MSDs. The health problems of the garments worker in cutting section are 20% vibration induced syndrome and breathing problem, 15% headache and skin problem. In stitching section, 40% headache, 30% respiratory problem, 5% hearing problem, 2% visual discomfort. In Sewing section hearing disability, headache, fatigue, pain, numbness and tingling of finger and arms. In finishing section, skin problem and visual discomfort; washing section skin allergy; quality section headache, visual discomfort and asthma (Mehta, 2012). In Bangladesh around 145 participants who participate in the study 24.8% have back pain, 51% has headache and shoulder pain. Very few participants had been suffering from peptic ulcer disease, depression, hypertension and asthma (Khan et al.,2016). This two studies have stated almost same health related problems. But their sample size was different. In the Indian study they identified health problems according to the worker who works in different section in the garments factory. On the other hand, the Bangladeshi study stated the overall health problems of the garments worker. In Bangladesh the health related risk factor that the garments worker experience are MSDs, contagious disease, vision fatigue and hearing loss (Ahmed et al.,2019). On the other hand, China identified

290 workers suffered from 416 injury event which annual incident rate is 8.3% and event based incidence rate is 119.6 event per 1000 person. The garments worker of china mostly affected 28% lower back, 24% neck, 18.6% shoulder, 15.5% upper back, 50% pain or discomfort. It also stated that MSDs occurs one body part of 1636 workers where lower back pain is the most. Female had lower risk of injury than men (Yua et al.2012). Both of the study stated that the garments worker mostly affected by MSDs. The cross sectional study of China had 3479 participants but the case study of Bangladesh had not mentioned the sample size. But Bangladeshi study identified health problems and also the Chinese study not only identify the health problems but also the injuries too. The systemic review of South and Southeast Asian region stated common health problem include respiratory problem (breathing related difficulty, cold, cough, chest tightness, asthma, nasal congestion, abnormal lungs function). This study also stated that due to daily work activities health problem includes MSD problem, hearing loss, cardiovascular disease. They also experience frequent and common back and joint pain, cough, common cough, headache, eye problem, loss of sight, hepatitis, diarrhea, gastric pain. This study also identified psychological problem like trauma, work stress, depression that cause insomnia, high blood pressure, heart attack, somatic illness, anxiety, social dysfunction, sleeplessness (Kabir et al.,2019). The Thailand's study only identified the respiratory problem, allergy related respiratory problems and allergy due to inhaling dust and Fabric dust (Chumchai et al.,2015). The study only identified respiratory problems but the Southeast Asian region's study identified both health problem and psychological problem. The both studies research design and sampling size are different.

2.5 Safety Measures

Safety measures are the most important issue to ensure occupational safety to the

garments worker. In Bangladesh many garments factory provide training to the garments worker on disaster control (Khan et al.,2016). They also tried to follow the provision of section 51 of the Bangladesh labour act 2006 regarding cleanliness. They also started health and safety plus program to provide up to date risk assessment, prompt actions and remedies provided by its surveyor staff following any inspection and report by the enforcing authorities. The garments factory has appliance to the point of the origin of dust, fume and other impurities. And also has effective arrangement for waste disposal and effluents (Rashid and Rashid,2015). In Bangladesh most of the garments factory have unsafe machinery, no fire control measure (Ahmed et al., 2019). They don't follow the prescribed space, provision of lighting, no emergency and fire exit but provided sufficient water but not purified (Rashid and Rashid,2015). In Bangladesh the management of garments factory are not aware about safety for female, not enough fire exit and fire and smoke alarm don't work (Akhter et al.,2010). In Southeast Asia region they rarely use personal protective equipment(PPE) (Kabir et al.,2019). In Thailand they poorly use PPE (Chumchai et al.,2015)

CHAPTER III: Methodology

3.1 Study questions, aim and objectives

3.1.1 Study questions: What is the level of Occupational Safety and Health (OSH) risk of the garment worker of selected garments factory in Bangladesh?

3.1.2 Aim and objectives

Aim: To identify the Occupational Safety and Health(OSH) risk of the workers of selected garments factory in Bangladesh

Objective:

- To find out the severity of risks derived from hazards among the garments workers
- To find out the health related problems arising from the hazards
- To determine the available safety measures of the garments factory

3.2 Study design

In this study the investigator used cross-sectional study of the quantitative research design. The cross-sectional study is the best suited method for presenting a situation over a short period of time. Using the study design, the investigator collected information about Occupational Safety and Health Risk of the garments worker. The investigator had chosen this design as a means of using large number of participation and then collect data accurately.

A cross-sectional study helps to find what is happening and it is done in a definite population at a particular point of time. In this study both exposure and disease are determined simultaneously for each subject at one point in time or

over a short period of time (Sedgwick P, 2014). In this study data was collected in a planned way from a defined population and data collector selected a sample from the population of interest at one point in time. For this reason, the study had been done in this design.

3.3 Study setting and period

The researcher collected data from Pakija Knit Composite Ltd.

Pakija Knit Composite Ltd. is a knit fabric manufacturing giant, was successful in catching the early winds of the favorable enterprise in world-class textiles in Bangladesh and became standard of excellence in this sector. Established in 2014, PKCL is now one of the largest knitting capacity within the country. PKLC never compromises with quality and drives timely production. They have different types of services like sampling, knitting, dyeing, cutting, sewing, finishing, quality assurance and print and embellishment. They produce men's, women's and kid's wears (Pakija Knit Composite Ltd,2018).

The study was conducted from April 2021 – February 2022

3.4 Study participant

3.4.1 Study population

The garments worker of sewing section. The researcher contacted with the participant in their workplace in their garments factory in sewing section.

3.4.2 Sampling technique

The garments workers of the sewing section were selected by convenience sampling.

This is the most common nonprobability sample. Convenience sampling involves using respondents who are “convenient” to the researcher. There is no pattern whatsoever in acquiring these respondents—they may be recruited

merely asking people who are present in the street, in a public building, or in a workplace. It's referred to as “convenience” sampling because unless the targeted user group is truly limited to those people, it is likely introducing some bias to recruit just a particular slice of the population(Galloway, 2005).

3.4.3 Sample size

$$N = \frac{z^2 \cdot p \cdot q}{d^2}$$

$$= \frac{(1.96)^2 \times 0.5 \times 0.5}{(0.05)^2}$$

$$= 384$$

Here,
 n = sample size
 z = the standard normal deviated usually set at 1.96 which correspondent to 95%
 p = 50% = 0.5
 q = (1-p) = 0.5
 d = 0.05 degree of accuracy required

Due to Covid-19 pandemic situation, it is difficult to collect data within the short period of time. That's why investigator selected 250 participants from sewing section.

3.4.4 Inclusion criteria

- Both male and female garments workers.
- Workers those who were working in sewing section.
- Workers age had 18 years and above.

3.4.5 Exclusion criteria

- Workers those who were in the cutting, finishing and ironing section.
- Severely ill workers.

3.4.6 Participant recruitment process

The researcher contacted with the participant in their workplace in the garments factory in sewing section.

3.5 Ethical considerations

- At first investigator took permission from the research Institutional Review Board (IRB) of Bangladesh Health Professions Institute (BHPI).
- Investigator took permission from the garments factory to conduct the research.
- An information sheet was provided about ethical issues. The research related information was discussed with the participant before taking signature on the consent form.
- The participant had the right to refuse participation even if they agreed earlier.
- There was no power relationship between the student researcher and the participants.
- There was no risk for the participant as the data that the participant provided was remained confidential and their name was not included in the study.
- Except for the supervisor of the study no one can get access to the study.

3.6 Data collection

3.6.1 Data collection method

Data was collected by face to face interview using structured questionnaires. Investigator took ethical permission from Institutional Review Board (IRB). At first investigator asked permission from the garments worker for their available time. Formally the investigator briefly explained about information sheet and consent form with study aim. The aim and objectives were mentioned to all the participants for making a clear view about the study and how they assist the investigator.

Firstly, data related to personal information was collected. Secondly, risk assessment questionnaire was used for collecting data. During data collection the investigator was neutral and ignored personal biasness. The investigator had to ask and describe questions in Bengali to collect data and specifically while participants had any doubt. Data was collected during the free and easily available time, for the participants and not impact to the participant's productivity. To collect data from each participant was taken approximately 15 minutes.

3.6.2 Survey tool

Following instruments were used during data collection period:

- Consent form and Information sheet
- Socio-demographic questionnaire
- Risk assessment questionnaire
- 5×5 Risk Matrix
- **Risk assessment by using risk rating matrix tool**

In mathematical term, risk can be calculated by the equation –

$$\text{Risk} = \text{Likelihood} \times \text{Severity}$$

Where, Likelihood is a work related hazardous event or exposure likely to occur; and Severity is outcome from an event or exposure such as severity of injury or ill health. (Department of Occupational Safety and Health and Ministry of Human Resources, 2020)

Likelihood Rating:

Likelihood	Description	Rating
Most likely	The most likely result of the hazard / event being realized	5
Possible	Has a good chance of occurring and is not unusual	4
Conceivable	Might be occur at sometimes in future	3
Remote	Has not been known to occur after many years	2
Inconceivable	Is practically impossible and has never occurred	1

Severity Rating:

Severity	Description	Rating
Catastrophic	Death, numerous serious bodily injuries, multiple serious bodily injuries or numerous life threatening occupational diseases (e.g. occupational cancers or acute poisoning)	5
Major	Serious bodily injuries involving permanent disability or life threatening occupational disease involving one person (e.g. occupational cancers, acute poisoning).	4
Moderate	Injury involving non-permanent disability or ill health requiring medical treatment (includes lacerations, burns, sprains, minor fractures and dermatitis and	3

	work-related upper limb disorders).	
Minor	Injury or ill health requiring first-aid only (includes minor cuts and bruises, irritation, ill health with temporary discomfort).	2
Negligible.	Negligible injury	1

Risk Matrix:

Likelihood \ Severity	Inconceivable (1)	Remote (2)	Conceivable (3)	Possible (4)	Most likely(5)
Catastrophic (5)	5	10	15	20	25
Major (4)	4	8	12	16	20
Moderate (3)	3	6	9	12	15
Minor (2)	2	4	6	8	10
Negligible (1)	1	2	3	4	5

Risk level:

- 15-25(High level)
- 5 - 12 (MEDIUM level)
- 1 – 4 (LOW level) (Department of Occupational Safety and Health and Ministry of Human Resources, 2020)

3.7 Data management and analysis

By collecting data, the investigator checked the questionnaire carefully if there was any incomplete data or gap in any questions. And finally, all data are entered in SPSS for analysis.

Data analysis was done by Statistical Package for the Social Sciences (SPSS) 25 using descriptive analysis and multiple response analysis.

3.8 Quality control and Quality assurance

Questionnaires were pretested. The data was collected from the participants using “Bangla version”. English version of risk assessment questionnaire was collected and then the investigator translated it into Bengali in a familiar & easily understandable language. After that questionnaire were checked for possible error. As the participants were the garments factory worker, they can easily understand the Bangla version of the questionnaire. Data was entered carefully first and then again checked by the investigator for accurate data.

CHAPTER IV: Results

In this cross sectional study design all the data was analyzed by SPSS 25 software. These results were based on different types of variables such as socio-demographic variables, severity related variables, risk related variables, health problem related variables and risk control or safety measures related variables. The data were collected and presented in different types of tables.

4.1 Socio-demographic characteristics of the participants

Table 1 Socio-demographic characteristics of the participants

Variables	Category	Frequency (n=250)	Percent(%)
Age group	18-22	69	27.6
	23-27	64	25.6
	28-32	68	27.2
	33-37	26	10.4
	38-42	16	6.4
	43 and more	7	2.8
Educational status	Illiterate	15	6.0
	Primary	155	62.0
	Secondary	76	30.4
	Higher study	4	1.6
Sex	Male	95	38.0
	Female	155	62.0
Marital status	Unmarried	45	18.0
	Married	193	77.2
	Separated	6	2.4
	Divorced	5	2.0
	Widow	1	.4

Table 1 showed the findings of the participants' age, sex, educational status and marital status. Total number of participants of this study was 250. Among them 62% were female and male participants were 38%. Most of the participants 27.6% were aged between 18-22 years where the mean age of the participants was 27, minimum age 18 years and the maximum age 46 years. Most of the study participants completed primary education (62%) and the other 30.4% completed secondary education, 6% were illiterate and at last 1.6% completed higher studies. Most of the study participants were married (77.2%) and other 18% unmarried, 2.4% separated, 2% divorced and the last 0.4% widow.

4.2 Risk

Table 2 Different types of risk of the participant

Variables	Category	Frequency (n=250)	Percent(%)
Ergonomics risk	Low	60	24.0
	Medium	116	46.4
	High	74	29.6
Physical Risk	Low	56	22.4
	Medium	162	64.8
	High	32	12.8
Chemical Risk	Low	220	88.0
	Medium	28	11.2
	High	2	.8
Psychological Risk	Low	105	42
	Medium	120	48
	High	25	10
Biological Risk	Low	218	87.2
	Medium	31	12.4
	High	1	.4

Table 2 shows that, most of the participants in ergonomics category 46.4% (n=116) were in medium risk, 29.6% (n=74) in high risk and 24% (n=60) in low risk.

In physical category most of the participants 64.8% (n=162) were in medium risk, 22.4% (n=56) in low risk and 12.8% (n=32) in high risk.

In chemical category most of the participants 88% (n=220) were in low risk, 11.2% (n=28) in medium risk and 0.8% (n=2) in high risk.

In psychological category most of the participants 48% (n=120) were in medium risk, 42% (n=105) in low risk and 10% (n=25) in high risk.

In biological category most of the participants 87.2% (n=218) were in low risk, 12.4% (n=31) in medium risk and 0.4% (n=1) in high risk.

Here the risk level counted as low risk when the rating was between 1-4, risk level counted as medium risk when the rating was between 5-12 and risk level as high risk when the rating was between 15-25.

4.3 Severity of risks derived from hazards among the participant

Table 3 Severity of risks derived from hazards among the participant

Variables	Category	Frequency (n=250)	Percent(%)
Ergonomics Severity	Negligible	63	25.2
	Minor	65	26.0
	Moderate	54	21.6
	Major	29	11.6
	Catastrophic	39	15.6
Physical Severity	Negligible	55	22.0
	Minor	62	24.8
	Moderate	77	30.8
	Major	27	10.8
	Catastrophic	29	11.6
Chemical Severity	Negligible	210	84.0
	Minor	11	4.4
	Moderate	13	5.2
	Major	13	5.2
	Catastrophic	3	1.2
Psychological Severity	Negligible	77	30.8
	Minor	79	31.6
	Moderate	56	22.4
	Major	19	7.6
	Catastrophic	19	7.6
Biological Severity	Negligible	216	86.4
	Minor	8	3.2
	Moderate	19	7.6
	Major	7	2.8

Table 3 shows that the ergonomics severity of the participant were minor 26% (n=65), negligible 25.2% (n=63), moderate 21.6% (n=54), catastrophic 15.6% (n=39) and 11.6% (n=29)

The physical severity of the participants was moderate 30.8% (n=77), minor 24.8% (n=62), negligible 22% (n=55), catastrophic 11.6% (n=29) and major 10.8% (n=27).

The chemical severity of the participant was negligible 84% (n=210), major 5.2% (n=13), moderate 5.2% (n=13), minor 4.4% (n=11) and catastrophic 1.2% (n=3).

The psychological severity of the participant was minor 31.6% (n=79), negligible 30.8% (n=77), moderate 22.4% (n=56), catastrophic 7.6% (n=19) and major 7.6% (n=19).

The biological severity of the participant was negligible 86.4% (n=216), moderate 7.6% (n=19), minor 3.2% (n=8), major 2.8% (n=7) and no participant had catastrophic severity.

4.4 Health related problems of the participant:

Table 4 Health related Problems of the participant

Variables	Category	Frequency (n=250)	Percent(%)
Ergonomics Hazard	Back Pain	139	33.2
	Neck Pain	100	23.9
	Shoulder Pain	16	3.8
	Elbow Pain	28	6.7
	Wrist Pain	32	7.6
	Knee Pain	55	13.1
	Leg Pain	33	7.9
	Finger Pain	16	3.8
Physical Hazard	Eye Related Problems	58	11.6
	Hearing Related problems	19	3.8
	Chest Pain	46	9.2
	Asthma	9	1.8
	Sleep Disturbance	76	15.2
	Weakness	92	18.4
	Headache	114	22.8
	Allergy	83	16.6
	Others	3	0.6
	Chemical Hazard	Chemical Burn	2
Nausea		15	31.3
Skin Problem		25	52.1
Others		6	12.5
Psychological Hazard	Hypertension	29	8.1
	Stress	40	11.2
	Fatigue	97	27.2
	Aggression	27	7.6
	Depression	18	5.1
	Anxiety	61	17.1
	Low Pressure	84	23.6
Biological Hazard	Food Poisoning	4	12.5
	Respiratory infection	3	9.4
	Others	25	78.1

Table 4 shows the health related problems of the participant that arising from the hazards where in ergonomics hazard most of the participant had back pain 33.2%, 23.9% neck pain, 13.1% knee pain, 7.9% leg pain, 7.6% wrist pain, 6.7% elbow pain, 3.8% shoulder pain and 3.8% finger pain.

In physical hazard 22.8 % had headache, 18.4% weakness, 16.6% allergy, 15.2% sleep disturbance, 11.6% eye related problem, 9.2% chest pain, 3.8% hearing related problem, 1.8% Asthma and others included urine incontinence, anemia, heart problem and uterus problem 0.6%.

In chemical hazard 52.1% skin problem, 31.3% nausea, 4.2% chemical burn and others included lung problem, kidney problem, liver problem and dust irritation 12.5%.

In psychological hazards 27.2% fatigue, 23.6% low pressure, 17.1% anxiety, 11.2% stress, 8.1 % hypertension, 7.6% aggression and 5.1 % depression.

In biological hazard 12.5% food poisoning, 9.4% respiratory infection and others included gastric, nose problem, cold, dizziness and urinary tract infection 78.1 %.

4.5 Safety measures of the garments factory

Table 5 Safety measures of the garments factory

Variables	Category	Frequency (n=250)	Percent(%)
Ergonomics Hazard	Employee Training	172	27.5
	Adjustable table and chair	195	31.2
	Tools with no sharp ed	63	10.1
	Personal Protective Equipment (PPE)	195	31.2
Physical Hazard	Insulated Electric Lead	219	24.1
	Firefighting equipment	248	27.3
	Firefighting training	189	20.8
	Noise suppression	3	0.3
	Regular cleaning	250	27.5
Chemical Hazard	Substance leveled	184	47.2
	Mechanical Ventilator	206	52.8
Psychological Hazard	Workload Management Training	99	19.3
	Psychological Protection	190	37.1
	Physical Safe Protection	223	43.6
Biological Hazard	Hygiene Practice	214	52.5
	Safe Work procedure Training	194	47.5

Table 5 shows that most of the participant stated that in their garments factory they had Safety measures available for different types of hazards. In ergonomics hazard 31.2% had adjustable table and chair and personal protective equipment, 27.5% employee training and 10.1% tools with no sharp edge. There was no worker's rotation system and rest break.

In physical hazard participants stated regular cleaning 27.5%, firefighting equipment 27.3%, 24.1% insulated electric leads, 20.8% firefighting training and 0.3% noise suppression.

In chemical hazard 52.8% mechanical ventilation and 47.2% substance level.

In psychological hazard 43.6% physical safety protection, 37.1% psychological protection and 19.3% workload management training.

In Biological Hazard 52.5% stated hygiene practice and 47.5% safe work procedure training.

CHAPTER V: Discussion

The study result found that 62% of the participant were female and 38% male. Another study in China showed that 56.7% of the participants were male and 43.3% were female out of 3479 participants (Yua et al., 2012). Another study in India showed that 95.23% of the participants were male and 5% female out of 120 participants (Mehta, 2012). Another study in Bangladesh 89% were female participants and 11% were male out of 145 participants (Khan et al., 2016). The study in Thailand had 78% female and 22% male out of 300 participants (Chumchai et al., 2015).

In this study majority of the participants 27.6% were 18 to 22 years old. The mean age of the participants was 27 years old. A study in China showed that 39.4% participants were 25-34 years old (Yua et al., 2012). Another study in India 61% of the participants were 40 to 50 years old (Mehta, 2012). Another study in Bangladesh 40% participants were 16 to 20 years old (Khan et al., 2016).

In this study 62% participants completed primary education. Similar picture showed in Bangladesh's study where 43.3% participants completed primary education (Khan et al., 2016). On the other hand, China's study 53.5% participants completed middle school (Yua et al., 2012). In India's study 88% participants completed Secondary Education (Mehta, 2012).

In this study 77.2% were married. Similar result found in Bangladesh's study where 55.9% were married (Khan et al., 2016).

The study result found that 46.4% participants in medium, 29.6% in high and 24% in low ergonomics risk. In terms of physical risk 64.8% participants in medium 22.4 percent in low and 12.8% in high risk. The participants were 88% in low, 11.2% in

medium and .8% in high chemical risk. 48% participants were in medium, 42% in low and 10% in high psychological risk. In terms of biological risk 87.2% participants in low, 12.4% in medium and 0.4% in high risk. In a conference paper of Bangladesh identified a total 19 kinds of accidents where risk score from 6-20 (Talapatra & Mohsin, 2020).

In terms of severity rate, 30.8% participants were moderate in physical severity. Ergonomics severity of the participants were minor 26% and psychological severity were also minor 31.6%. The severity rate in chemical 84% and biological 86.4% were negligible. In a study in Bangladesh relative weight of severity was 0.392 which was the highest rate. Here MSDs severity 0.172, contagious disease 0.343, vision fatigue 0.223, hearing loss 0.201, and mental stress 0.061 (Ahmed et al., 2019).

This investigation found that majority of the participants were suffering health related problems where 33.2% had back pain, 22.8% headache, 23.9% neck pain, 27.2% fatigue, 18.4% weakness, 23.6 % low pressure, 16.6 % allergy, 15.2% sleep disturbance, 17.1% anxiety, 11.6% eye related problems, 13.1 % knee pain, 9.2% chest pain, 11.2% stress, 7.9% leg pain, 7.6% wrist pain, 8.1 % hypertension, 6.7 % elbow pain, 7.6% aggression, 52.1% skin problem, 3.8% hearing related problem, 5.1% depression, 3.8% shoulder pain, 3.8% finger pain, 31.3 % nausea, 1.8% asthma, 12.5% food poisoning, 9.4% respiratory infection, 4.2% chemical burn and 78.1% others health related problems.

In Bangladesh study stated that 24.8% had back pain, 51% headache and shoulder pain. Very few participants had depression, hypertension and asthma (Khan et al., 2016). In India, a study found that majority of the participants had musculoskeletal problems 55%, other problems included headache 40%, respiratory 30%, skin problem 13%, hearing 5% and visual discomfort 2% (Mehta, 2012). In China the participants mostly

affected by 28% lower back, 24% neck, 18.6% shoulder, 15.5% upper back and 50% MSDs related pain or discomfort (Yua et al., 2012). The south and Southeast Asian study had common respiratory problem. This study also included MSD problems, hearing loss, cardiovascular disease, cough, headache, eye problem, hepatitis, diarrhea, gastric pain, trauma, work stress, depression, insomnia, high blood pressure, anxiety, social dysfunction and sleeplessness (Kabir et al., 2019). In Thailand, the study only identified respiratory problem and allergy related problems (Chumchai et al., 2015). In this study majority stated in ergonomics hazard 31.2% had adjustable table and chair and personal protective equipment, 27.5% employee training and 10.1% tools with no sharp edge. In physical hazard participants stated regular cleaning 27.5%, firefighting equipment 27.3%, 24.1% insulated electric leads, 20.8% firefighting training and 0.3% noise suppression. In chemical hazard 52.8% mechanical ventilation and 47.2% substance level. In psychological hazard 43.6% physical safety protection, 37.1% psychological protection and 19.3% workload management training. In Biological Hazard 52.5% stated hygiene practice and 47.5% safe work procedure training. This study also revealed that the participants didn't get any rest breaks and they had no worker's rotation and also the use of PPE is very poor except masks.

In Bangladesh, a study stated that many garments factory provided disaster control training (Khan et al., 2016). Another study stated that they followed the provision of section 51 of the Bangladesh labor act 2006 regarding cleanliness but had no fire and emergency exit (Rashid & Rashid, 2015). Another study stated the management of garments factory were not aware about female safety, not enough fire exit and fire and smoke alarm didn't work (Akhter et al., 2010). Another study of Southeast Asian region and Thailand stated rarely use of PPE (Chumchai et al., 2015; Kabir et al., 2019).

CHAPTER VI: Conclusion

6.1 Strength and Limitation

6.1.1 Strength

- The findings of this study will help as a resource.
- This study got permission from both Institutional Review Board (IRB) of Bangladesh Health Professions Institute (BHPI) and the garments factory.
- The participants of this study were very cooperative.
- This study might help both Occupational Therapist & organizations for collaboratively work forward.
- Additionally, this study assists stakeholders, governments factories, and non-governmental factories in taking the necessary steps to reduce risk of the garments worker

6.1.2 Limitation

There is some limitation which the investigator absolutely taken into account during the time of the study.

- The major limitation of this study was the sample size that participants in the study. It was taken only 250 samples, because only the garments worker of Pakija Knit Composite Limited was selected
- The time was a factor, because it was limited due to Covid-19 pandemic situation.

- There was not enough articles and literature about Occupational Safety and Health (OSH) risk in this South Asian context.

6.2 Practice Implication

6.2.1 Recommendations for OT educators and Occupational therapists (OTs) in Bangladesh

Occupational therapists had a broader role in Occupational Safety and Health. Therapists need to update their knowledge in this area. The department of occupational therapy at BHPI may arrange training program for the students on hazard identification and risk assessment into the curriculum for improving their knowledge. OTs need to concentrate more on OSH issues as very few OTs work in OSH culture in garments factory.

6.2.2 Recommendations for garments factory in Bangladesh

- It would be better to redesign ergonomic workstation
- They can try to maintain proper positioning during work
- It would be better to try to ensure more hygienic work environment, because workers are the core element of production.
- Ensure enough pure drinking water and abuse of water should be checked.
- Every company should follow The Bangladesh Labor Act 2006.
- It would be better if the MBBS doctors would attend each working day to ensure proper treatment of the employees.

6.2.3 Recommendations for further research

The investigator's recommendation is that Occupational Therapists or 4th year, B.Sc in Occupational Therapy student may conduct further research in Occupational Safety and Health (OSH) area to identify hazard and risk of garments in Bangladesh.

6.3 Conclusion

This study revealed that most of the participants were in medium risk in ergonomics, physical and psychological category and in low risk chemical and biological category. Most of the participants had several health related problems. This study was conducted during covid-19 pandemic situation when strong measures need to be taken to ensure health safety in workplace for this it is needed to develop OSH culture to safeguard the welfare of the garments worker group. This study stated that the garments factory had regular cleaning and hygiene practice but they poorly use PPE. Occupational safety and health risk were occurring due to continuous exposure to different kinds of hazards and this exposure were leading to different kinds of health problems. The risk level depends on likelihood and severity where sometimes the likelihood is high but severity is low or both likelihood and severity is high. If effective measures are taken to control the risk, then it will minimize occurring of health problems.

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APPENDICES

Appendix A: Ethical Approval



বাংলাদেশ হেল্থ প্রফেশন্স ইনস্টিটিউট (বিএইচপিআই)
Bangladesh Health Professions Institute (BHPI)
 (The Academic Institute of CRP)

Ref:

CRP-BHPI/IRB/11/2021/515

Date:

14/11/2021

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 Afrina Anjum
 4thYear B.Sc. in Occupational therapy
 Session: 2016-17 Student ID:122160212
 BHPI, CRP, Savar, Dhaka-1343, Bangladesh

Subject:Approval of the thesis proposal "Occupational Safety and Health Risk of the workers of a selected garments factory in Bangladesh"- by ethics committee.

Dear Afrina Anjum,
 Congratulations.

The Institutional Review Board (IRB) of BHPI has reviewed and discussed your application to conduct the above mentioned dissertation, with yourself, as the principal investigator and Nayan Kumer Chanda as thesis supervisor. The Following documents have been reviewed and approved:

Sr. No.	Name of the Documents
1	Research Proposal
2	Questionnaire (English & / or Bengali version)
3	Information sheet & consent form.

The purpose of the study is to identify the Occupational Safety and Health risk of the workers of selected garments factory in Bangladesh. The study involves use of a Structure questionnaire to identify the risk level that may take 15 to 20 minutes to answer / fill in the questionnaire and there is no likelihood of any harm to the participants. The members of the Ethics committee have approved the study to be conducted in the presented form at the meeting held at 9:15AM on 15th September, 2021 at BHPI 29th IRB Meeting.

The institutional Ethics committee expects to be informed about the progress of the study, any changes occurring in the course of the study, any revision in the protocol and patient information or informed consent and ask to be provided a copy of the final report. This Ethics committee is working accordance to Nuremberg Code 1947, World Medical Association Declaration of Helsinki, 1964 - 2013 and other applicable regulation.

Best regards,

Muhammad Millat Hossain
 Associate Professor, Dept. of Rehabilitation Science
 Member Secretary, Institutional Review Board (IRB)
 BHPI, CRP, Savar, Dhaka-1343, Bangladesh

Appendix B: Permission letter for collecting data

Date: 22 November 2021

To

The Managing Director

Pakiza Knit Composite Ltd.

Savar, Dhaka

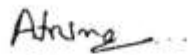
Subject: Prayer for seeking permission to collect data from Pakiza Knit Composite Ltd.

Sir,

I beg most respectfully to state that, I am a 4th year B.Sc. in Occupational Therapy student of Bangladesh Health Professions Institute(BHPI), Center for The Rehabilitation of Paralyzed(CRP). I am interested to conduct a quantitative study on sewing section of Pakiza Knit Composite Ltd. My research title is "Occupational Safety and Health Risk of the workers of selected garments factory in Bangladesh". The workers of sewing section are the participants of my research project. Now I am looking for your kind approval to start my data collection from 1st January to 10th February for 40 days. I would like to assure that your garments factory name and participant's information will remain confidential.

So, I therefore, pray and hope that you would be kind enough to grant me the permission for collecting the data and oblige thereby.

Sincerely yours,



Afrina Anjum

4th year, B. Sc. in Occupational Therapy

Bangladesh Health Professions Institute(BHPI)

Center for The Rehabilitation of Paralyzed(CRP)

CRP-Chapain, Savar, Dhaka-1343.



Appendix C: Information sheet and consent form [English Version]

Part I: Information Sheet Introduction

I am Afrina Anjum, B.Sc. in Occupational Therapy student of Bangladesh Health Professions Institute(BHPI), have to conduct a thesis as a part of this Bachelor course, under thesis supervisor, Nayan Kumer Chanda. You are going to have details information about the study purpose, data collection process, ethical issues.

You do not have to decide today whether or not you will participate in the research. Before you decide, you can talk to anyone you feel comfortable with about the research. If this consent form contains some words that you do not understand, please ask me to stop. I will take time to explain.

Background and Purpose of the study

You are being invited to be a part of this research. The general purpose of the study is to identify the level of OSH risk of the workers of selected garments factory.

Research related information

The research related information will be discussed with you throughout the information sheet before taking your signature on consent form. After that participants will be asked to complete a self-administrative questionnaire which may need 10 minutes to fill. In this questionnaire there will be questions on socio-demographic factors (for example: Age, sex). It will also contain some specific questions of hazard and health problems and safety control. Particularly, in this research we have selected the Occupational therapy, as they know their specific role and responsibilities for Occupational Health and Safety for their future practice. However, we select participants from the current garments worker of Pakija Knit Composite Limited.

The data collection period will be one month followed by the date of approval. During that time, the questionnaire will be evaluated by face to face interview. The

questionnaire will be asked and collected by Afrina Anjum. If you do not wish the questions included in the questionnaires, you may skip them and move on to the next question. The information recorded is confidential, your name is not being included on the forms, only a number will identify you, and no one else except Nayan Kumer Chanda, Supervisor of the study will have access to this survey.

Voluntary Participation

The choice that you make will have no effect on your study, job or on any work-related evaluation or reports. You can change your mind at any time of the data collection process even throughout the study period. You have also right to refuse your participation even if you agreed earlier.

Right to Refuse or Withdraw

I will give you an opportunity at the end of the interview to review your remarks, and you can ask to modify or remove portions of those, if you do not agree with my notes or if I did not understand you correctly.

Risks and benefits

We are asking to share some personal and confidential information, and you may feel uncomfortable talking about some of the topics. You do not need to answer any question or take part in the discussion interview/survey if you don't wish to do so, and that is also okay. You do not have to give us any reason for not responding to any question, or for refusing to take part in the interview. On the other hand, you may not have any direct benefit by participating in this research, but your valuable participation is likely to help us to find out the level of OSH risk of the workers of selected garments factory.

Confidentiality

Information about you will not be shared to anyone outside of the research team. The information that we collect from this research project will be kept private. Any

information about you will have a number on it instead of your name. Only the researchers will know what your number is and we will lock that information up with a lock and key. It will not be shared with or given to anyone except Nayan Kumer Chanda, study supervisor.

Sharing the Results

Nothing that you tell us today will be shared with anybody outside the research team, and nothing will be attributed to you by name. The knowledge that we get from this research will be shared with you before it is made widely available to the public. Each participant will receive a summary of the results. There will also be small presentation and these will be announced. Following the presentations, we will publish the results so that other interested people may learn from the research.

Who to Contact?

If you have any questions, you can ask me now or later. If you wish to ask questions later, you may contact any of the following: Afrina Anjum, Bachelor of science in Occupational Therapy, Department of Occupational Therapy, e-mail: afrinaanjumot20@gmail.com, Cell phone- 01622065870. This proposal has been reviewed and approved by Institutional Review Board (IRB)(CRP/BHPI/IRB/11/2021/515), Bangladesh Health Professions Institute (BHPI), CRP-Savar, Dhaka-1343, Bangladesh, which is a committee whose task it is to make sure that research participants are protected from harm. If you wish to find about more about the IRB, contact Bangladesh Health Professions Institute (BHPI), CRP-Savar, Dhaka-1343, Bangladesh. You can ask me any more questions about any part of the research study, if you wish to. Do you have any questions?

**Part II: Certificate of Consent
Consent Form**

This research is part of Occupational Therapy course and the name of the researcher is Afrina Anjum. I am a student of 4th year B.Sc. in Occupational Therapy in Bangladesh Health Professions Institute (BHPI), the academic institute of Centre for the Rehabilitation of the Paralysed (CRP) which is affiliated to University of Dhaka. The study was entitled as **“Occupational Safety and Health Risk of the workers of selected garments factory in Bangladesh”**.

In this study I am a participant and I have been clearly informed about the purpose and aim of the study. I have the right to refuse in taking part any time at any stage of the study. I will not be bound to answer to anybody. There will be no impact on my treatment at present and in future.

I am also informed that, all the information collected from the interview will be only used for study purpose and would be kept safety and confidentiality will be maintained.

My name and address will not be published anywhere. Only the researcher and supervisor will be eligible to access in the information to publish the research result. I have been informed about the above-mentioned information and I am willing to participate in their study.

Signature/Finger print of the Participant:	Date:
Signature of the Researcher:	Date:

Appendix D: Information sheet and consent form [Bengali Version]

অংশগ্রহণকারীদের তথ্য এবং সম্মতিপত্র

গবেষনার বিষয়: বাংলাদেশের নির্বাচিত পোশাক কারখানার শ্রমিকদের পেশাগত নিরাপত্তা ও স্বাস্থ্য ঝুঁকি নির্ণয় করা।

গবেষক: আফরনি আনজুম, বি.এস.সি ইন অকুপেশনাল থেরাপি (৪র্থ বর্ষ), সেশন: ২০১৬-২০১৭ ইং, বাংলাদেশ হেলথ প্রফেশনাল ইনস্টিটিউট (বিএইচপিআই), সাভার, ঢাকা- ১৩৪৩

তত্ত্বাবধায়ক: নয়ন কুমার চন্দ, অ্যাসিস্ট্যান্ট প্রফেসর, অকুপেশনাল থেরাপি বিভাগ, বাংলাদেশ হেলথ প্রফেশনাল ইনস্টিটিউট।

গবেষনার স্থান: পাকিজা নিট কম্পোজিট লিমিটেড, মজিদপুর, সাভার, ঢাকা।

তথ্যপত্র:

ভূমিকা:

আমি আফরনি আনজুম, ঢাকা বিশ্ববিদ্যালয়ে চিকিৎসা অনুষদের অধীনে বাংলাদেশ হেলথ প্রফেশনাল ইনস্টিটিউটে বি.এস.সি.ইন অকুপেশনাল থেরাপি বিভাগে ৪র্থ বর্ষের ছাত্রী হিসেবে স্নাতক শিক্ষাকার্যক্রম (২০১৬-২০১৭ ইং) সেশনে অধ্যয়নরত আছি। বিএইচপিআই থেকে অকুপেশনাল থেরাপি বি.এস.সি শিক্ষাকার্যক্রমটি সম্পন্ন করার জন্য একটি গবেষণা প্রকল্প পরিচালনা করা বাধ্যতামূলক। এই গবেষণা প্রকল্পটি অকুপেশনাল থেরাপি বিভাগের লেকচারার নয়ন কুমার চন্দ এর তত্ত্বাবধায়নে সম্পন্ন করা হবে। এই অংশগ্রহণকারী তথ্যপত্রের মাধ্যমে গবেষণার প্রকল্পটির উদ্দেশ্য, উপাত্ত সংগ্রহের প্রণালী ও গবেষণাটির সাথে সংশ্লিষ্ট বিষয় কিভাবে রক্ষিত হবে তা বিস্তারিতভাবে আপনার কাছে উপস্থাপন করা হবে। যদি এই গবেষণায় অংশগ্রহণ করতে আপনি ইচ্ছুক থাকেন, সেক্ষেত্রে এই গবেষণার সম্পৃক্ত বিষয় সম্পর্কে স্বচ্ছ

ধারণা থাকলে সিদ্ধান্ত গ্রহন সহজতর হবে। অবশ্য এখন আপনার অংশগ্রহন আমাদের নিশ্চিত করতে হবে না। যে কোন সিদ্ধান্ত গ্রহনের পূর্বে, যদি চান তাহলে আপনার আত্মীয়-স্বজন, বন্ধু অথবা আস্থাভাজন যেকারো সাথে এই ব্যাপারে আলোচনা করে নিতে পারেন। অপরপক্ষে, অংশগ্রহনকারী তথ্যপত্রটি পড়ে, যদি কোন বিষয়বস্তু বুঝতে সমস্যা হয় অথবা যদি কোন কিছু সম্পর্কে আরো বেশি জানার প্রয়োজন হয়, তবে নির্দিধায় প্রশ্ন করতে পারেন।

গবেষণার প্রেক্ষাপট ও উদ্দেশ্য:

এই গবেষণাতে পাকিজা নিট কম্পোজিট লিমিটেড এর সেলাই বিভাগের কর্মীদের অন্তর্ভুক্ত হবার জন্য আমন্ত্রন জানানো হবে। এর অংশ হিসাবে, আপনাকেও উক্ত গবেষণা প্রকল্পে অংশগ্রহনের জন্য আমন্ত্রণ জানানো হলো। কারণ, আপনি নিশ্চয় অবগত আছেন যে, পোশাক কারখানার শ্রমিকদের পেশাগত নিরাপত্তা ও স্বাস্থ্য ঝুঁকি নির্ণয়ের ক্ষেত্রে অকুপেশনাল থেরাপিস্টগন কার্যকরি ভূমিকা পালন করে। সেজন্য অকুপেশনাল থেরাপিস্টদের পেশাগত নিরাপত্তা ও স্বাস্থ্যের উপর ক্ষমতা, আস্থা এবং কর্মক্ষমতা থাকা প্রয়োজন, সেটা গড়ে উঠে তার শিক্ষানবিশ কাল থেকেই। অতএব অকুপেশনাল থেরাপিতে অধ্যয়নরত শিক্ষার্থীদের পেশাগত নিরাপত্তা ও স্বাস্থ্যের উপর জ্ঞান, মনোভাব এবং অনুশিলন আসে। গবেষণাটির সাধারণ উদ্দেশ্য হল: বাংলাদেশের নির্বাচিত গার্মেন্টস কারখানার গার্মেন্টস শ্রমিকের ঝুঁকি নির্ণয় করা। আপনার কার্যকারী অংশগ্রহণ গবেষণার উদ্দেশ্য পূরণে সহায়তা করবে বলে আমরা আশাবাদী।

এই গবেষণা কর্মটিতে অংশগ্রহনের সাথে সম্পৃক্ত বিষয়সমূহ কি সে সম্পর্কে জানা যাক।

আপনার থেকে অনুমতিপত্রে স্বাক্ষর নেবার আগে, এই অংশগ্রহনকারী তথ্যপত্রের মাধ্যমে গবেষণা প্রকল্পটির পরিচালনা করার তথ্যসমূহ বিস্তারিত ভাবে আপনার কাছে

উপস্থাপন করা হবে। আপনি যদি এই গবেষণায় অংশগ্রহন করতে চান, তাহলে সম্মতিপত্রে আপনাকে স্বাক্ষর করতে হবে। আপনি অংশগ্রহন নিশ্চিত করলে, আপনার সংরক্ষনের জন্য সম্মতিপত্রটির একটি অনুলিপি দিয়ে দেয়া হবে। পরবর্তীতে গবেষক কর্তৃক গঠিত তথ্য-উপাত্ত সংগ্রহের একটি দলের প্রতিনিধি আপনার কাছে যাবে। আপনার থেকে চেয়ে নেওয়া যে কোন একটি নির্দিষ্ট সময়ে একটি প্রশ্নপত্রের মাধ্যমে তথ্য সংগ্রহ করা হবে। এই গবেষণার প্রকল্পে আপনার অংশগ্রহণ ঐচ্ছিক। যদি আপনি সম্মতি প্রদান না করেন তবে আপনাকে অংশগ্রহন করতে হবে না। আপনি সম্মতি প্রদান করা সত্ত্বেও যে কোন সময় গবেষককে কোন ব্যাখ্যা প্রদান করা ছাড়াই নিজের অংশগ্রহন প্রত্যাহার করতে পারবেন।

অংশগ্রহনের সুবিধা ও ঝুঁকিসমূহ কি ?

গবেষণা প্রকল্পটিতে অংশগ্রহনের জন্য আপনি সরাসরি কোন সুবিধা পাবেন না। তবে আমরা আশাবাদী যে, গবেষণার মাধ্যমে প্রাপ্ত উপাত্ত পরবর্তীতে আপনাদের পেশাগত নিরাপত্তা ও স্বাস্থ্য ঝুঁকি কমাতে সাহায্য করবে। এখানে সংশ্লিষ্ট গবেষণায় অংশগ্রহনে কোন ধরনের বাড়তি ঝুঁকি, বিপত্তি অথবা অস্বস্তি নেই বলে আশা করা যাচ্ছে।

তথ্যের গোপনীয়তা কি নিশ্চিত থাকবে?

এই সম্মতিপত্রে স্বাক্ষর করার মধ্য দিয়ে, আপনি এই গবেষণা প্রকল্পে অধ্যয়নরত গবেষণা কর্মীকে আপনার ব্যক্তিগত তথ্য সংগ্রহ ও ব্যবহার করার অনুমতি দিয়েছেন। এই গবেষণা প্রকল্পের জন্য সংগৃহীত যেকোন তথ্য, যা আপনাকে সনাক্ত করতে পারে তা গোপনীয় থাকবে। আপনার সম্পর্কে সংগৃহীত তথ্যসমূহ সাংকেতিক উপায়ে উল্লেখ থাকবে। শুধুমাত্র এর সাথে সরাসরি সংশ্লিষ্ট গবেষক ও তার তত্ত্বাবধায়ক এই তথ্যসমূহে প্রবেশাধিকার পাবেন। সাংকেতিক উপায়ে চিহ্নিত উপাত্ত সমূহ পরবর্তী উপাত্ত বিশ্লেষণের কাজে ব্যবহৃত হবে। তথ্যপত্রগুলো নিরাপদ স্থানে সংগ্রহ করা হবে।

বিএইচপিআই এর অকুপেশনাল থেরাপি বিভাগে ও গবেষকের ব্যক্তিগত ল্যাপটপে উপাত্তসমূহের ইলেকট্রনিক ভার্সন সংগৃহীত থাকবে।

প্রত্যাশা করা হচ্ছে যে, এই গবেষণা প্রকল্পের ফলাফল বিভিন্ন ফোরামে প্রকাশিত এবং উপস্থাপিত হবে। যে কোন ধরনের প্রকাশনা ও উপস্থাপনার ক্ষেত্রে তথ্যসমূহ এমন ভাবে সরবরাহ করা হবে, যেন আপনার সম্মতি ছাড়া আপনাকে কোন ভাবেই সনাক্ত করা না যায়। তথ্য-উপাত্ত প্রাথমিক ভাবে কাগজপত্র সংগ্রহ করা হবে।

গবেষণা সম্পর্কে জানতে কোথায় যোগাযোগ করতে হবে?

গবেষণা প্রকল্পটির বিষয়ে যোগাযোগ করতে চাইলে অথবা গবেষণা প্রকল্পটির সম্পর্কে কোন প্রশ্ন থাকলে, এখন অথবা পরবর্তীতে যে কোন সময়ে তা জিজ্ঞাসা করা যাবে। সেক্ষেত্রে আপনি গবেষকের সাথে যোগাযোগ করতে পারেন। এই গবেষণা প্রকল্পটি বাংলাদেশ হেল্থ প্রফেশনাল ইনস্টিটিউট, সাভারের প্রাতিষ্ঠানিক নৈতিকতা পরিষদ থেকে (সিআরপি-বিএইচপিআই/আইআরবি/১১/২০২১/৫১৫) পর্যালোচিত ও অনুমোদিত হয়েছে। এই গবেষণা প্রকল্প পরিচালনা প্রসঙ্গে যেকোন উদ্ভিন্ন অথবা অভিযোগকারী ব্যক্তি প্রাতিষ্ঠানিক নৈতিকতা পরিষদের সাথে এই নাম্বারে (৭৭৪৫৪৬৪-৫) যোগাযোগ করবেন।

গবেষণা থেকে নিজেকে প্রত্যাহার করা যাবে কি?

আপনি সম্মতি প্রদান করা সত্ত্বেও যে কোন সময় গবেষককে কোন ব্যাখ্যা প্রদান করা ছাড়াই দুই মাসের মধ্যে নিজের অংশগ্রহণ প্রত্যাহার করতে পারবেন। বাতিল করার পর তথ্যসমূহ কি ব্যবহার করা যাবে কি যাবেনা তার অনুমতি অংশগ্রহণকারীর প্রত্যাহারপত্রে (শুধুমাত্র স্বৈচ্ছায় প্রত্যাহারকারীর জন্য প্রযোজ্য) উল্লেখ করা থাকবে।

এই গবেষণাটি অকুপেশনাল থেরাপির কোর্সের একটি অংশ এবং গবেষণাকারীর নাম আফরিনা আনজুমসে , পক্ষাঘাতগ্রস্থ পুনর্বাসন কেন্দ্র (সি আর পি) এর অধিনস্থ বাংলাদেশ হেলথ প্রফেশনাল ইনস্টিটিউটের অকুপেশনাল থেরাপি বিভাগ এর ৪র্থ বর্ষের ছাত্রী। আমার গবেষণার বিষয়টি হল বাংলাদেশের নির্বাচিত পোশাক কারখানার শ্রমিকদের পেশাগত নিরাপত্তা ও স্বাস্থ্য ঝুঁকি নির্ণয় করা।

এই গবেষণাতে আমি একজন অংশগ্রহনকারী এবং পরিষ্কারভাবে এই গবেষণার উদ্দেশ্য সম্পর্কে অবগত। আমার যে কোন সময়ে এই গবেষণা থেকে নিজেকে প্রত্যাহার করার অধিকার আছে। এজন্য আমি প্রশ্নের উত্তর প্রদান করার জন্য কয়েক দায়বদ্ধ না। এই গবেষণাটির সাথে আমার কোন সম্পৃক্ততা নেই। এই গবেষণাটি বর্তমানে এবং ভবিষ্যতে আমার চিকিৎসার ক্ষেত্রে কোন রকম প্রভাব ফেলবে না।

আমি আরও অবগত আছি যে, এই কথোপকথন থেকে নেওয়া সমস্ত তথ্যাবলি নিরাপদে এবং গোপনীয়তার সাথে শুধু মাত্র গবেষণার কাজেই ব্যবহার করা হবে। আমার নাম এবং ঠিকানা কোথাও প্রকাশ হবে না। শুধুমাত্র গবেষণাকারীর এবং তার গবেষণার সমন্বয়কারীর সাথে এই গবেষণার পদ্ধতি সম্পর্কে অথবা যে কোন প্রশ্নের উত্তর জানার জন্য কথা বলতে পারবে। আমি উপরোক্ত তথ্যগুলো ভালোভাবে জেনে নিজ ইচ্ছায় এই গবেষণায় অংশগ্রহন করছি।

অংশগ্রহনকারীর স্বাক্ষর/টিপসই	তারিখ:
সাক্ষ্য গ্রহণকারীর স্বাক্ষর/টিপসই	তারিখ:

Appendix E: Questionnaire (English & Bangla)

Risk assessment form (using risk rating matrix) (Department of Occupational Safety and Health [DOSH] and Ministry of Human Resources [MOHR],2020,page:27)

Personal information:

Gender: Male/ Female/Others

Working area:

Age:

Education:

Marital status: Married/Unmarried/Separated/Divorced

Work activity	Hazard Identification				Risk Evaluation				Risk (R)
	Hazard	1 Yes	2 No	Category of hazard	Events and Consequences	Existing Risk Control (if any)	Justification on likelihood	Likelihood (L)	
	I. Improperly adjusted workstations and chairs.			Ergonomic	<input type="checkbox"/> Back Pain <input type="checkbox"/> Shoulder Pain <input type="checkbox"/> Elbow Pain <input type="checkbox"/> Wrist Pain <input type="checkbox"/> Knee Pain <input type="checkbox"/> No Problem <input type="checkbox"/> Others	<input type="checkbox"/> Employee training <input type="checkbox"/> Redesign workstation <input type="checkbox"/> Adjustable table and chair <input type="checkbox"/> Tools with no sharp edge <input type="checkbox"/> Materials stored at minimum reaching <input type="checkbox"/> Workers rotation in different tasks			
	II. Prolong sitting (static).								
	III. Appropriate seats (with lower back support) and footrests provided								
	IV. Awkward Working posture								

	V. Task with repetitive movement.					<input type="checkbox"/> Rest breaks				
	VI. Expose to constant vibration for a long time.					<input type="checkbox"/> Power tools to reduce vibration <input type="checkbox"/> PPE (gloves)				
	I. Slippery floors, blocked walkway or cords running across the floor.			Physical	<input type="checkbox"/> Eye Pain <input type="checkbox"/> Hearing Problem <input type="checkbox"/> Chest Pain <input type="checkbox"/> Asthma <input type="checkbox"/> Insomnia <input type="checkbox"/> Weakness <input type="checkbox"/> No Problem <input type="checkbox"/> Others	<input type="checkbox"/> PPE: Mask <input type="checkbox"/> Goggles <input type="checkbox"/> Clothing <input type="checkbox"/> Insulated electric leads <input type="checkbox"/> Fire fighting equipment <input type="checkbox"/> Fire fighting training <input type="checkbox"/> Noise suppression <input type="checkbox"/> Regular cleaning				
	II. Exposed to sharp object									
	III. Electrical hazards like frayed cords, missing ground pins, improper wiring, wire in damp									

	IV. Working in confined spaces with poor ventilation.									
	V. High exposure to sunlight or ultraviolet rays.									
	VI. Expose to extremes temperature (hot / cold).									
	VII. Expose to constant loud noise for a long time.									
	III. Expose to dirty environment									
	IX. Expose to lighting (excessive/less)									

	X. Expose to awkward smell										
	I. Expose to liquids like cleaning products, paints, acids, solvents.			Chemical	<input type="checkbox"/> Chemical burn <input type="checkbox"/> Nausea <input type="checkbox"/> Headache <input type="checkbox"/> Skin Problem <input type="checkbox"/> Lung, Kidney, Liver Problem <input type="checkbox"/> Allergies <input type="checkbox"/> Others <input type="checkbox"/> No Problems	<input type="checkbox"/> PPE <input type="checkbox"/> Substance leveled <input type="checkbox"/> Mechanical ventilation					
	I. Expose to different gases										
	II. Flammable materials like gasoline										
	II. Expose to pesticides.										
	I. Excessive workloads			Psychological	<input type="checkbox"/> Hyper Tension <input type="checkbox"/> Stress <input type="checkbox"/> Fatigue	<input type="checkbox"/> Workload management training <input type="checkbox"/> Psychological protection					
	II. Poorly managed organisational change, job insecurity.										

	<p>III. Ineffective communication, lack of support from management or colleagues.</p>				<input type="checkbox"/> Aggression <input type="checkbox"/> Depression <input type="checkbox"/> Anxiety <input type="checkbox"/> Others	<input type="checkbox"/> Physical safety protection				
	<p>IV. Psychological and sexual harassment, third party violence.</p>				<input type="checkbox"/> No Problems					
	<p>V. Less work flexibility.</p>									
	<p>I. Expose to animal and bird</p>			<p>Biological</p>	<input type="checkbox"/> Food Poisoning <input type="checkbox"/> Tetanus	<input type="checkbox"/> Hygiene practice <input type="checkbox"/> PPE				
	<p>II. Safe drinking water available</p>				<input type="checkbox"/> Respiratory Infection <input type="checkbox"/> Others	<input type="checkbox"/> Safe work procedure training				
	<p>III. Clean cups provided</p>				<input type="checkbox"/> No problems					

IV.	Intake	poor								
	quality	of								
	food									

ঝুঁকি মূল্যায়ন ফর্ম

ব্যক্তিগত তথ্য:

নাম:

মোবাইল নাম্বার:

লিঙ্গ: পুরুষ/মহিলা/অন্যান্য

বয়স:

কর্মক্ষেত্র: সেলাই বিভাগ

শিক্ষা: নিরক্ষর/ প্রাইমারী / সেকেন্ডারি / উচ্চ শিক্ষা

বৈবাহিক অবস্থা: বিবাহিত/অবিবাহিত/বিচ্ছিন্ন/তলাকপ্রাপ্ত

বিপদ/বিপত্তি সনাক্তকরণ					ঝুঁকি মূল্যায়ন					
কাজ	বিপদ/ বিপত্তি	১ হ্যাঁ	২ না	বিপদ/ বিপত্তি এর বিভাগ	ঘটনা এবং পরিণতি	বিদ্যমান ঝুঁকি নিয়ন্ত্রণ (যদি থাকে)	সম্ভাবনার উপর ন্যায্যতা	সম্ভাবনা (L)	প্রখরতা (S)	ঝুঁকি (R)
সে লাই	১। চেয়ার ও কাজের ক্ষেত্রে ব্যবহিত মেশিনের উচ্চতা সঠিক নাই			১। আর্গনোমিক	১। পিঠে ব্যাথা ২। কাঁধে ব্যাথা ৩। কনুই ব্যাথা ৪। কঙ্গি ব্যাথা ৫। হাঁটুর ব্যাথা ৬। সমস্যা নেই ৭। অন্যান্য	১। কর্মচারী প্রশিক্ষণ ২। কর্মক্ষেত্র পুনরায় ডিজাইন করা ৩। সামঞ্জস্যযোগ্য টেবিল এবং চেয়ার ৪। ধারালো প্রান্ত ছাড়া সরঞ্জাম ৫। সর্বনিম্ন দূরত্বে উপকরণ সংরক্ষিত				
	২। দীর্ঘক্ষণ বসা (স্থির)									
	৩। যথাযথ আসন (পিঠের দিকে সমর্থন সহ) এবং ফুটরেস্ট প্রদান করা হয় নি									
	৪। কাজ করার সময় সঠিকভাবে বসা নেই									
	৫। কাজগুলো পুনরাবৃত্তিমূলকভাবে করতে হয়									

	৬। দীর্ঘ সময়ের জন্য কম্পনের সম্মুখিন থাকেন					৬। রোটেশন অনুযায়ে কাজ করেন ৭। বিরতি প্রদান করা হয় ৮। পিপিই প্রদান করা হয় যেমন (গ্লোভস, মাস্ক, হ্যান্ডসেনিটাই জার হ্যান্ডসেনিটাই জার ইত্যাদি)				
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<p>১। পিচ্ছিল মেঝে, অবরুদ্ধ রাস্তা বা মেঝে জুড়ে তাড় থাকে</p>			<p>২। শারীরিক</p>	<p>১। চোখ ব্যাথা ২। শ্রবণ সমস্যা ৩। বুক ব্যাথা ৪। হাঁপানি ৫। নিদ্রাহীনতা ৬। দুর্বলতা ৭। কোন সমস্যা নেই ৮। অন্যান্য</p>	<p>১। পিপিই : মাস্ক গগলস উত্তাপযুক্ত পোশাক ২। বৈদ্যুতিক সরঞ্জাম পৃথক করে রাখা ৩। অগ্নি নির্বাপক সরঞ্জাম ৪। অগ্নিনির্বাপণ প্রশিক্ষণ ৫। শব্দ দমনের ব্যবস্থা ৬। নিয়মিত পরিষ্কার করা</p>				
<p>২। উন্মুক্ত ধারালো বস্তু আসে</p>									
<p>৩। বৈদ্যুতিক বিপত্তি যেমন ফাটা দড়ি, হারিয়ে যাওয়া গ্রাউন্ড পিন, অনুপযুক্ত তারের সংযোগ, স্যাতসেঁতে জায়গাতে তার থাকে</p>									
<p>৪। সীমাবদ্ধ স্থানে কাজ করা এবং যেখানে বাতাস চলাচল কম</p>									
<p>৫। সূর্যালোক বা অতিবেগুনি রশ্মির সাথে কাজ করতে হয়</p>									

৩। গ্যাসোলিনের মত দাহ্য পদার্থ আসে				৫। ফুসফুস, কিডনি, লিভারের সমস্যা ৬। এলার্জি ৭। কোন সমস্যা নেই ৮। অন্যান্য	৩। যান্ত্রিকভাবে বায়ুচলাচলের ব্যবস্থা আসে				
৪। কীটনাশকের সাথে মধ্যে কাজ করতে হয়									
১। অতিরিক্ত কাজের চাপ আসে			৪। মানসিক	১। উচ্চ রক্তচাপ ২। মানসিক চাপ ৩। ক্লান্তি ৪। আগ্রাসন ৫। বিষণ্ণতা ৬। দুশ্চিন্তা ৭। কোন সমস্যা নেই ৮। অন্যান্য	১। কাজের চাপ ব্যবস্থাপনা প্রশিক্ষণ				
২। দুর্বলভাবে পরিচালিত সাংগঠনিক পরিবর্তন, চাকরির নিরাপত্তাহীনতা আসে					২। মনস্তাত্ত্বিক / মানসিক সুরক্ষা প্রদান করা হয়				
৩। অকার্যকর যোগাযোগ, ব্যবস্থাপনা বা সহকর্মীদের কাছ থেকে সমর্থনের অভাব আসে					৩। শারীরিক নিরাপত্তা ও সুরক্ষা প্রদান করা হয়				

	৪। মনস্তাত্ত্বিক/ মানসিক ও যৌন হয়রানি, তৃতীয় ব্যক্তির সহিংসতা									
	৫। কাজে নমনীয়তা কম									
	১। পশু এবং পাখির মধ্যে কাজ করতে হয়			৫। জৈবিক/ বাইওলজিকাল	১। খাদ্যে বিষক্রিয়া/ ডাইরিয়া	১। স্বাস্থ্যবিধি/ হাইজিন অনুশীলন				
	২। নিরাপদ পানীয় জলের ব্যবস্থা আসে				২। টিটেনাস	২। পিপিই				
	৩। পরিষ্কার কাপ প্রদান করা হয়				৩। শ্বাসযন্ত্রের/ ফুস্ফুসের ইনফেকসন	৩। নিরাপদ কাজের পদ্ধতির প্রশিক্ষণ				
	৪। মানসম্পন্ন খাবার গ্রহণ করা হয় না				৪। কোন সমস্যা নেই	৫। অন্যান্য				

