Occupational Stress Factors and Musculoskeletal Complaints among Firefighters in Dhaka city: A Cross-Sectional Study

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Session: 2017-2018

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We the undersigned certify that we have carefully read and recommended to the Faculty of Medicine, University of Dhaka, for the acceptance of this dissertation entitled

Occupational Stress Factors and Musculoskeletal Complaints among Firefighters in Dhaka city: A Cross-Sectional Study

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DECLARATION

This work has not previously been accepted in substance for any degree and is not concurrently submitted in candidature for any degree. This dissertation is being submitted in partial fulfillment of the requirements for the degree of B.Sc. in Physiotherapy.

I confirm that if anything identified in my work that I have done plagiarism or any form of cheating that will directly awarded me fail and I am subject to disciplinary actions of authority. I confirm that the electronic copy is identical to the bound copy of the Thesis.

In case of dissemination the finding of this project for future publication, research supervisor will highly concern, it will be duly acknowledged as graduate thesis and consent will take from the physiotherapy department of SAIC College of Medical Science and Technology (SCMST).

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ACKNOWLEDGMENT

First, I would like to pay my gratitude to Almighty Allah who has given me the ability to complete this project in time with success. The second acknowledgement must go to my parents, my younger sister who have always inspired me for preparing the project properly. I am extremely grateful to my honorable and praiseworthy Supervisor **Zakia Rahman**, Lecturer, Department of Physiotherapy, SAIC College of Medical Science and Technology (SCMST) for giving me his valuable time, his keen supervision and excellent guidance without which I could not be able to complete this project.

I am also very thankful to **Dr. Abul Kasem Mohammad Enamul Haque**, Principal, SCMST; **Md. Shahidul Islam**, Assistant Professor, Department of Physiotherapy, SCMST; **Zahid Bin Sultan Nahid**, Assistant Professor & head, Department of Physiotherapy, SCMST; **Abid Hasan Khan**, **Md. Furatul Haque** Lecturer, Department of Physiotherapy and all of my respected teachers for helping me in this study.

I am grateful to the intern physiotherapists, Department of Physiotherapy, SCMST, Mirpur-14, Dhaka for their support throughout the period of this study. I wish to thank the Librarian of SCMST and his associates for their kind support to find out related books, journals and access to internet.

Finally, I would like to thanks all the participants who willingly participated as the study population during the conduction of my study and the entire individual who were directly or indirectly involved with this study.

ACRONYMS

WMSDs	: Work related musculoskeletal disorder
COPSOQ	: The Copenhagen Psychological Questionnaire
DASS	: The depression, anxiety and stress scale
NMQ	: The Nordic Musculoskeletal Questionnaire
KOSS- 26	: The Korean Occupational Stress Scale
CES-D	: The Center for Epidemiologic Studies-Depression Scale, the Depression
CMDQ-M	: Cornell Musculoskeletal Discomfort Questionnaires
PSQI	: Pittsburgh Sleep Quality Index
BDI-II	: Beck Depression Inventory
SEL	: Spirituality in Everyday Life
SAS	: Self-Rating Anxiety Scale
SDS	: Self-Rating Depression Scale

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Abstract

Background: Firefighters are exposed to a wide range of occupational stressors due to the nature of their work and are at risk of work-related musculoskeletal disorders (WMSDs) due to great physical demands of their duties.

Objectives: The objective of the present study was to identify the occupational stress factors and musculoskeletal complaints among the firefighters in Dhaka city.

Method: It was a cross sectional type of study conducted from January to June 2023. Nordic Questionnaire used for musculoskeletal complaints and the Work Stress Questionnaire used for finding the occupational stress. SPSS 25 was used for statistical analysis.

Result: The study showed 289 peoples were participants, among them neck pain 30.8%, shoulder 9.7%, elbow 3.1%, wrist 7.3%, upper back 24.2%, lower back 23.9%, hip 4.2%, knee 15.9% and ankle 14.2% had pain and discomfort in last 12 months. In addition, the increased workload, it was found that 97% participants told that their workload was increased among which (49.2%) participants perceived workload as a stressful. It was also found that 56.9% participants told that it's difficult to sleep due to work pressure out of which (32.8%) participants perceived it as stress.

Conclusion: Physiotherapy is effective for pain management in different parts of the body and very helpful for combating the musculoskeletal problems of the firefighters. So, there should be arrangement of physiotherapy service at the fire stations in the country. Fire Station Officers should be aware about the overload of the firefighters to reduce the work related stress.

Key words: *Occupational stress, musculoskeletal complaints, Firefighters*

CHAPTER-I INTRODUCTION

1.1 Background:

Stress is an external event that disrupts the biological balance. Environmental, psychological, biological and social factors cause stress. It has been observed that today's world of competition the youth are very worried. They found information on the prevalence of depression, attempted suicides and psychotic symptoms in youth (Bhargava and Trivedi, 2018).

Researcher said that, occupational stress was a condition people's changes in characterized by their workplace that force them to refrain from normal work practice. The main causes of occupational stress included long shifting work, a lack of job security, office politics and especially strict standards for goal attainment without the opportunity, uninvolved in choosing one own duties, a lack of effective interaction, unreasonable expectations. Occupational stress could be identified by the variety of sign such as physical, emotional and behavioral symptoms. Physical symptoms are pain, tightness in the chest, skin irritation, unconsciousness, digestive problem, breathing problem, infections, headache, nausea, frequent cold, and disrupted menstrual pattern in females. Emotional symptoms are feeling worried, mood swing, feelings of helplessness, loss of self-confidence, stressed, depression, anxiety. Behavioral symptoms are sleeping disorder, impaired speech, sex problem, smoking, social isolation, dependence of drug, increased drinking of alcohol (Suleman, Khattak and Hussain, 2021).

Researchers have issued that, there are many occupations all over the world. Occupational stress was a major factor affecting the mental and physical well-being of workers in Europe. Firefighting one of the most challenging and risky job. Every year some firefighters died while on duty at fires that are extremely challenging (Mohamad, Ali, and Makhbule, 2021).

According to author, the term work related musculoskeletal disorder referred to as an inflammatory conditions or impairments occur at the structure of the body such as muscles, joints, tendons, ligaments, bones, nerves, and supporting blood vessels that result in pain and functional impairment (Azmi and Masuri, 2019).

Musculoskeletal is an inflammatory condition that affects various structures and causes severe pain, limits movement and difficulty in participating in social

activities. This condition affected mental and physical support while reducing their quality of life, according to researchers. Musculoskeletal pain occurs any time in life, childhood, Adolescence, adulthood or old age. The major risk factors in childhood and adolescence are obesity, psychological problems, sitting too much, exhausting exercise. In adulthood, a sedentary lifestyle, overweight, psychological distress and long history of pain (Soares et al., 2018).

The author noticed that, firefighters saved lives and came forward to help various emergency situation such as natural disasters, workplace injuries and man-made disasters and while on duty, they had to face various serious challenges like heat, chemical hazards, physical stress and mental stress and they were often dangerous, life or death situations. Recent studies have also shown a link between poor sleep and increased work stress levels among shift workers. Firefighters typically work three shifts per day causing sleep disturbance that increase the risk of cardiovascular disease (Yook, 2019).

According to author state that, Firefighters lives and health are seriously endangered by the nature and conditions of their employment. The main problems occur due to the contact of various physical, chemicals and psychological problems. The firemen's qualification, ability and physical condition must be very high. Good hearing, eyesight and color discrimination are other features that need to be achieved. Injury, trauma, respiratory symptoms, cardiovascular disease, lung cancer that impairs health status and work qualities (Szubert and sobala, 2022).

Firefighting was a physically demanding profession that required firefighters to be in excellent physical condition. Unfortunately, many firefighters have cardiovascular risk factors, musculoskeletal health issues, and are physically unfit for duty, all of which negatively influence their performance the authors say. Firefighters face hazards including life threatening condition, high temperatures, hazardous chemicals and gases. Firefighting is a demanding profession that puts a lot of physical and mental stress on it. Firefighters typically have to use heavy, heated equipment, which adds physiological stress to the musculoskeletal system. It puts extra pressure on the body. Firemen in such physically demanding conditions are musculoskeletal disease, muscle injury, morbidity and in severe case mortality (Ras at al., 2022).

Prolong physical activity and severe physical work stress have resulted in high

rates of musculoskeletal disorder. A study of firemen's pain revealed that their necks, backs and shoulders were chronically sore. All age groups of firefighters received musculoskeletal disease due to their occupation and their duration of disability increased with age. The development of musculoskeletal disease by an individual depends on various physical and psychological factor. The functioning of various body systems was hampered by musculoskeletal disease, which resulted in acute or chronic disorders affecting the nerves, tendons, muscles and supporting structures of the body
(Lee et al., 2020).

Researcher said that, firefighters often experienced stressful events such as being attacked or killed in the line of duty or the death or serious injury of other firefighters. According to survey of American and Canadian, firefighters the majority had experienced at least one such experience in the previous year many of which saw violent, catastrophic or suicidal death. The five most frequent severe events and distributing exposures were witnessing a death finding a recently decreased body being severely abused as a child or adult notification. The high rate of severe event exposure among Canadian firefighters was confirmed by recent investigations of individual fire agencies and a nationwide survey (MacDermid, Lomotan and Hu, 2021).

According to researcher state that, firefighters faced serious health risks as they face considerable risk of suffering work-related trauma and injuries. During the performance of their duties, which went beyond firefighting, firefighters, were called upon to meet a variety of dynamics. Claims these tasks include ice- water rescue, marine rescue, aircraft rescue, vehicle accidents, railroad derailment, car lifting, hazardous material and confined space or high angle rescue. The profession of firefighting is risky and dangerous (Nazari, MacDermid and Cramm, 2020).

According to researchers, one of the major problem was musculoskeletal conditions that affected the spine. Working in fire department is challenging. Working in the fire department was challenging. They had to be involved in rescue operations in any situation. The cervical, thoracic, and lumbosacral parts of the spine are affected by back pain. In the cervical and lumbar regions, pain prevails (Fiodorenko-Dumas, Kurkowska and paprocka- Borowicz, 2018).

1.2 Justification of this study:

A firefighter is a person who works at the fire department. They are very familiar to us. They play an important role in our life. They are well educated and also brave. About their work, they are very careful. The profession of a firefighter is very risky. The main job of a firefighter is to put out fires. They make people aware of what should be done during a fire incident. They save many people from the door of death. If the firefighter cannot reach the spots in time, the incident poses a great havoc. Sometimes a firefighter takes the risk of his life to save others. The work of a firefighter is very commendable. They are our friend in danger. We should show respect to him and his profession. Firefighters rescue people and animals from dangerous situations such as crashed vehicles, structural collapse, trench collapse, cave and tunnel emergencies, water and ice emergencies, flooding, elevator emergencies, energized electrical line emergencies and industrial accidents. Firefighters rescue victims from hazardous materials emergencies as well as steep, embankment and high rises. The main duties of a full time firefighter are to help protect the public emergencies. Becoming a firefighter is no easy task. It requires hard work, long hours of training, dedication and a sincere desire to help others. Many firefighter's works in Dhaka city. They participate in vigorous activities to practice their training. In the process of performing duties such as extinguishing fires, rescuing those in need, and providing relief, they are exposed to increasingly complex psychological, physical problem in the work place. Stress problems arise due to long hours of work. Hence, they suffer from musculoskeletal injury and mental stress. The aim of the present study to find occupational stress factors and musculoskeletal complaints among fire fighters. Although similar studies on firefighters have done in many countries in the world. However, no such study have been done in Bangladesh. The findings of the present study would enrich our knowledge regarding stress and musculoskeletal problems of the firefighters of Bangladesh. The physiotherapy professionals would be benefited from the results of the study. This would help the physiotherapy practitioners to manage the problems of the firefighters.

On the other hand, the findings of the study would help the policymakers to reorganize the rules and regulations related to job and working environment of the

Firefighters in Bangladesh. This is a first attempt to explore the occupational stress factors and musculoskeletal complaints of the firefighters working in Dhaka city. Naturally, the future researchers will certainly get many ideas from the present study. At the same time, they would be motivated to conduct research in his field. The present study would be a reference thesis for the future researchers. Therefore, it would also make them easy to carry out research on firefighters.

1.3 Research Question

What are the occupational stress factors and musculoskeletal complaints among firefighters in Dhaka city?

1.4 Objectives of the study

1. General objective

To identify the occupational stress factors and musculoskeletal complaints among firefighters in Dhaka city.

2. Specific objectives:

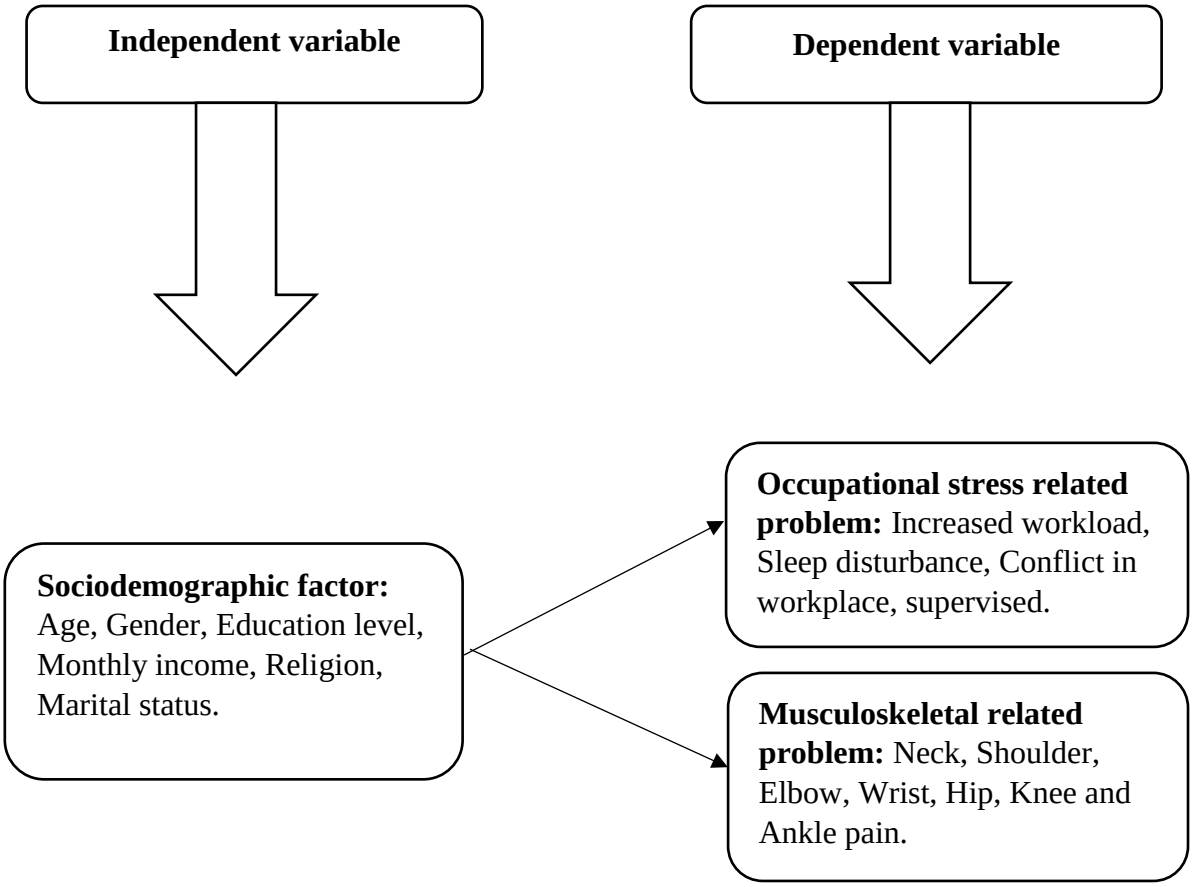
I. To determine the musculoskeletal complaints of the firefighters working in Dhaka city.

II. To find out the factors related to occupational stress factors among the firefighters.

III. To explore association between age and pain complaints of the participants.

IV. To explore association between experience (years) and perceiving stress.

1.5 Conceptual framework



1.6 Operational definition of the variables

Firefighter: Firefighter means the fire service's own firefighting personnel. When there is a fire in an establishment, firefighters of the fire service try to control the fire as much possible and try to reduce the damage and ensure the safe location of the trapped people.

Occupation: Occupation refers to the type of work performed by the person engaged during the specified period, regardless of the industry or employment status to which the person is classified. An occupation is a work situation occupied by a person with a specific field of interest and unique skills that benefit that field.

Stress: Stress can be defined as any type of change that causes physical, emotional or psychological strain. Stress is our body's response to anything that requires attention or action. Stress is a familiar feeling we get when we feel under pressure, overwhelmed or unable to cope.

Occupational stress: Occupational stress is psychological stress related to an employee's work. It is a chronic condition. Occupational stress refers to the ongoing or progressing stress an employee experiences due to the responsibilities, conditions, environment or other workplace pressure. Occupational stress can occur when workers do not feel supported by supervisors feel as if they have little control over the work they perform or find that their efforts on the job are incommensurate with the job's rewards.

Musculoskeletal pain: Musculoskeletal Pain is defined as acute or chronic pain that affects bones, joints, ligaments, tendons or muscles, and nerves. Pain can occur anywhere in the body from head to foot, including the spine and upper and lower extremities. An injury such as a fracture may cause sudden, severe pain with the most common symptoms being pain, fatigue, and sleep disturbance. The pain can also have it throughout the body if the pain is a widespread condition like fibromyalgia. The most common musculoskeletal pain is low back pain. Low back pain is the main contributor to the overall burden of musculoskeletal conditions (570 million prevalent cases worldwide, responsible for 7.4% of global YLDs).

Anxiety: The American Psychological Association (APA) defines anxiety as, "an emotion characterized by feelings of tension, worried thoughts and physical

changes like increased blood pressure". Anxiety disorders affect 40 million people in the United States. It is the most common group of mental illnesses in the country. However, only 36.9% of people with an anxiety disorder receive treatment.

Exhaustion: Exhaustion, also known as fatigue. Feeling tired is a common experience. It can be caused by disrupted sleep, habits, a change in routine, or the appearance of stressors life. Exhaustion is not a mental disorder. However, it can be caused by anxiety, depression, sleep disorders, anemia, diabetes, obesity, and /or an infectious disease or cancer.

Post-traumatic stress disorder: Post-traumatic stress disorder is an anxiety disorder caused by very stressful, frightening or distressing events. Post-traumatic stress disorder is affect between 7 - 8% of the population, and it is more likely to affect women than men.

CHAPTER-II LITERATURE REVIEW

According to the author, occupational or work-related stress one of the most prevalent problems with work-related health in Europe and around the world (Brookes et al., 2013). Workplace hazards including noise and temperature, poor work organization and management, and workplace harassment (Salzar and Beaton, 2000; Saijo, Ueno and Hashimoto, 2008; Son, Lee and Tochihara; 2013, Brown, Mulhern and Joseph,2002).

A recent study found that workplace stress was linked to musculoskeletal problems workers (Hang, Feuerstein and Sauter, 2002; Kopec and Sayre, 2004; Dick et al., 2015; Lee et al.,2008; Widanarko et al., 2015; Widanarko et al., 2014). A recent study of Japanese firefighters found that shifting work, low self-esteem, job conflict and uncertainty workplace and excessive workload were all strongly linked to depressed symptoms (Saijo, Ueno and Hashimoto, 2008).

Musculoskeletal disorders (MSDs) affected the joints, ligaments, muscles, and tendons. MSDs are severe injuries brought on by prolonged usage of tendons, muscles, and sensitive nerve tissue, as well as any unexpected effort in the workplace (Das, 2015).

Previous research study, firefighters from Cyprus provided the data. 430 firefighters in total 380 men, or 88.4% and 50 women, or 11.6% (Soteriades et al., 2019) completed the survey. The Copenhagen Psychosocial Questionnaire (COPSOQ) was used to assess stress, anxiety and depression (Kristensen et al, 2005). The depression, anxiety and stress scale (DASS) was used to assess health well-being psychological functioning status (Crawford and Henry, 2003). The Nordic musculoskeletal questionnaire (NMQ) was used to assess the musculoskeletal problems (Romero et al., 2011).

Author said that, 40% of firefighters completed the NMQ questionnaire. Among them, 26% reported back, 20.6% shoulder, 20.1% knee, 18.5% neck, 10.3%, upper extremities, 9.4%, upper back and ankle 5.5%. According to DASS stress scale 83.3%, 5.5%, 7.7%, 3.1%, and 0.5% of respondents, felt stressed (Soteriades et al., 2019).

According to author, the environment in which firefighters work caused many health problems which physical and psychological stress were assumed to be

associated with the high frequency of sleep disorders among firefighters. (Kim, 1996).

Studies shown that, 59% of US firefighters had sleep problem (Carey et al., 2011). A 2012 study in Brazil found that 51% of firefighters had sleep problem (Barros et al., 2013). In Iran, 69% of firefighters were reported to have sleep problems (Mehrdad, Haghighi and Esfahani, 2013).

Previous research study, all male firefighters from 730 firefighters from 5 fire stations who visited a general hospital for an annual health examination between November 24 and December 22 in a large city in South Korea. The final population of our study included 73 of the 657 firefighters with missing data and data were collected using a validated, self-administered questionnaire (Lim, 2014).

There were 121 participants (18.4%) with depression and 320 participants (48.7%) with poor sleep quality. Additionally, 68 participants (10.4%) exhibited average levels of stress. The mean score and standard deviation for occupational stress were 43.5 ± 15.1, 48.6 ± 12.0, 35.8 ± 10.9, 30.1 ± 16.7, 43.2 ± 12.8, 41.0 ± 12.5, and 36.7 ± 14.6 respectively (Lim, 2014).

According to the study, more than 40% of fire-related deaths in 2007 were musculoskeletal disorders such as strained ligaments or muscles. As of 2007, there were 30,630 Korean firefighters with 279 workplace incidents reported (Kang and Kim, 2008).

During July 2007 and November 2007, 30,601 Korean firefighters participated in the first phase, which involved structured surveys. A total 25,610 firefighters (83.6%) responded to the survey. We did not include women 1292 female fighters from the firefighter paradigm participated in only 4.9% of the total. Only 21,466(83.8%) firefighters responded to the questionnaire; as a result, they were selected as the final subject of the study. The structured questionnaires were divided into four sections: general characteristic variables, job stress factors relating to the workplace, depression factor, and WMSDs (Kim et al., 2013).

The Korean Occupational Stress Scale (KOSS-26) short form was used to assess occupational stress components (Chang et al., 2004). The Korean NIOSH symptom Survey was used to measure work related musculoskeletal disorders using the Center for Epidemiologic Studies-Depression Scale, the depression-related variables were assessed (CES-D) (Cho and Kim, 1993).

11.0% were WMSD cases (2,362 individuals). Statistics show that non-WMSD firefighters were statistically older than WMSD firefighters (39.6± 7.4) with 1294 (6.0%) complaints the back was the most frequently reported site of pain followed by the neck with 724 (3.4%) complaints. Shoulder 2.2%, neck 3.4%, lumber 6.0%, hand 1.0%, foot 3.3%, arm 0.8% (kim et al., 2013).

Back pain was the most prevalent WMSD among firefighters similar to previous studies. The results of this study suggested that firefighters WMSDS and workload were related to physical environment, workload, job instability, lack of motivation and occupational environment were related to WMSDS with in workload subgroups (Kim, Moon and Kim, 2010).

Previous research study, this research a cross-sectional survey was conducted among firefighters at several fire brigade stations in Mumbai. A total of 70 firefighters both male and female used REBA to lift ladders, hoses and dummies with their average times. They were given a reliable questionnaire with demographics, work description, self-reported health metrics, and co-morbidities information. The study included 59 male active duty firefighters aged 27-45 with a mean age of 25-30 years and a standard deviation of 1.6, 3.5 and 11 female active duty firefighters. 24%, 23%, 13%,7% ,6% and 7% had more neck, shoulder, elbow, upper and lower back symptoms respectively. Participants who made up 27% of the sample said they had no musculoskeletal problems according to the REBA, 30 firefighters who lifted ladders up and down their shoulders had a higher risk of developing cumulative trauma disorder while 70 firefighters of those 40 had moderate risk. 70 participants were while folding hoses and 29 of 70 participants were at high risk and 41 firefighters were at extreme risk while raising hoses (Aurangabadkar, Deo and Kadam, 2019).

Firefighters in Taiwan rotate between two-day work shifts and one day off. The dangers of transfer work on the body have been previously covered in several articles (Moreno et al., 2019; Loef et al., 2019). Most work- related accidents about 50% occur to the involve hands (arms) and legs (feet) followed by waist (hip) accidents 20% (Hsu et al., 2021).

The frequency of musculoskeletal disorders among firefighters in Canada was cross- sectional study. There were a total of 4,143 firefighters in five eligible cohort studies (3 prospective and 2 retrospective). The participants' ages ranged from 34 to 42.6 years on average (SD = 8.5 to 9.7).

Sprains, strains, fractures, discomfort in the head, neck, shoulder, elbow, arm, hand, back, upper thigh, knee, and foot were some of the reported forms of MSDs. The point-prevalence estimate for knee pain was 27.00% (2 studies, 180 of 684 firefighters, 95% CI, 11.00-48.00), back pain was 27.0% (3 studies, 367 of 1,491 firefighters), and shoulder pain was estimated at 23.00% (3 studies, 312 of 1,491 firefighters, 95% CI, 15.00-33.00). All sprain/strain injuries (all body parts) had a one-year period prevalence estimate of 10.0% (2 studies, 278 of 2,652 firefighter participants, 95% CI, 7.00-14.00) (Nazri, MacDermid and Cramm, 2020).

In South Africa, a cross-sectional, quantitative, and correlational design was utilized in this investigation. Conveniently, the City of Cape Town Fire and Rescue Service provided 124 full-time firefighters, both male and female. 2019 from September to November saw the study's completion. The average age of the firemen was 37.53 9.05 years, while the average weight and height were 87.4 17.9 kg and 172.6 7.3 cm, respectively for men (79%), whereas these values were 36.4 years old, 85.9 kg, and 164.8 cm, respectively, for women. When all research participants were divided into age groups, the age group 20–29 represented 19.4% of the total, the age group 30-39 had the largest number of participants with 44.4%, the age group 40–49 had 24.2%, and the age group 50–65 had the lowest number with 12.1%. The most common musculoskeletal injury among firefighters was a shoulder injury, which was reported by 35.3% of them. Multiple injuries were reported by 26.5% of them, followed by back injuries 14.7%, knee injuries 11.8%, neck and vertebra injuries 5.9%, and lower limb fractures 5.9%. The most common injuries among male firefighters were shoulder injuries 33.3%, multiple injuries 29.6%, back injuries 14.8%, knee injuries 11.1%, neck and vertebra injuries 7.4%, and lower extremities 3.7%. Shoulder injuries were the most frequent among female firefighters (41.9%), followed by numerous, back, knee, neck, and vertebra injuries, as well as lower limb fractures (all 14.3% common). Shoulder injuries were most common in those aged 20 to 29 years 57.1% and in people aged 30-39 years 31.3%. 44.4% of people aged 40 to 49 had shoulder problems while 50% of people aged 50 to 65 only experienced back aliments (Ras and leach, 2022).

An exploratory cross- sectional study was conducted in a fire department in Sao Paulo, Brazil. Sampling was for convenience, 27 firefighters were participants on

the interview, and willing to complete the questionnaire were included in the study. In-group A, 20 (91%) firefighters had some form of physical pain in the various 7days with the back being the most affected. In group B, 4 (80%) firefighters reported having MSD symptoms with in the past 6 months or within the previous 7days, with shoulders and knee being the most affected areas (Ras et al, 2018).

This was a cross sectional study of 101 firefighters out of the total 135 firefighters from three fire stations in Klang Valley which include Sungai Buloh, Bukit Jelutong, and Shah Alam Seksyen 15. Study participants must have been between 18 and 60 years of age. Data were collected using a self-rated questionnaire. Musculoskeletal system was assessed using the Malay version of Cornell Musculoskeletal Discomfort Questionnaires (CMDQ-M). The lower back had the highest mean value of WMSD of all the body areas investigated M=10.97, it was the component most impacted overall. Compared to other body parts hip had the lowest value M=1.10 (Azmi and Masuri, 2019).

A cross-sectional descriptive study supported by the SAFFE project, National Institutes of Health was conducted (Carey, Zaiti and Butler, 2010). Pittsburgh Sleep Quality Index (PSQI) used to assess sleep problems (Carpenter and Andrykowskia, 1998) and the Beck Depression Inventory (BDI-II) used to assess depression (Beck, Steer and Carbin, 1998). Spirituality in Everyday Life (SEL) used to measure social bonds and connections. A convenience sample of 112 firefighters from 6 different fire houses in the fire department was enrolled. In general, a few of firefighters reported 59% sleep deprivation, 58% binge drinking, 21% poor mental well-being, 20% current nicotine use 14%hazardous drinking behavior, 11% melancholy, 8% poor physical well-being, 5% caffeine misuse,4%or bad social bonding (Carey et al., 2011).

In 2013, this descriptive, cross-sectional investigation was carried out. 244 firefighters from the fire departments in Yazd and Ahvaz took part. Utilizing the HSE occupational stress questionnaire, data were gathered. With a mean age of 39.02 7.44, the participants' ages varied from 25 to 54. Participants' job experience ranged from 1 to 28 years, with a mean of 13.14 7.17 years. Participants' educational background and employment experience significantly affected their levels of stress $p = 0.013$ and $p = 0.001$, respectively. Age and employment experience both had a negative

correlation with stress p = 0.075 and r = 0.14 and a positive correlation p = 0.071 and r = 0.116, respectively (Baghianimoghadam et al., 2015).

This study is descriptive and qualitative. A systematic examination of academic sources and professional views based on the FDM was used to identify and screen occupational stresses for firefighters. The FAHP next used the expert judgments was used to prioritize and weight each of the stressors that had been assessed. A total of 27 stressors were chosen to enter the FAHP out of the 52 occupational stressors that firefighters identified in the first stage. The FAHP results demonstrated that among the four major dimensions, management aspects had a higher weight (0.358) than other variables. According to the study's overall findings, the most significant stresses for firefighters were financial pressure brought on by low pay, fear of explosions at incident sites, poisonous smoke and gases created by fires, and management's disregard for workplace safety, in that order (Rajabi et al.,2020).

A cross-sectional survey included professional firefighters from northern California and central Texas. Convenience sampling was used to discover candidates. In the past 12 months, 67 out of 249 (27%) professional fireman participants reported suffering at least one work-related injury. 55 of 67 (82.1%) wounded people in the preceding year reported just one injury, 8 of 67 (11.9%) reported two injuries, and 3 of 67 (4.5%) reported three or more. 80 injuries among the 66 participants were noted. Sixty-five percent of the injured people filed a workers' compensation claim, and seventy percent sought medical attention for a working injury. 47.5% (37/38) were unable to work as a result of their injury, and 17.5% (14/81) were offered modified work. 39 of 249 participants or 24.9% had sick leave, vacation time, or shifts missed because of an injury sustained at work in the previous year. The majority of injuries 31.3% occurred outside of fire calls, followed by on-fire scenes 26.3%, and training exercises for fire/rescue operations 20%. Overexertion (64%), as well as falling, leaping, slipping, and tripping (12% each), are the two main factors in fire field injuries. The most common parts of the damaged body were in the back 31.3%, 25/80, followed by the knee, calf, and shin 26.3%, 21/80, which accounted for roughly 79% of all injuries (Phelps et al., 2017).

Seventeen firefighters from the City of Surabaya Fire Department served as the sample group of the study. Qualitative technique was used in this study.

DASS21 questionnaire and interviews were used to collect data. The findings indicated that 17.7% of the sample, or 2 out of the 3 respondents, experienced mild stress. 14 respondents, or 82.3% of the sample, who were between the ages of 21 and 25, had worked between one and five years, and are married, reported normal levels of stress (Nilamsari, Prihatinijgsih and Kualaningtyas, 2019).

The primary author conducted an ongoing hearing protection intervention study from 2008 to 2012 that included pretest data for this cross-sectional investigation. For this study's research, information gathered from a total of 437 firefighters from 34 fire departments in three states such as, California, Illinois, and Indiana was used between March 2010 and May 2011. An Internet-based study included 437 firefighters from three different states in the United States. 56% of firefighters who reported multiple injuries had at least one job injury. Back injury 54%, limbs 60%, muscle 74%, and burns 28% were often reported. Fire service personnel who have been in the fire service for more than 17 years were more likely to be injured (odds ratio = 2.96; 95% Confidence Interval = 1.92-4.58) and numerous injuries (OR = 2.47; 950 CI = 1.49- 4.10). When a person was hispanic (OR = 0.34; 95% CI = 0.15-0.76) or when a person had a larger organizational commitment (OR = 0.54; 95% CI = 0.35 0.84) Low injuries were reported. The risk of injury was affected by several factors (Hong et al., 2012).

This study was a study of firefighters in Shantou City, Guangdong Province, China. A cross-sectional survey was conducted with a total of 335 firefighters, including 329 male and six female firefighters. Questionnaires were used that assessed anxiety and depression, as indicated by the Jung Self-Rating Anxiety Scale (SAS) and Self-Rating Depression Scale (SDS), as well as other mental health symptoms, using the Symptom Checklist-90 (SCL-90). Basic information and potential-related factors were also collected. Participants were 27.38 (SD: 6.11) years old on average. SAS and SDS positive screening rates were 6.86% and 22.68%, respectively, as determined by the indexed score of various scales. 6.86% of subjects scored high on the SCL-90, indicating mental health problems. Birth order, firefighter rank, and educational level were found to be related to positive outcomes for mental health by logistic regression analysis. Additionally, it was discovered that Shantou firefighters' mental health results were worse than those of the national firefighters were, but better than those of the Chinese military (Chen et al., 2020).

CHAPTER - III METHODLOGY

3.1 Study design:

This was a cross-sectional type of descriptive study carried out among the firefighters working in Dhaka city.

3.2 Study area:

Data were collected from the firefighters working in different Fire service stations in Dhaka city of Bangladesh.

3.3 Study period

The duration of the study was 12 months from 1st July 2022 to 30th June 2023.

3.4 Study population:

Firefighters working in different fire service stations in Dhaka city constituted the study population for the present study.

3.5 Sample size:

As this study was a cross sectional study, hence the required sample size was calculate by using the following formula;

$$n = \frac{z^2 p(1-p)}{d^2}$$

Here,

N = required sample size.

z =confidence level at 95% (Standard value of 1.96).

$p = p$ is the expected rate of prevalence; here we have taken the prevalence rate of 54.2% from the previous published literature by Abbasi et al., 2020.

d = margin of error at 5% (Standard value of 0.05).

$$N = \frac{z^2 p(1-p)}{d^2}$$

$$= \frac{(1.96)^2 \times 0.54(1-0.54)}{(0.05)^2}$$

$$= 381$$

So final required sample to be 381.

3.6 Sampling technique:

Convenience sampling technique was used to select the participants for the study.

3.7 Eligibility criteria

3.7 .1. Inclusion criteria:

- Both male and female.
- Age ranging from 18-50 years.

3.7.2. Exclusion criteria:

- Recent surgery.
- Retired firefighter person.
- Who were not interested?

3.8 Method of data collection

Face to face formal interview. Self-administered questionnaire was used to collect data from the respondents.

3.9 Instrument and tools of data collection

1. Nordic Questionnaire used for musculoskeletal complaints.
2. The work stress questionnaire used for occupational stress.
3. Structured questionnaire used for socio demographic information.

3.10 Procedure of Data collection

The researcher obtained permission from the Director General of Fire Service and Civil Defense for collection of data from the firefighters. Then the researcher went to one of the fire stations in Dhaka city and met with the Station Officer respectively. With the permission from the Station Officer, the researcher approached individual firefighter for data collection. The firefighter was explained the aims and objectives of the study to the respondents. Obtaining verbal informed consent, questionnaire was handed over to the participants. The respondents filled the questionnaire accordingly.

3.11 Data management:

At the end of each day, the collected questionnaires were check for any error or inconsistency. Necessary corrections were made. The recorded data were coded according 1,2,3 for entry into the SPSS.25 version program.

3.12 Data analysis

Descriptive analysis was done by SPSS-25 version program according to the objectives of the study. It includes percentage, mean, median, standard deviation,

Frequency. Association between age and pain complaints, experience (years) and perceiving stress, where examine by chi-square test.

3.13 Presentation

Result of study has been presented with figure, chart. Adequate description also included in the result.

3.14 Ethical consideration

The researcher submitted a research proposal to the department of physiotherapy for approval and obtained the written permission in time from the Ethical review board of SAIC College of Medical Science and Technology (SCMST) to carry out the study.

No physical examination or any invasive technique was used in the present research. There was no direct benefit to respondents; however, the study findings might be beneficial for the intern doctors. The purpose of the study was explained to every participant and asked for their response. The respondents who gave informed verbal consent included in the study. The participant was also informed of his/her right to discontinue at any point of interview. Refusal to participate involved no loss of benefits which he/she was otherwise entitled.

Data of the participants were maintained with strict confidentiality. Every participant was given a unique code number for this study. The documents for these code numbers linking subjects were kept in a locked cabinet under the direct supervision of the researcher.

3. 15 limitation

- The calculated sample size was 381 but data were collected from 289 participants due to shortage of time of data collection.
- Data for the present study were collected from different stations. It would be better if the participants could be selected from other parts of the country.
- During data collection, some participants were not interested and did not cooperate and some discontinued the interview.
- The researcher is a fourth-year B.Sc. student studying physiotherapy. It is her first research project, this thesis. Therefore, the thesis has multiple flaws.

CHAPTER-IV RESULT

The objective of the study was to find out occupational stress factors and musculoskeletal complaints among firefighters in Dhaka city. A self-administered questionnaire was used to collect data from a sample size of 289 firefighters working in Dhaka city. The data were analyzed with the Microsoft Office Excel 2016 with SPSS 25 version software program. In this study researcher used bar, column, figure, pie chart to show the result of the study.

4.1. Socio-Demographic Condition:

4.1.1: Age of the participants:

Table no. 1: Frequency distribution of the participants by age group in years.

Age group in years	Frequency	
	N	%
18 - 28	138	47.8%
29 - 39	103	35.6%
40 - 50	48	16.6%
Total	289	100%

Mean = 30.50, SD = 7.86

Regarding frequency distribution of the participants by age group in years, it was found that out of 289, 138 (47.8%) firefighters belonged to the age group of 18 - 28 years. It was also found that 103 (35.6%) firefighters were in the age group of 29 – 39 years and 48(16.6%) firefighters were in the age group 40 - 50 years. The mean age of the participants was 30.50 and SD was 7.86 (Table no.1). Moreover, all the participants were male in this study.

4.1.2: BMI of the participants:

Table no. 2: Frequency distribution of the participants by BMI

BMI	Frequency	
	N	%
< 18.5 (Underweight)	3	1%
18.5 - 24.9 (Normal)	210	72.7%
25 - 29.9 (Over weight)	71	24.6%
> 30 (Obese)	5	1.7%
Total	289	100%

* BMI of the participants has been done according to WHO classification.

Mean = 23.67, SD ± 2.384

About frequency distribution of the participants by BMI, it was found that BMI of 210 (72.7%) participants had normal weight (18.5 - 24.9), 71(24.6%) of participants had over weight (25 - 29.9) and 5 (1.7%) of participants were obese (> 30). It was also found that BMI of 3 (1%) of participants were underweight (< 18.5). The mean BMI of the firefighters was 23.67, and SD 2.384 (Table no.2).

4.1.3: Educational Status of the participants:

Table no. 3: Frequency distribution of the participants by educational status

Educational Status	Frequency	
	N	%
SSC	102	35.3
HSC	158	54.7
Graduate	20	6.9
Post graduate	9	3.1
Total	289	100.0

About educational status of the firefighters, 102 (35.3%) participants passed SSC, 158(54.7%) study subjects were HSC holder, 20 (6.9%) were Graduate and 9 (3.1%) had Post graduation degree (Table no.2).

4.1.4: Martial status of the participants:

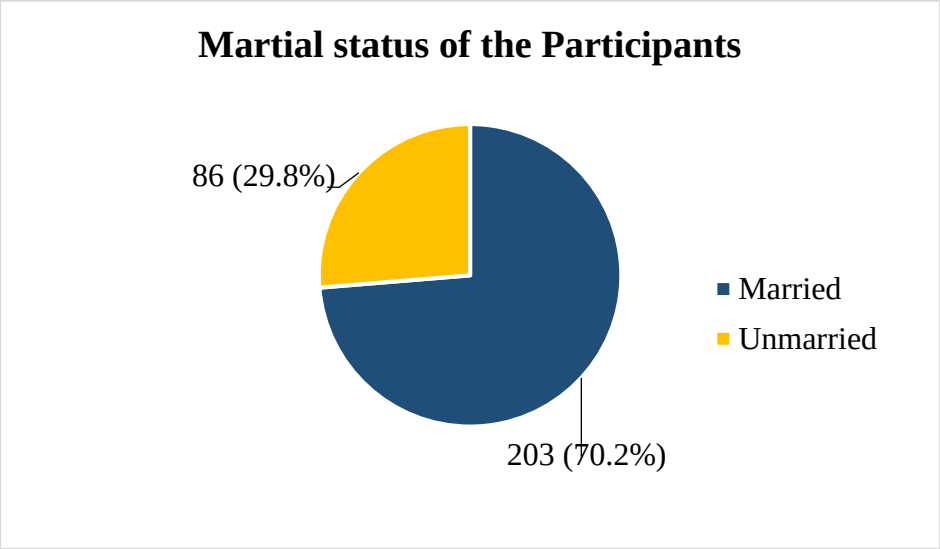


Figure no.1. Martial status of the participants

Regarding marital status, it was found that 203 (70.2%) firefighters were married and 86(29.8%) firefighters were unmarried (Figure no.1).

4.1.5: Religion of Participant:

Table no. 4: Frequency distribution of the participants by religion

Religion	Frequency	
	N	%
Islam	268	92.7
Hindu	20	6.9
Buddhist	1	.3
Total	289	100.0

The study showed that the religion of 268 (92.7%) participants was Islam and 20 (6.9%) respondents were Hindu and 1 (.3%) were Buddhist. There was no Christian (Table no.4).

4.1.6: Smoking habit of the Participant:

Table no. 5: Frequency distribution of the participants by smoking habit.

Smoking habit	Frequency	
	N	%
Yes	45	15.6
No	244	84.4
Total	289	100.0

The study revealed that, 244 (84.4%) participants did not have the habit of smoking and 45 (15.6%) firefighters had the habit of smoking (Table no.5).

4.2. Employment-related factors

4.2.1: Work shift of the participants:

Table no. 6: Frequency distribution of the participants by working status.

Working status	Frequency	
	N	%
Fixed	56	19.4
Rotational	233	80.6
Total	289	100.0

The study revealed that, 233 (80.6%) study subjects had rotational duty. It was also found that 56 (19.4%) participants duty were fixed (Table no.6).

4.2.2: Experience of the participants:

Table no. 7: Frequency distribution of the participants by experience (year).

Experience in years	Frequency	
	N	%
1-5	150	51.9
6 -10	45	15.6
> 10	94	32.5
Total	289	100.0

About frequency distribution of the participants by experience in years, it was found that 150 (51.9%) participants had 1-5 years of experience. It was also found that 94 (32.5%) study subjects had experience more than 10 years and 45 (15.6%) participants had experience of 6-10 years (Table no.7).

4.2.3: Monthly income of the participants:

Table no. 8: Frequency distribution of the participants by monthly income.

Monthly income	Frequency	
	N	%
< 30000	250	86.5
31000 - 50000	38	13.1
>50000	1	.3
Total	289	100.0

Regarding frequency distribution of the participants by monthly income, it was revealed that out of 289, 250 (86.5%) firefighters had monthly income Taka less than 30,000. It was also found that 38 (13.1%) firefighters had monthly income Taka 31000-50,000 and 1(.3%) firefighter had monthly income Taka more than 50,000 (Table no.8).

4.2.4: Sitting long periods of the participants:

Table no. 9: Frequency distribution of the participants by sitting long periods.

Sitting long periods	Frequency	
	N	%
Yes	109	37.7
No	180	62.3
Total	289	100.0

The study revealed that, 109 (37.7%) participants told that they sit for long periods and 180 (62.3%) participants did not sit for long periods (Table no.9).

4.2.5: Standing long hours of the participants:

Table no. 10: Frequency distribution of the participants by standing long hours.

Standing long hours	Frequency	
	N	%
Yes	231	79.9%
No	58	20.1%
Total	289	100.0

The study showed that, 231(79.9%) participants told that they stand for long hours and 58(20.1%) participants did not sit for long hours (Table no.10).

4.2.6: Carrying heavy objects during work of the participants

Table no. 11: Frequency distribution of the participants by carrying heavy object during work.

Carrying heavy object during work	Frequency	
	N	%
Yes	279	96.5%
No	10	3.5
Total	289	100.0

The study revealed that, 279 (96.5%) participants told that they carry heavy object during work and 10 (3.5%) participants did not carry heavy object during work (Table no.11).

4.2.6: Travel a long distance while work of the participants

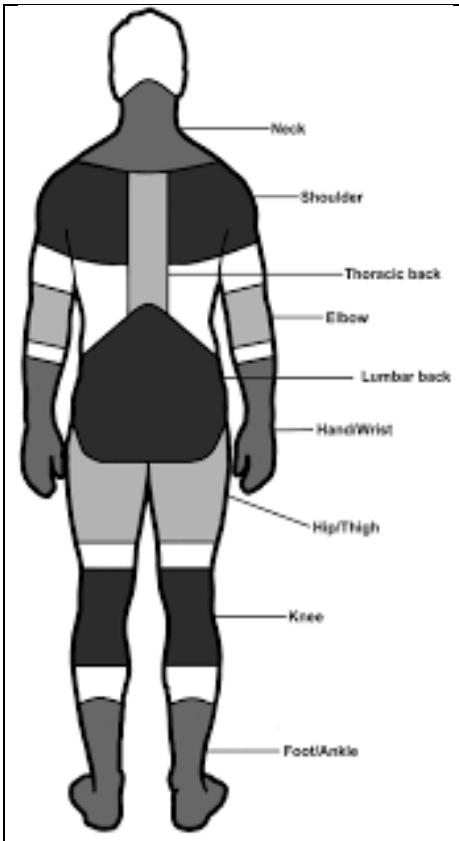
Table no. 12: Frequency distribution of the participants by travel a long distance while work.

Travel a long distance while work.	Frequency	
	N	%
Yes	229	79.2
No	60	20.8
Total	289	100.0

The study showed that, 229 (79.2%) participants told that they travel a long distance while work and 60 (20.8%) participants did not travel a long distance while work (Table no.12).

4.3. Musculoskeletal related condition:

Table no. 13: Frequency distribution of the participants by musculoskeletal related condition



Trouble with the locomotive organs			
Have you at any time during the last 12 months had trouble (ache, pain, discomfort in:		To be answered only by those who have had trouble	
		Have you at any time during the last 12 months been prevented from doing your normal work (at home or away from home) because of the trouble?	Have you had any trouble at any time during the last 7 days?
Neck	Yes 89 (30.8%)	Yes 89 (30.8%)	Yes 89 (30.8%)
	No 200 (67.2%)	No 200 (67.2%)	No 201(68.6%)
Shoulders	No 239 (82.7%)	Yes 50 (17.3%)	Yes 50 (17.3%)
	Right 14 (4.8%)		
	Left 8 (2.8%)	No 239 (82.7%)	No 239 (82.7%)
	Both 28 (9.7%)		
Elbows	No 265 (91.7%)	Yes 24 (8.3%)	Yes 24 (8.3%)
	Right 9 (3.1%)		
	Left 6 (2.1%)	No 265(91.7%)	No 265(91.7%)
	Both 9 (3.1%)		
Wrist/hands	No 242(83.7%)	Yes 46(15.9%)	Yes 46(15.9%)
	Right 15(5.2%)		
	Left 11(3.8%)	No 243(84.1%)	No 243(84.1%)
	Both 21(7.3%)		
Upper back	Yes 70(24.2%)	Yes 68 (23.5%)	Yes 68 (23.5%)
	No 219(75.8%)	No 221(76.5%)	No 221(76.5%)

	Low back	Yes 69(23.9%)	Yes 66 (22.8%)	Yes 65(22.5%)
		No 220 (76.1%)	No 223(77.2%)	No 224(77.5%)
	Hips/thighs	No 248 (85.8%)	Yes 40(13.8%)	Yes 40(13.8%)
		Right 20 (6.9%)		
		Left 9 (3.1%)	No 249 (86.2%)	No 249 (86.2%)
		Both 12(4.2%)		
	Knee	No 220 (76.1%)	Yes 68 (23.5%)	Yes 68 (23.5%)
		Right 13 (4.5%)		
		Left 10 (3.5%)	No 221(76.5%)	No 221(76.5%)
		Both 46 (15.9%)		
	Ankles/feet	No 230 (79.6%)	Yes 60 (20.8%)	Yes 60 (20.8%)
		Right 14 4.8%)		
		Left 4 (1.4%)	No 229 (79.2%)	No 229 (79.2%)
		Both 41(14.2%)		

The study showed 289 peoples were participants, among them 89 (30.8%) participants had neck pain and discomfort in last 12 months. It was found that 89 (30.8%) participants had been prevented from works in last 12 month and 88(30.8%) participants had neck trouble at any time during last 7days (Table no.13).

It was found that, 289 peoples were participants among them 14 (4.8%) participants had right shoulder pain, discomfort in last 12 months, 8 (2.8%) participants had left shoulder pain, discomfort in last 12 months. It was found that 28 (9.7%) participants had both shoulder pain, discomfort in last 12 months. The study showed 50 (17.3%) participants had been prevented from works in last 12 months during work and It was also found 50 (17.3%) participants had shoulder trouble at any time during last 7days (Table no.13).

Out of 289 peoples were participants, among them 9 (3.1%) participants had right elbow pain, discomfort in last 12 months, 6 (2.1%) participants had left elbow

pain and discomfort in last 12 months, 9 (3.1%) participants were have had both elbow problems in pain and discomfort in last 12months. The study showed that, 24 (8.3%) participants had been prevented from works in last 12 months during work and 24 (8.3%) participants had trouble in elbow at any time during last 7days (Table no.13).

It was found that, 289 peoples were participants, among them 15(5.2%) participants had right wrist pain and discomfort in last 12 months,11(3.8%) participants had left wrist pain, discomfort in last 12months, 21(7.3%) participants had both wrist pain, discomfort in last 12months. It was found that 46(15.9%) participants had been prevented from works in last 12month during work and 46 (15.9%) participants had wrist problems in trouble at any time during last 7days (Table no.13).

Out of 289 participants were among them 70(24.2%) participants had upper back pain, discomfort in last 12months. It was found that 68(23.5%) participants had been prevented from works in last 12month during work and 68 (23.5%) participants had upper back problems in trouble at any time during last 7days (Table no.13).

The study showed 289 peoples were participants, among them 69(23.9%) participants had lower back pain, discomfort in last 12months . It was found that 66 (22.8%) participants had been prevented from works in last 12month during work and 65(22.5%) participants had lower back problems in trouble at any time during last 7days (Table no.13).

This study found that 289 peoples were participants, among them 20 (6.9%) participants had right hip pain, discomfort in last 12 months, 9(3.1%) participants had left hip pain, discomfort in last 12months, 12(4.2%) participants had both hip pain, discomfort in last 12months. It was found that 40(13.8%) participants had been prevented from works in last 12month during work and 40 (13.8%) participants had hip problems in trouble at any time during last 7days (Table no.13).

Out of 289 peoples were participants, among them 13(4.5%) participants had right knee pain, discomfort in last 12 months, 10(3.5%) participants had left knee pain, discomfort in last 12months, 46(15.9%) participants had both hip pain, discomfort in last 12months. It was found that 68 (23.5%) participants had been prevented from works in last 12month during work and 68(23.5%) participants had knee problems in trouble at any time during last 7days(Table no.13).

This study found that, 289 peoples were participants among them 14(4.8%) participants had right ankle pain, discomfort in last 12 months, 4(1.4%) participants had left ankle pain, discomfort in last 12months, 41(14.2%) participants had both ankle pain, discomfort in last 12months. It was found that 60(20.8%) participants had been prevented from works in last 12month during work and 60 (20.8%) participants had ankle problems in trouble at any time during last 7days (Table no.13).

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4.4. Stress related condition:

4.4.1. Time to finish assignment of the participants

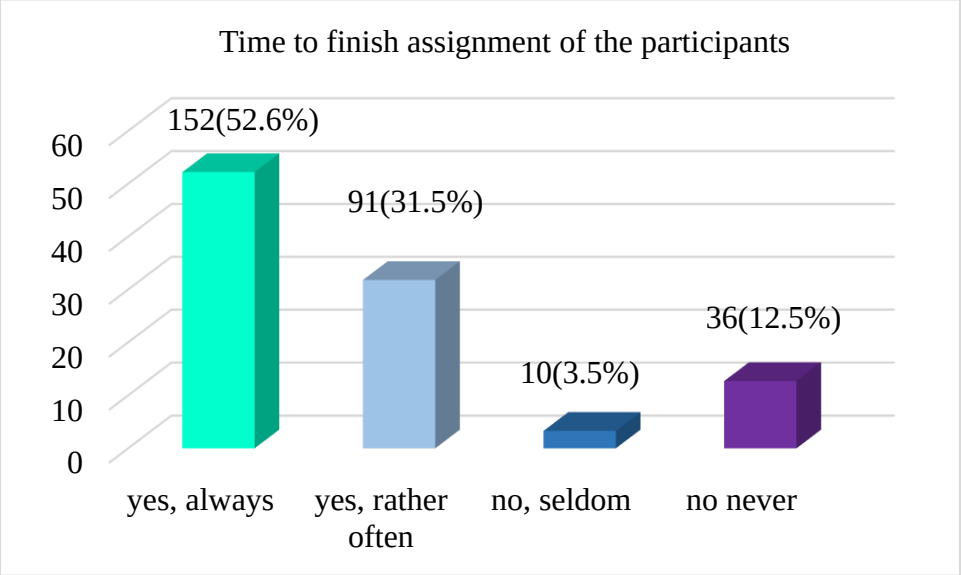

Figure 2: Time to finish assignment of the participants

Regarding finishing assignment in time, 152 (52.6%) participants told that they finish their assignment always in time. It was also found that 91(31.5%) participants told that they finish but rather often, 10 (3.5%) participants could not finish the assignment seldom and 36 (12.5%) participants never finish in time (Figure no.2).

4.4.2. Influence decision at work of the participants:

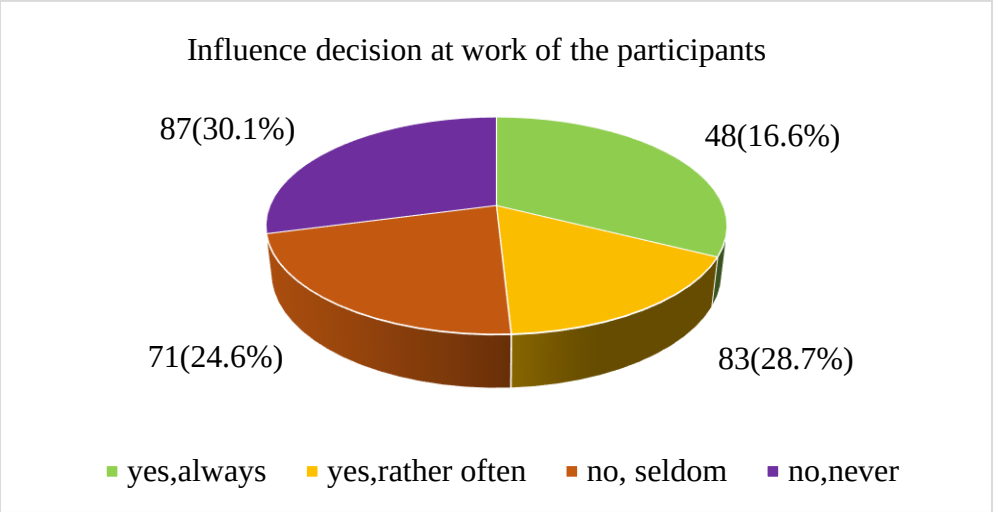

Figure 3: Influence decision at work of the participants

Regarding Influence decision at work, 48 (16.6%) participants told that they decision at work. It was also found that 83 (28.7%) participants told that they influence but rather often, 71 (24.6%) participants could not Influence seldom and 87 (30.1%) participants never Influence decision at work (Figure no.3).

4.4.3. Supervisor consider views of the participants:

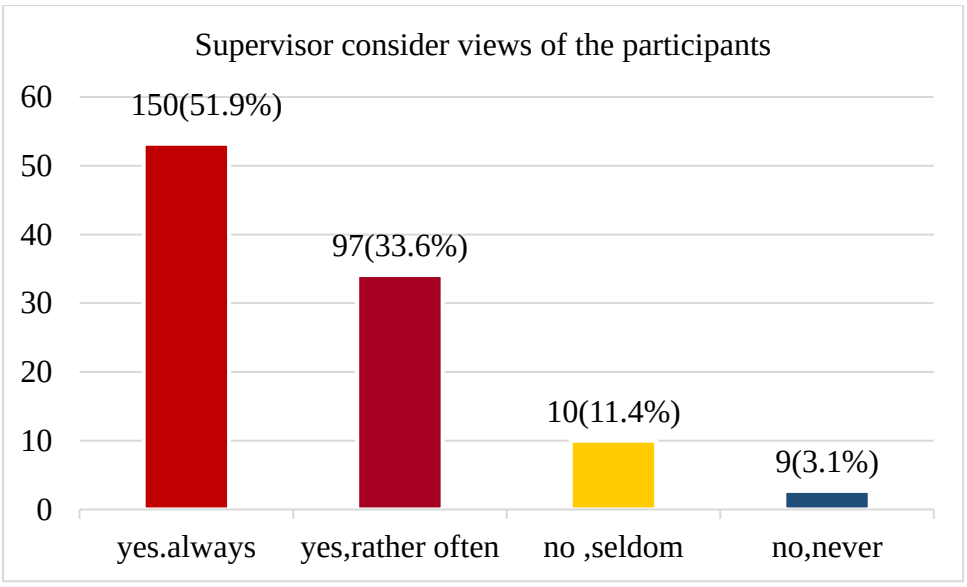

Figure 4: Supervisor consider views of the participants

About consideration of supervisor, 150 (51.9%) participants told that they consider supervisor views. It was also found that 97 (33.6%) participants told that they consider but rather often, 10 (11.4%) participants could not consider seldom and 9 (3.1%) participants never consider supervisory views (Figure no.4).

4.4.4. Decide work place of the participants:

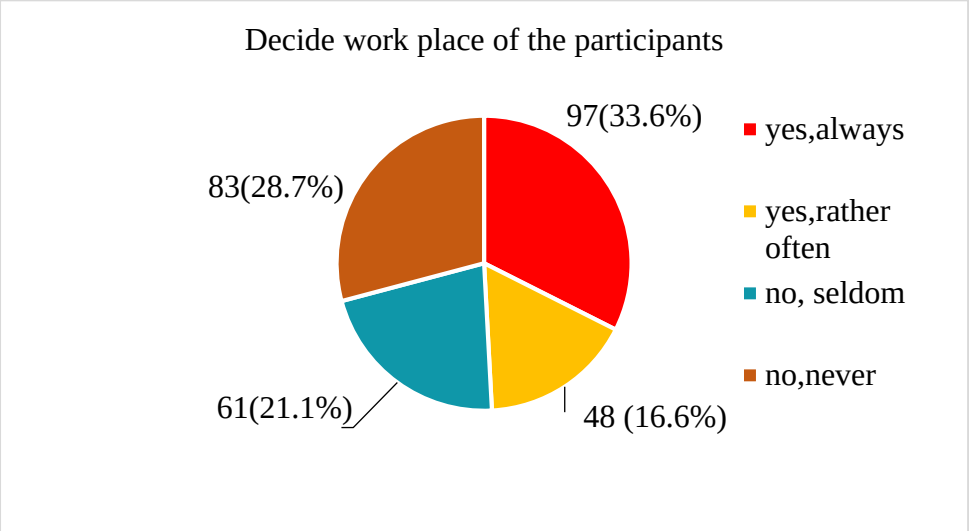

Figure 5: Decide work place of the participants

Regarding decide work place 97(33.6%) participants told that they decide; It was also found that 48 (16.6%) participants told that they decide but rather often, 61(21.1%) participants could not decide seldom and 83(28.7%) participants decide work place (Figure no.5).

4.4.5. Workload increase of the participants:

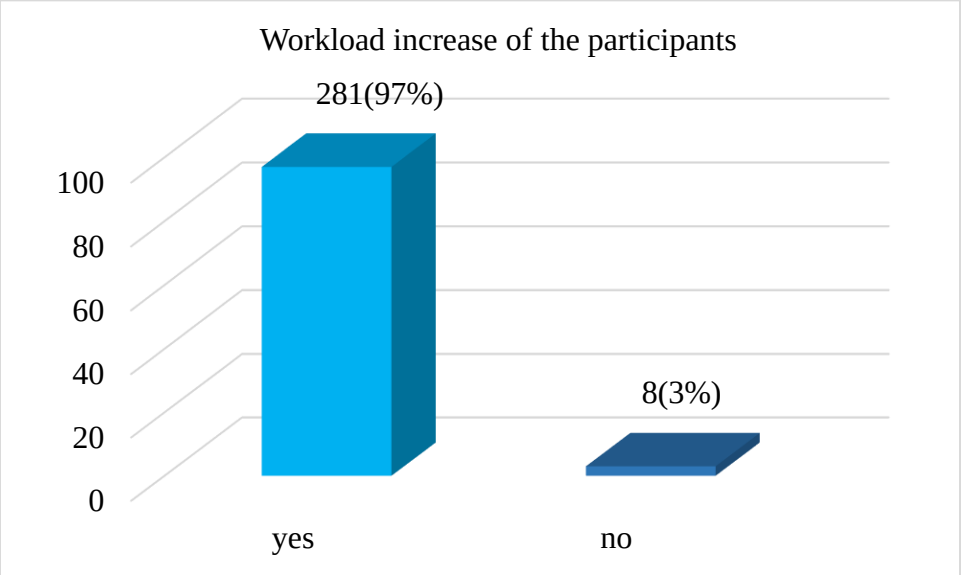

Figure 6: Workload increase of the participants

About increased workload, it was found that 281 (97%) participants told that their workload was increased (Figure no.6).

4.4.5.1: Increasing workload perceived as stressful:

Table no. 14: Frequency distribution of the participants increasing workload perceived as stressful

Stress perceive	Frequency	
	N	%
No	6	3.0
Stressful	140	49.2
Less stressful	33	11.4
Not stressful	97	32.4
Very stressful	13	4.0
Total	289	100.0

The study revealed that 140 (49.2%) participants perceived workload as a stress. It was also found that 97 (32.4%) subjects mentioned that workload was not stressful and 33 (11.4%) participants told that it was less stressful (Table no. 14).

4.4.6: Work place goal clear of the participants:

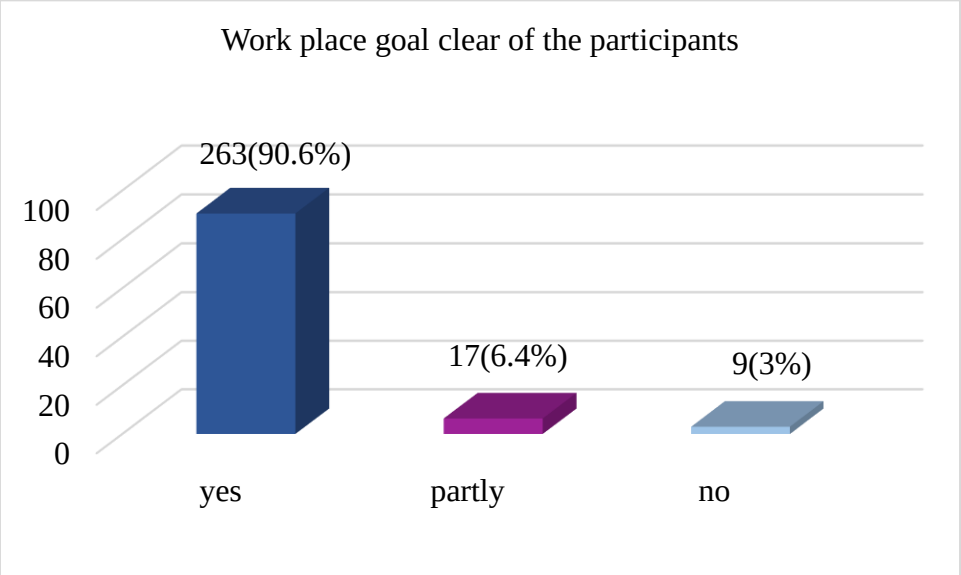

Figure 7: Work place goal clear of the participants

About work place goal clear, it was found that 263 (90.6%) participants told that their work place goal clear (Figure no.7).

4.4.6.1: Goal clear about work place perceived as stressful

Table no. 15: Frequency distribution of the participant's goal clear about work place perceived as stressful

Stress perceive	Frequency	
	N	%
No	259	90.0
Stressful	10	3.3
Less stressful	9	3.3
Not stressful	9	2.7
Very stressful	2	.7
Total	289	100.0

The study showed that 10 (3.3%) participants perceived work place goal clear as a stress. It was also found that 9 (2.7%) subjects mentioned that work place goal clear was not stressful and 9 (2.7%) participants told that it was less stressful (Table no.15).

4.4.7. Assignment work task include of the participants:

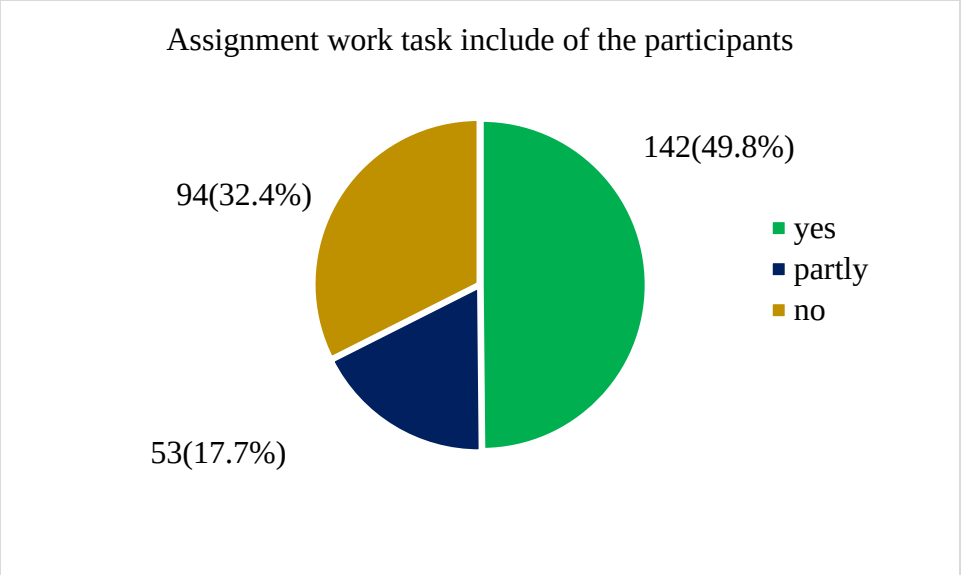

Figure 8: Assignment work task include of the participants

Regarding assignment work task, it was found that 142(49.8%) participants said that their assignment included work task (Figure no.8).

4.4.7.1: Assignment about work task perceived as stressful:

Table no. 16: Frequency distribution of the participants assignment about work task perceived as stressful

Stress perceive	Frequency	
	N	%
No	145	51.2
Stressful	19	7.0
Less stressful	31	10.7
Not stressful	90	29.8
Very stressful	4	1.3
Total	289	100.0

The study revealed that 19 (7%) participants perceived assignment work task include as a stress. It was also found that 90 (29.8%) subjects mentioned that work place goal clear was not stressful and 31 (10.7%) participants told that it was less stressful (Table no.16).

4.4.8. Making decisions concern workplace of the participants:

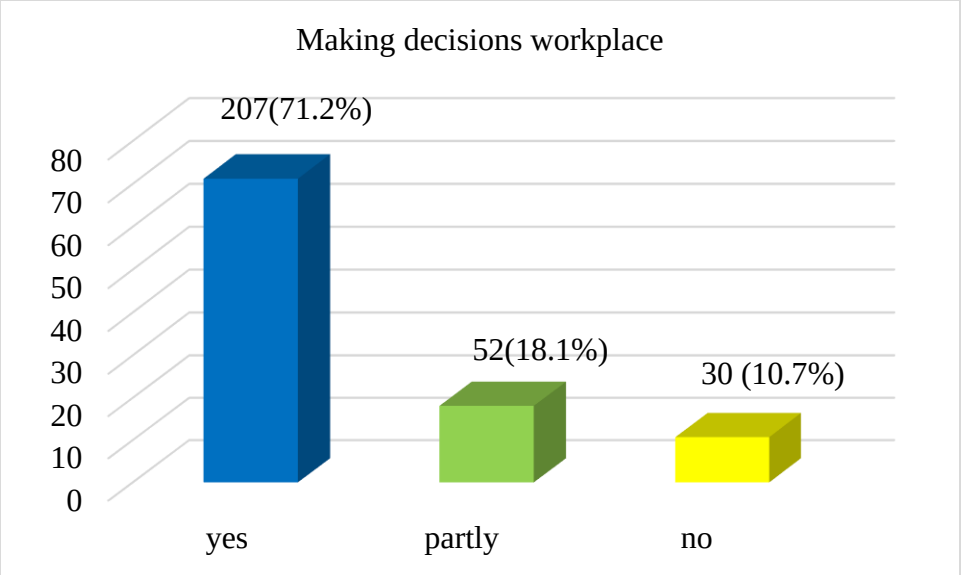

Figure 9: Making decisions workplace of the participants

Regarding decision-making at work, it was found that 207 (71.2%) participants said that someone else makes decisions at the workplace (Figure no.).

4.4.8.1: decisions making at the workplace Perceive as stressful:

Table no. 17: Frequency distribution of the participants decisions making at the workplace Perceive as stressful

Stress perceive	Frequency	
	N	%
No	205	71.2
Stressful	17	6.0
Less stressful	25	8.7
Not stressful	41	13.7
Very stressful	1	.3
Total	289	100.0

The study found that 17 (6%) participants perceived making decisions concern workplace as a stress. It was also found that 41 (13.7%) subjects mentioned that making decisions concern workplace was not stressful and 25 (8.7%) participants told that it was less stressful (Table no.17).

4.4.9. Conflicts at work of the participants:

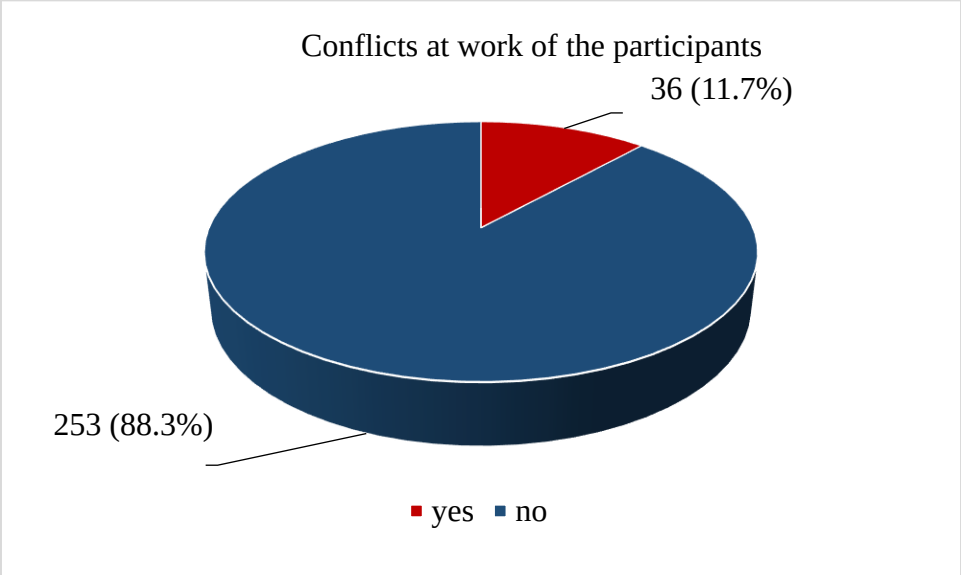

Figure 10: Conflicts at work of the participants

About conflict at work, it was found that 36(11.7%) participants said that they had conflicts at workplace (Figure no.10).

4.4.9.1 Conflicts at work workplace perceived as stressful:

Table no. 18: Frequency distribution of the participants conflicts at workplace perceived as stressful

Stress perceive	Frequency	
	N	%
No	253	88.0
Stressful	15	5.0
Less stressful	4	1.7
Not stressful	10	3.3
Very stressful	7	2.0
Total	289	100.0

The study showed that 15 (5%) participants perceived conflicts at workplace as a stress. It was also found that 10 (3.3%) subjects mentioned that conflicts at workplace was not stressful and 4 (1.7%) participants told that it was less stressful (Table no.18).

4.4.10. Involved any conflict at work of the participants:

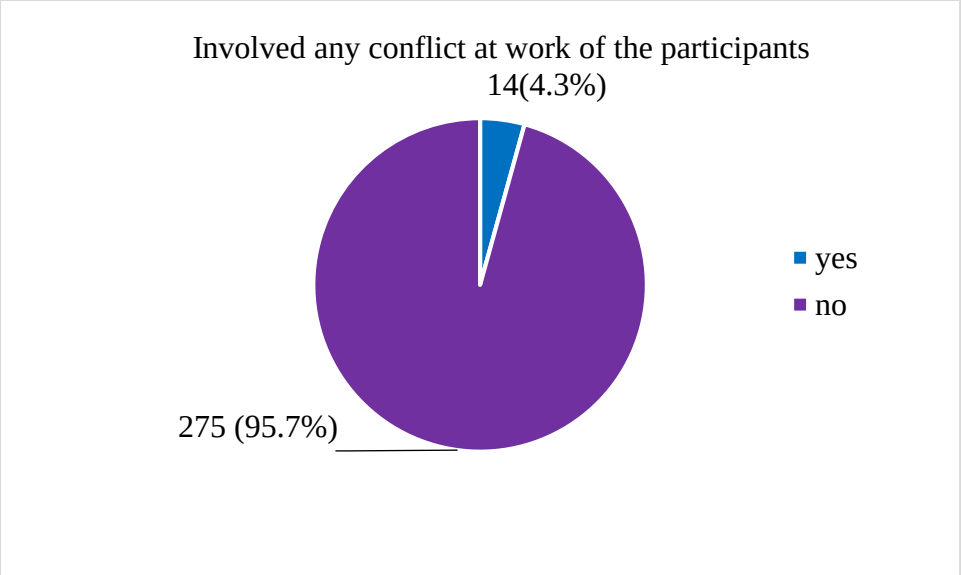

Figure 11: Involved any conflicts at work of the participants

About conflict at work, it was found that 14(4.3%) participants said that they were involved any conflicts at workplace (Figure no.11).

4.4.10.1: Involvement at any conflicts workplace perceived as stressful:

Table no. 19: Frequency distribution of the participant's involvement at any conflicts workplace perceived as stressful

Stress perceive	Frequency	
	N	%
No	275	95.7
Stressful	6	1.7
Less stressful	3	1.0
Not stressful	4	1.3
Very stressful	1	.3
Total	289	100.0

The study revealed that 6 (1.7%) participants perceived involved any conflicts at workplace as a stress. It was also found that 4 (1.3%) subjects mentioned that involved any conflicts at workplace was not stressful and 3 (1%) participants told that it was less stressful (Table no.19).

4.4.11. Supervisor done anything to solve the conflicts of the participants:

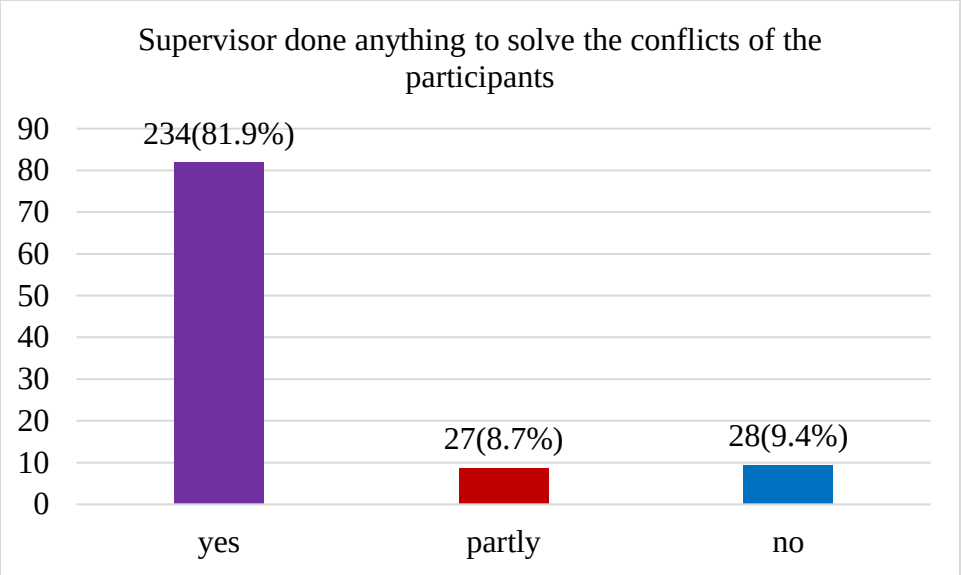

Figure 12: Supervisor done anything to solve the conflicts of the participants

Regarding conflict at work, it was found that 234 (81.9%) participants said that there were Supervisor done anything to solve the conflicts workplace (Figure no.12).

4.4.11. Supervisor done anything to solve the conflicts of the participants:

Table no. 20: Frequency distribution of the participant's supervisor activity anything to solve the workplace conflicts perceived as stressful

Stress perceive	Frequency	
	N	%
No	238	82.2
Stressful	17	5.4
Less stressful	16	5.7
Not stressful	16	5.4
Very stressful	2	.7
Total	289	100.0

The study showed that 17(5.4%) participants perceived Supervisor done anything to solve the conflicts as a stress. It was also found that 16 (5.4%) subjects mentioned that Supervisor done anything to solve the conflicts place was not stressful and 16 (5.7%) participants told that it was less stressful (Table no.20).

4.4.12. High demands at work of the participants:

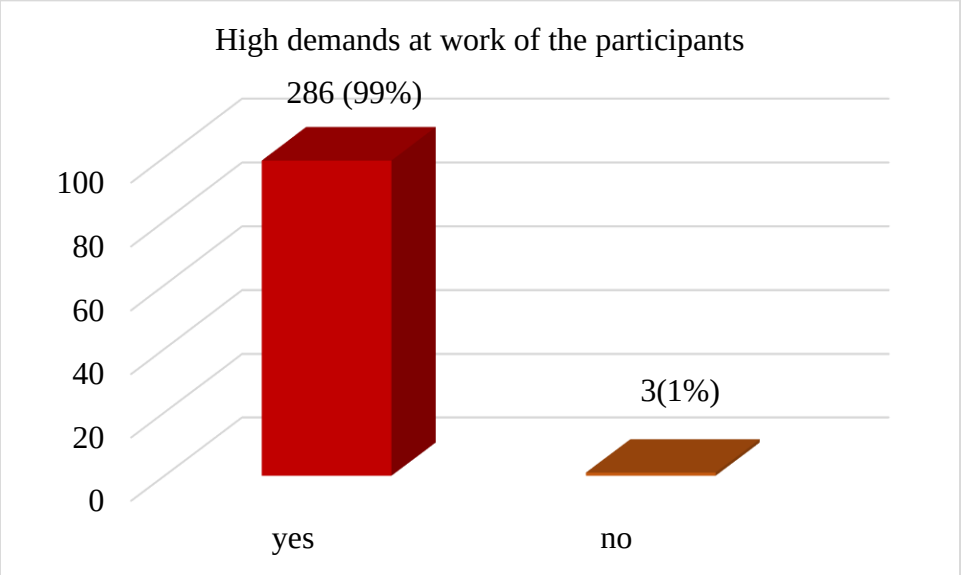

Figure 13: High demands at work of the participants

Regarding high demands at work, it was found that 286 (99%) participants said that they had high demands at work (Figure no.13).

4.4.12.1: High demands at work perceived as stressful:

Table no. 21: Frequency distribution of the participants high demands at work perceived as stressful

Stress perceive	Frequency	
	N	%
No	4	1.0
Stressful	56	20.4
Less stressful	40	12.4
Not stressful	185	64.5
Very stressful	54	1.7
Total	289	100.0

The study revealed that, 56 (20.4%) participants perceived high demands at work as a stress. It was also found that 185 (64.5%) subjects mentioned that high demands at work was not stressful and 40 (12.4%) participants told that it was less stressful (Table no.21).

4.4.13. Engaged in work of the participants:

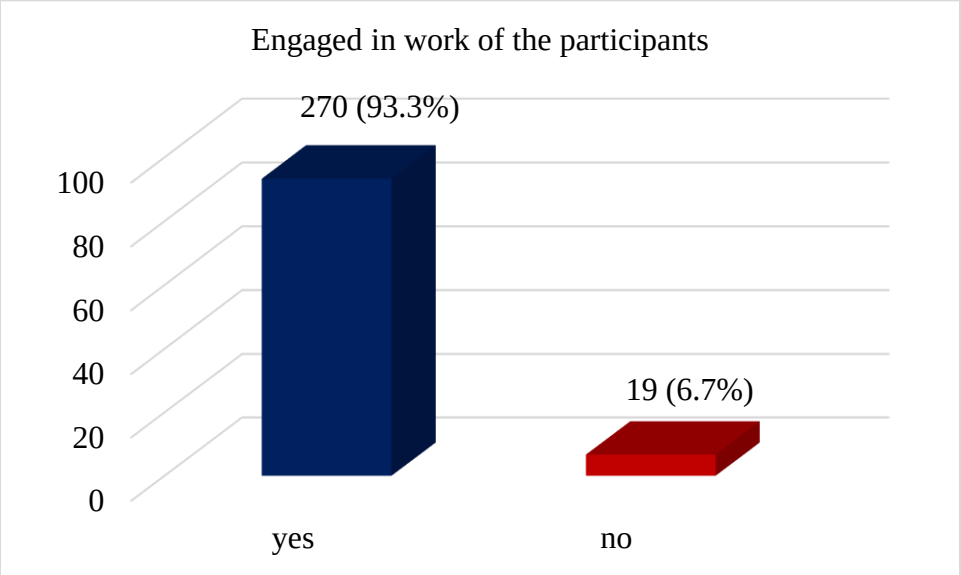

Figure 14: Engaged in work of the participants

About engagement in work, it was found that 270 (93.3%) participants said that they engaged in work (Figure no.14).

4.4.13.1: Engaged at work perceived as stressful:

Table no. 22: Frequency distribution of the participant's engagement at work perceived as stressful

Stress perceive	Frequency	
	N	%
No	20	7.0
Stressful	69	24.1
Less stressful	59	19.4
Not stressful	130	45.2
Very stressful	11	4.3
Total	289	100.0

The study found that, 69 (24.1%) participants perceived engaged in work as a stress. It was also found that 130 (45.2%) subjects mentioned that high demands at work was not stressful and 59 (19.4%) participants told that it was less stressful (Table no.22).

4.4.14: Think work after working day of the participants:

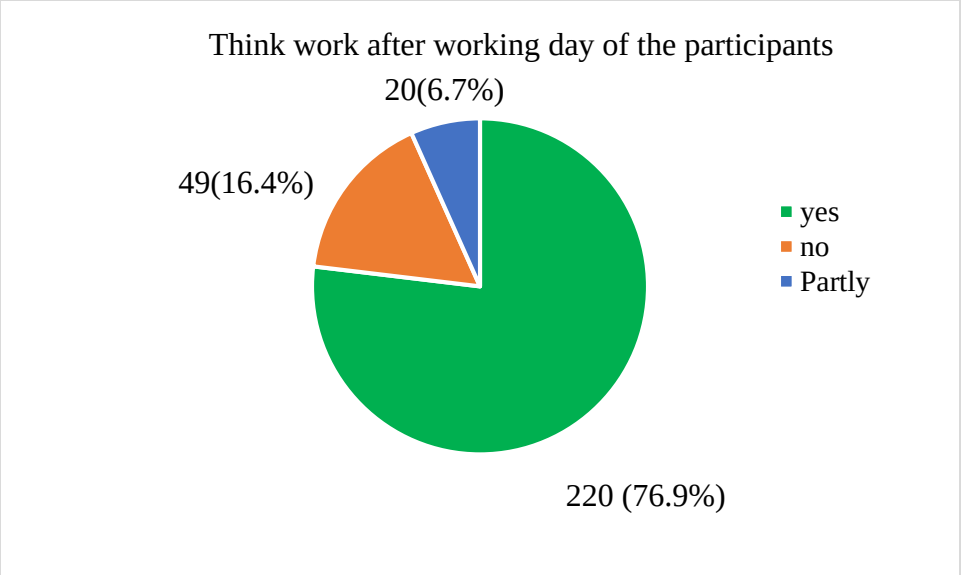

Figure 15: Think work after working day of the participants

Regarding thinking about work, it was found that 220 (76.9%)) participants said that they think about working after working day (Figure no.15).

4.4.14.1: Thought about work after working day perceived as stressful:

Table no. 23: Frequency distribution of the participants thought about work after working day perceived as stressful

Stress perceive	Frequency	
	N	%
No	215	7.0
Stressful	12	24.1
Less stressful	17	19.4
Not stressful	45	45.2
Very stressful	0	4.3
Total	289	100.0

The study revealed that, 12 (24.1%) participants perceived think work after working day as a stress. It was also found that 45 (45.2%) subjects mentioned that think work after working day was not stressful and 17 (19.4%) participants told that it was less stressful (Table no.23).

4.4.15. Hard to set limit work assignment of the participants:

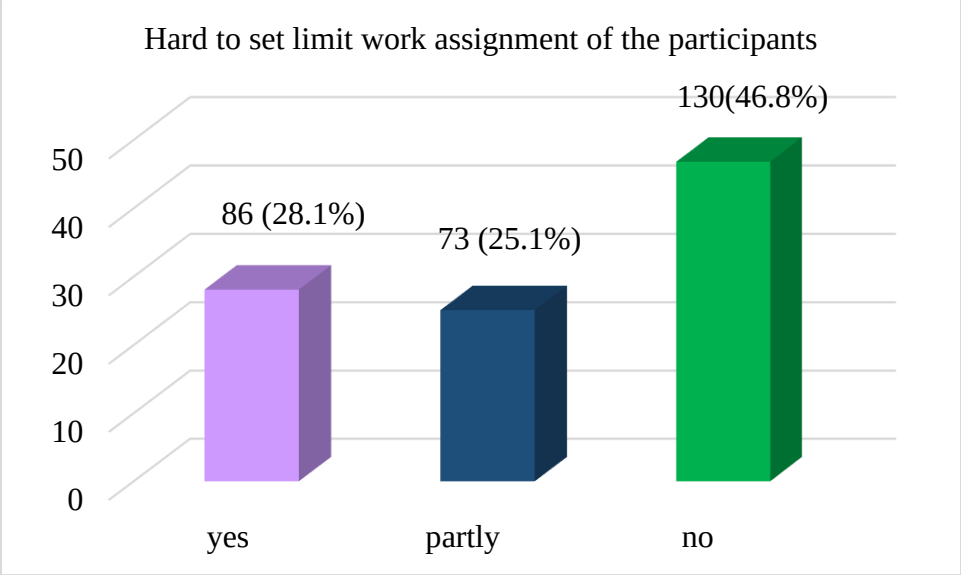

Figure 16: Hard to set limit work assignment of the participants

About hard to set limited work assignments, it was found that 86 (28.1%) participants said that they had hard to set limit work assignment (Figure no.16).

4.4.15.1: limitation to said work assignment perceived as stressful:

Table no. 24: Frequency distribution of the participants limitation to said work assignment perceived as stressful

Stress perceive	Frequency	
	N	%
No	128	44.8
Stressful	72	24.7
Less stressful	49	16.7
Not stressful	38	13.0
Very stressful	2	.7
Total	289	100.0

The study showed that, 72 (24.7%) participants perceived hard to set limit work assignment as a stress. It was also found that 38 (13%) subjects mentioned that hard to set limit work assignment was not stressful and 49 (16.7%) participants told that it was less stressful (Table no.24).

4.4.16. Take more responsibility at work of the participants:

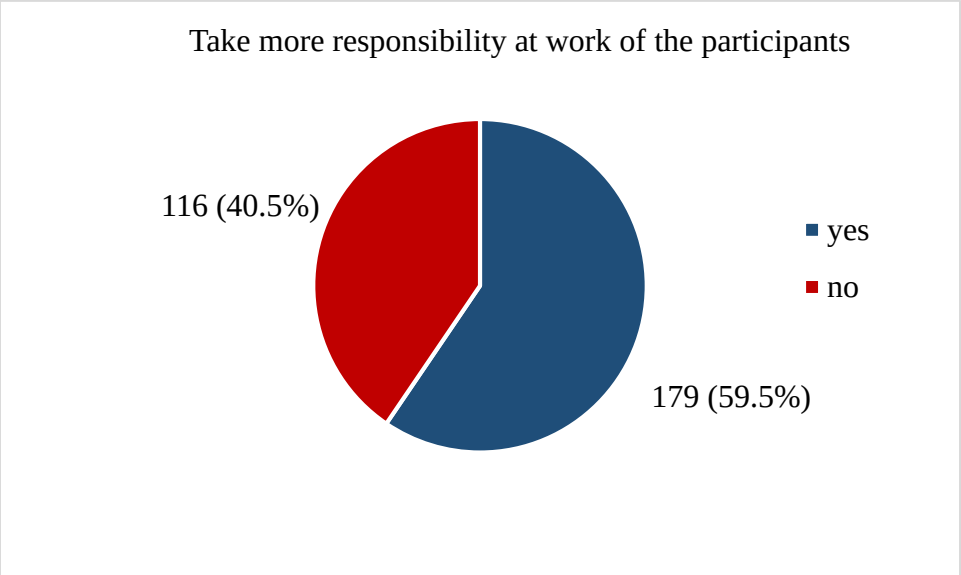

Figure 17: Take more responsibility at work of the participants

Regarding responsibility at work, it was found that 179 (59.5%) participants said that they take more responsibility than they do at work (Figure no.17).

4.4.16.1: Taking more work responsibility perceived as stressful:

Table no. 25: Frequency distribution of the participants taking more work responsibility perceived as stressful

Stress perceive	Frequency	
	N	%
No	115	40.8
Stressful	71	24.7
Less stressful	27	8.0
Not stressful	66	23.4
Very stressful	8	3.0
Total	289	100.0

The study found that, 71(24.7%) participants perceived take more responsibility at work as a stress. It was also found that 66 (23.4%) subjects mentioned that take more responsibility at work was not stressful and 27 (8%) participants told that it was less stressful (Table no.25).

4.4.17: After working hour, finish assignments of the participants:

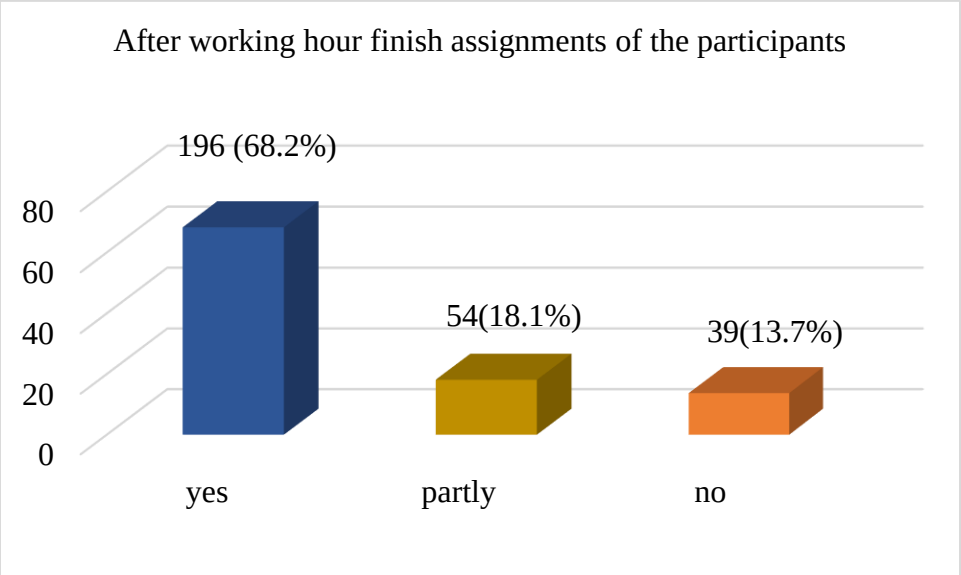

Figure 18: After working hour finish assignments of the participants

Regarding finishing assignments, it was found that 196 (68.2%) participants said that they work after the specified time to finish the assignments (Figure no.18).

4.4.17.1: Finish assignments deadline after working hour perceived as stressful:

Table no. 26: Frequency distribution of the participants finish assignments deadline after working hour perceived as stressful

Stress perceive	Frequency	
	N	%
No	38	13.4
Stressful	75	25.4
Less stressful	67	22.4
Not stressful	94	33.4
Very stressful	15	5.4
Total	289	100.0

The study showed that, 75 (25.4%) participants perceived after working hour finish assignments at work as a stress. It was also found that 94 (33.4%) subjects mentioned that after working hour finish assignments was not stressful and 67 (22.4%) participants told that it was less stressful (Table no.26).

4.4.18: Hard sleep occupied with work of the participants:

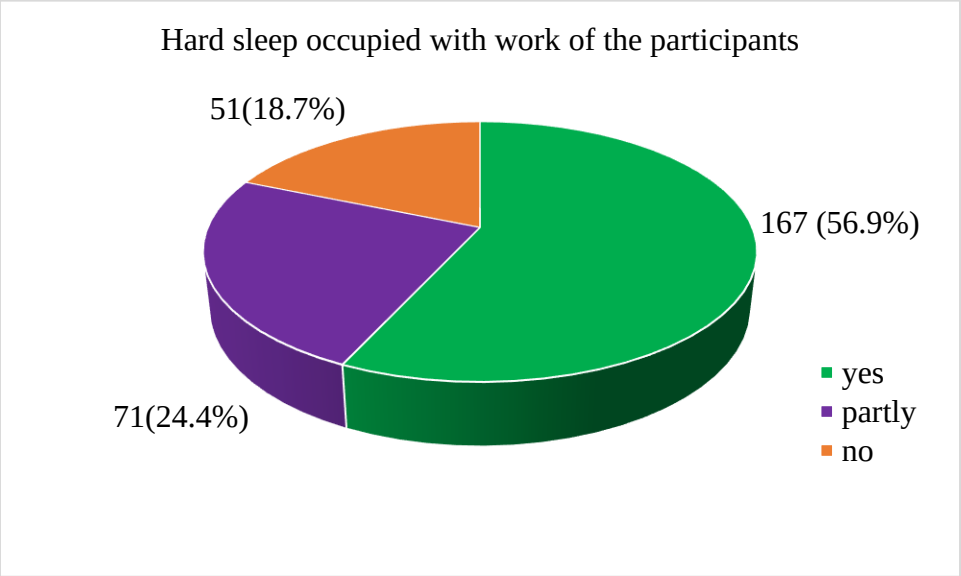

Figure 19: Hard sleep occupied with work of the participants

Regarding sleeping it was found that 167(56.9%) participants told that due to work pressure it is difficult to sleep (Figure no.19).

4.4.18.1: finding hard to sleep with workload perceived as stressful:

Table no. 27: Frequency distribution of the participants finding hard to sleep with workload perceived as stressful

Stress perceive	Frequency	
	N	%
No	50	18.1
Stressful	97	32.8
Less stressful	81	27.8
Not stressful	40	14.7
Very stressful	221	6.7
Total	289	100.0

The study revealed that, 97 (32.8%) participants perceived hard sleep occupied with work as a stress. It was also found that 40 (14.7%) subjects mentioned that hard sleep occupied with work was not stressful and 81 (27.8%) participants told that it was less stressful (Table no.27).

4.4.19: Find time to be with nearest of the participants:

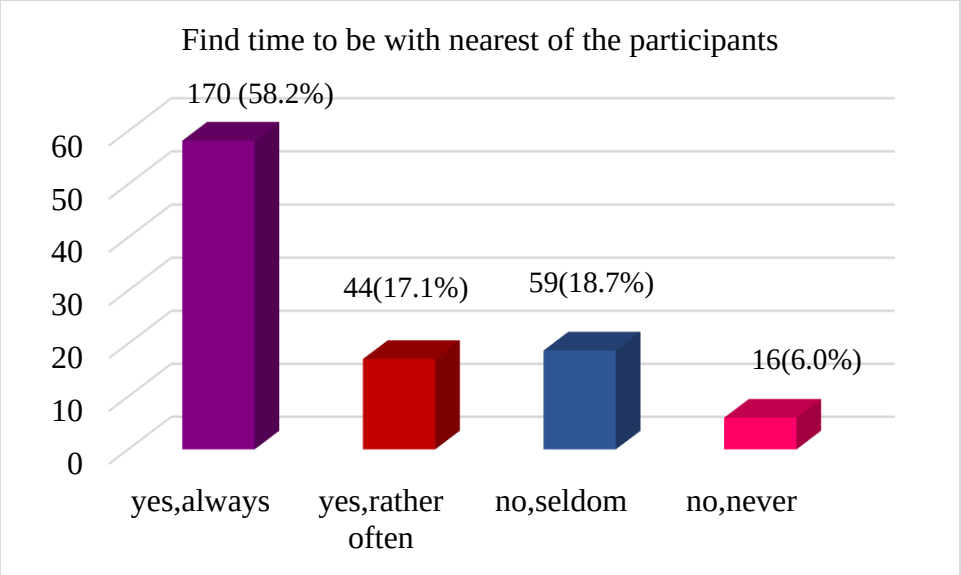

Figure 20: Find time to be with nearest of the participants

About 152 (52.6%) participants said it is difficult to find time for nearest due to busy work. It was also found that 44(17.1%) participants said that finding time for close people but rather often, 59(18.7%) participants seldom and 16(6.0%) participants no never find it difficult to find time for nearest due to busy work (Figure no.20).

4.4.20: Find time to be with friends of the participants:

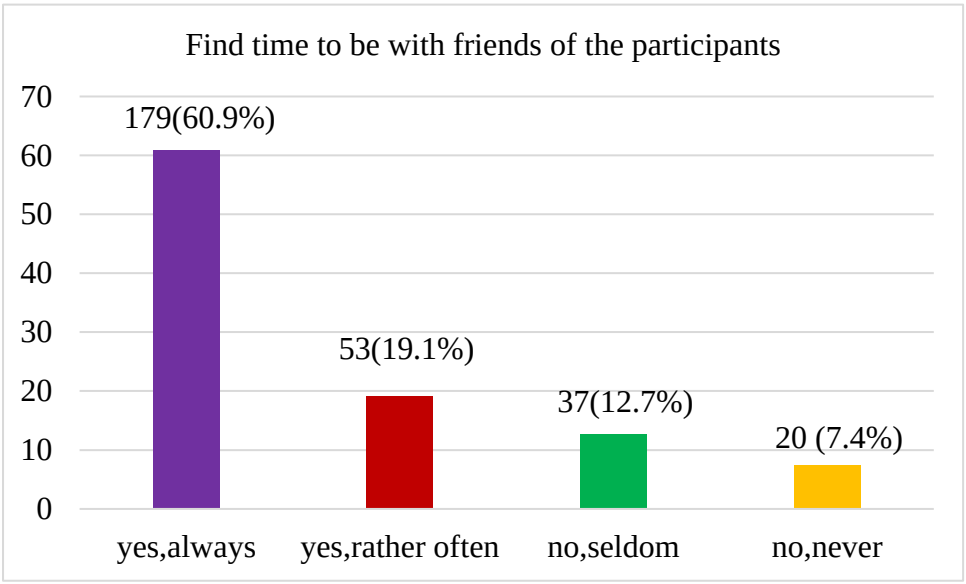

Figure 21: Find time to be with friends of the participants

About 179(60.9%) participants told that it is difficult to find time for friends due to busy work. It was also found that 53(19.1%) participants told that finding time

for nearest but rather often, 37(12.7%) participants seldom and 20 (7.4%) participants never find it difficult to find time for friends due to busy work (Figure no.21).

4.4.21: Find time to be with recreational activities of the participants:

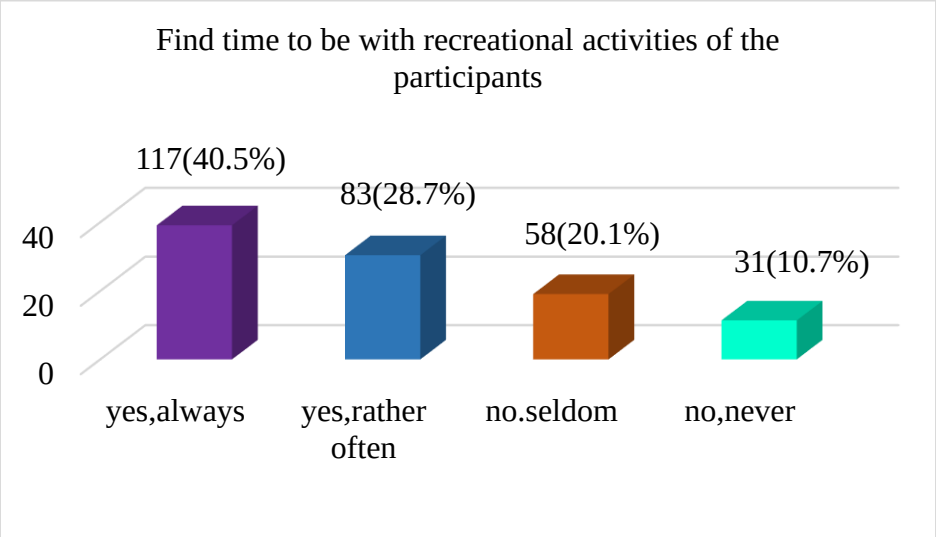

Figure 22: Find time to be with recreational activities of the participants

About 117(40.5%) participants told that it is difficult to find time for recreational activities due to busy work. It was also found that 83 (28.7%) participants told that finding time for recreational activities but rather often, 58(20.1%) participants seldom and 31(10.7%) participants never find it difficult to find time for recreational activities due to busy work (Figure no.22).

4.5 Association

4.5.1: Association between age and pain complaints in participants:

Table no. 28: Frequency distribution of the participants by age and pain complaints.

Age group	Pain				Total	
	Yes		No			
	N	%	N	%	N	%
18 - 28 years	26	18.84	112	81.16	138	47.8
29 - 39 years	31	30.09	72	69.91	103	35.6
40 - 50 years	12	25.00	36	75	48	16.6
Total	69	23.87	220	76.12	289	100

$\chi^2 = 4.152$, $df = 2$, $p = 0.125$

Regarding frequency distribution of the participants by age and pain, it was found that 138 (47.8%) participants belong to the age group of 18 - 28 years. Among them 26 (18.84%) participants had pain. In case of 29 – 39 years of age group, it was 31 (30.09%) participants had pain. It was revealed that 12 (25.00%) participants of 40 – 50 years age group had pain. The association between age and pain was found statistically not significant ($\chi^2 = 4.152$, $df = 2$, $p = 0.125$) [Table no. 28].

4.5.2: Association between experience and perceiving stress in Participants:

Table no. 29: Frequency distribution of the participants by experience (Year) and perceiving stress

Experience (Year)	Perceiving stress						Total	
	Yes		Partly		No			
	N	%			N	%	N	%
1 - 5	75	50	42	28	33	22	150	52
6 - 10	29	64.44	11	24.44	5	11.12	45	15.5
>10	63	67.02	18	19.15	13	13.83	94	32.5
Total	167	57.79	71	24.57	51	17.65	289	100

$\chi^2 = 8.625$, df = 4, $p = 0.071$

About frequency distribution of the participants by experience and perceiving stress, it was found that 150 (52%) participants belong to the experiance of 1 - 5 years. Among them 75 (50%) yes and partly 42 (28%) participants had perceiving stress. In case of 6 - 10 years of experiance, it was 29 (64.44%) yes and partly 11 (24.44%) participants had perceiving stress. It was revealed that 63 (67.02%) yes and partly 18 (19.15%) participants of > 10 years experiance had perceiving stress. The association between experience and perceiving stress was found statistically near significant ($\chi^2 = 8.625$, df = 4, $p = 0.071$) [Table no. 29].

CHAPTER-V DISCUSSION

The present study was carried out with the objective of determining the occupational stress factors and musculoskeletal complaints among the firefighters working in Dhaka city. The collected data were analyzed with the Microsoft Office Excel 2016 with SPSS 25 version software program. The discussion of the result has been presented in the following section.

About distribution of the participants by age group in years, it was revealed that 47.8% firefighters belonged to the age group of 18 - 28 years. It was also found that 35.6% firefighters were in the age group of 29 – 39 years. The mean age of the participants was 30.50 and SD was 7.86 (Table no.1). Moreover, all the participants were male in this study. Ras and leach, found that the mean age and SD of population was 37.53 ± 9.05. It was found that 19.4% participants were in the age group of 20-29 years, 44.4% participant age 30-39 years (Ras and leach, 2022). Soteriades et al. showed that 88.4% participants were male and 11.6% were female (Soteriades et al., 2019). but in this study 289 participants were male.

Revealed distribution of the participants by BMI, it was found that BMI of 72.7% participants had normal weight 18.5-24.9, 24.6% of participants had over weight 25.-29.9. The mean and standard deviation of BMI of participants was 23.67 and 2.384 (Table no.2). In a similar study founded that (39.1%) of participants <25, 47.4% of participants 25-<30 and 12.3% of participants ≥ 30 (Soteriades et al., 2019).

About marital status, it was revealed that 70.2% firefighters were married and 29.8% firefighters were unmarried (Figure no.1) and experience in years, it was found that 51.9% participants had 1-5 years of experience. It was also found that 32.5% study subjects had experience more than 10 years (Table no.7). Another Study shows that Married 7(41.2%) Unmarried 10(58.8%) and find that experience (Years of service) 58.8% participants was 1-5years. 17.7% participants was 6-10 years. 17.7% participants was 11-15 years. 5.8% participants was 16-20years (Nilamsari, Prihatinijgsih and Kualaningtyas., 2019).

The study revealed that, 15.6% firefighters had the habit of smoking (Table no.5). In addition, educational status of the firefighters, 35.3% participants passed SSC, 54.7% study subjects were HSC holder (Table no.2). Another study found that 47.5% smoker and 52.5% non-smoker. They also had SSC or below 37%,

HSC holder 2.7% (Chen et al., 2020). The study revealed that, 80.6% study subjects had rotational duty. It was also found that 19.4% participant's duty were fixed (Table no.6). Another study found that working status Normal hours; work 1 day and off 1 day; work 2 days and off 1 day (Hsu et al.,2021).

The study showed that participants neck pain (30.8%), shoulder (4.8% right, 2.8% left, 9.7% both), elbow (3.1% right, 2.1% left, 3.1% both), wrist (5.2% right, 3.8% left, 7.3% both), upper back (24.2%), lower back (23.9%), hip (6.9% right, 3.1% left, 4.2% both), knee (4.5% right, 3.5% left, 15.9% both) and ankle (4.8% right, 1.4% left, 14.2% both) had pain and discomfort in last 12 months. In addition, neck 30.8%, shoulder 17.3%, elbow 8.3%, wrist 15.9%, upper back 23.5%, lower back 22.8%, hip 13.8%, knee 23.5%, ankle 79.2% participants had been prevented from works in last 12 months during work and trouble at any time during last 7days (Table no.13).

Another study found that, frequently reported musculoskeletal symptoms were back pain (26%), shoulder pain (20.6%), knee problems (20.1%), neck pain (18.5%), upper extremities (10.3%), upper back (9.4%), and ankles (5.5%) (Soteriades et al., 2019).

In a similar study founded his study **(**35.3%) of firefighters reported having a shoulder injury that was the most prevalent musculoskeletal injury in firefighters, followed by multiple injuries in (26.5%), back injuries in (14.7%), knee injuries in (11.8%), neck and vertebra injuries in (5.9%) and lower limb fractures in (5.9%) (Ras and leach, 2022).

About finishing assignment in time 52.6%, participants told that they finish their assignment always in time. (Figure no.18). Regarding Influence decision at work, 16.6% participants told that they decision at work (Figure no.3). About consideration of supervisor, 51.9% participants told that they consider supervisor views (Figure no.4). Regarding decide work place 33.6% participants told that they decide (Figure no.5). About increased workload, it was found that 97% participants told that their workload was increased (Figure no.6) and 90.6% participants told that they work place goal clear (Figure no.7).

This study found that 49.8% participants told that they assignment work task include (Figure no.8) and 71.2% participants said that someone else makes

decisions at the workplace (Figure no.8). About conflict at work, it was found that 11.7% participants said that they had conflicts at workplace (Figure no.10) and 4.3% participants involved any conflicts at workplace (Figure no.11) About conflict at work, it was found that 81.9% participants said that there were Supervisor done anything to solve the conflicts workplace (Figure no.12).

About high demands at work, it was revealed that 99% participants said that they had high demands at work (Figure no.13). This study found that engagement in work, it was found that 93.3% participants said that they engaged in work (Figure no.14) and 76.9% participants said that they think work after working day (Figure no.15). About hard to set limited work assignments, it was found that 28.1% participants said that they had hard to set limit work assignment (Figure no.16).

This study found that responsibility at work, it was revealed that 59.5% participants said that they take more responsibility than they do at work (Figure no.17). Regarding finishing assignments, it was found that 68.2% participants said that they work after the specified time to finish the assignments (Figure no.18) and sleeping it was found that 56.9% participants told that due to work pressure it's difficult to sleep (Figure no.19).

About 52.6% participants said it is difficult to find time for nearest due to busy work (Figure no.20). It was also found that 60.9% participants told that it is difficult to find time for friends due to busy work (Figure no.21) And 117(40.5%) participants told that it is difficult to find time for recreational activities due to busy work (Figure no.22).

In a similar study founded that their study to assess depression, anxiety and stress were also assesse using the Depression, Anxiety and Stress Scale (DASS). Using the DASS stress scale, was found that 83.3%, 5.5%, 7.7%, 3.1% and 0.5% of the sample were categorized into the normal, mild, moderate, severe, and extremely severe sub-category of stress, respectively (Soteriades et al., 2019).

In addition, study found that, the short form of the Korean Occupational Stress Scale (KOSS-26) measured the job stress factors. Found that physical environment,at odds ratio of 2.31 (95% CI, 2.03 - 2.62); job demand, at 1.55 (95% CI, 1.38 - 1.74); Interpersonal conflict, at 1.15 (95% CI, 1.03 - 1.29); job insecurity, at 1.13

(95% CI, 1.02 - 1.25); organizational system, at 1.24 (95% CI, 1.10 - 1.38), and occupational climate, at 1.33 (95% CI, 1.19 (kim et al., 2013).

Regarding frequency distribution of the participants by age and pain, it was found that 138 (47.8%) participants belong to the age group of 18 - 28 years. Among them 26 (18.84%) participants had pain. In case of 29 – 39 years of age group, it was 31 (30.09%) participants had pain. It was revealed that 12 (25.00%) participants of 40 – 50 years age group had pain. The association between age and pain was found statistically not significant (χ^2 = 4.152, *df* = 2, *p* = 0.125) [Table no. 28] and frequency distribution of the participants by experience and perceiving stress, it was found that 150 (52%) participants belong to the experience of 1 - 5 years. Among them 75 (50%) yes and partly 42 (28%) participants had perceiving stress. In case of 6 - 10 years of experience, it was 29 (64.44%) yes and partly 11 (24.44%) participants had perceiving stress. It was revealed that 63 (67.02%) yes and partly 18 (19.15%) participants of > 10 years experience had perceiving stress. The association between experience and perceiving stress was found statistically near significant (χ^2 = 8.625, df = 4, *p* = 0.071) [Table no. 29]. Another study found there was a significant association between work related injury (WRIs) and age, work experience, physical condition, impaired vision, difficulty in breathing (due to smoke and toxic gases), lifting weight (P < 0.05) (Katsavouni et al.,2016).

CHAPTER-VI CONCLUSION AND RECOMMENDATION

7.1 Conclusion

Occupational stress was a significant factor affecting the emotional and physical well-being of firefighters, who work in hazardous jobs. One of the riskiest and most difficult jobs is combating fires. An annual number of firefighters perish while performing their duties at challenging fires. Due to the high danger of work-related trauma and injuries, firefighters are exposed to substantial health risks. Firefighters had to fulfill a variety of challenges as part of their job, which extended beyond fighting fires. These jobs include ice-water rescues, marine rescues, air rescues, car lifts, railroad derailments, confined space or high-angle rescues, and automobile accidents.

It was a cross-sectional type of descriptive study carried out with the objective of determining the occupational stress factors and musculoskeletal complaints among firefighters in Dhaka city. Data were collected from a sample size of 289 firefighters from different fire service stations in Dhaka city of Bangladesh. Self-administered questionnaire method was used to collected data. Nordic Questionnaire was used for collection information on musculoskeletal complaints and the work stress questionnaire was used for occupational stress factors. Descriptive analysis was done by SPSS-25 version program according to the objectives of the study.

About distribution of the participants by age group in years, it was revealed 47.8% firefighters belonged to the age group of 18 - 28 years. The mean and standard deviation of age of the participants was 30.50 and 7.86 and all the participants were male in this study.

Regarding distribution of the participants by BMI, it was found that BMI of 72.7% participants had normal weight 18.5-24.9. The mean and standard deviation of BMI of participants was 23.67 and 2.384. About marital status, it was revealed that 70.2% firefighters were married and experience in years, it was found that 51.9% participants had 1-5 years of experience. The study revealed that, 15.6% firefighters had the habit of smoking. In addition, educational status of the firefighters, 54.7% study subjects were HSC holder. The study revealed that, 80.6% study subjects had rotational duty.

The study showed 289 peoples were participants, among them neck pain 30.8%, shoulder 9.7%, elbow 3.1%, wrist 7.3%, upper back 24.2%, lower back 23.9%, hip 4.2%, knee 15.9% and ankle 14.2% had pain and discomfort in last 12 months.

Regarding the increased workload, it was found that 97% participants told that their workload was increased among which (49.2%) participants perceived workload as a stressful. It was also found that 56.9% participants told that it's difficult to sleep due to work pressure out of which (32.8%) participants perceived it as stress and (59.5%) participants said that they take more responsibility than they do at work among which 24.7% participants perceived take more responsibility at work as a stressful. In addition, 52.6% participants said it is difficult to find time for nearest due to busy work.

Physiotherapy is effective for pain management in different parts of the body at the same time physiotherapy is very helpful for combating the musculoskeletal problems of firefighters. So, physiotherapy services should be arranged in the country's fire stations. Firefighters face a great deal of stress due to several circumstances. Their job pressure has increased, they are having difficulty sleeping because of it, and they are thinking about work even when they are not working. They must therefore always be under stress. As a result, it is advised that fire station officers take the necessary precautions to avoid overworking the firefighters.

7.2 Recommendation

Musculoskeletal pain among the firefighters was found to be due to heavy weight lifting and heavy uniform. Musculoskeletal problems were burden for Bangladesh firefighters. For this reason, it is important to develop physiotherapy practice for firefighters and every fire station should be a job opportunity for physiotherapist.

Physiotherapy for health risk of firefighters is newly introduced in Bangladesh. It is crucial to develop research-based findings about musculoskeletal condition among the firefighters.

Physiotherapy services should be available for the firefighters having musculoskeletal problems. Proper physiotherapy treatment can reduce symptoms, prevent complications, and increase postural awareness. So it is recommended that the next generation of physiotherapy members continue to study reading this area, this may involve use of large sample size and participant from different district and division level of Bangladesh where physiotherapists can work.

Physiotherapy is effective for pain management in different parts of the body At the same time physiotherapy is very helpful for combating the musculoskeletal problems of the firefighters. So, there should be arrangement of physiotherapy service in the fire stations in the country.

On the other hand, stress-related factors put firefighters under a lot of stress. Their work pressure has increased, they have trouble sleeping due to work pressure, and they think about work even in their free time. Due to which they always have to be under stress. Therefore, it is recommended that Fire Station Officers should take adequate measures not to overload the firefighters.

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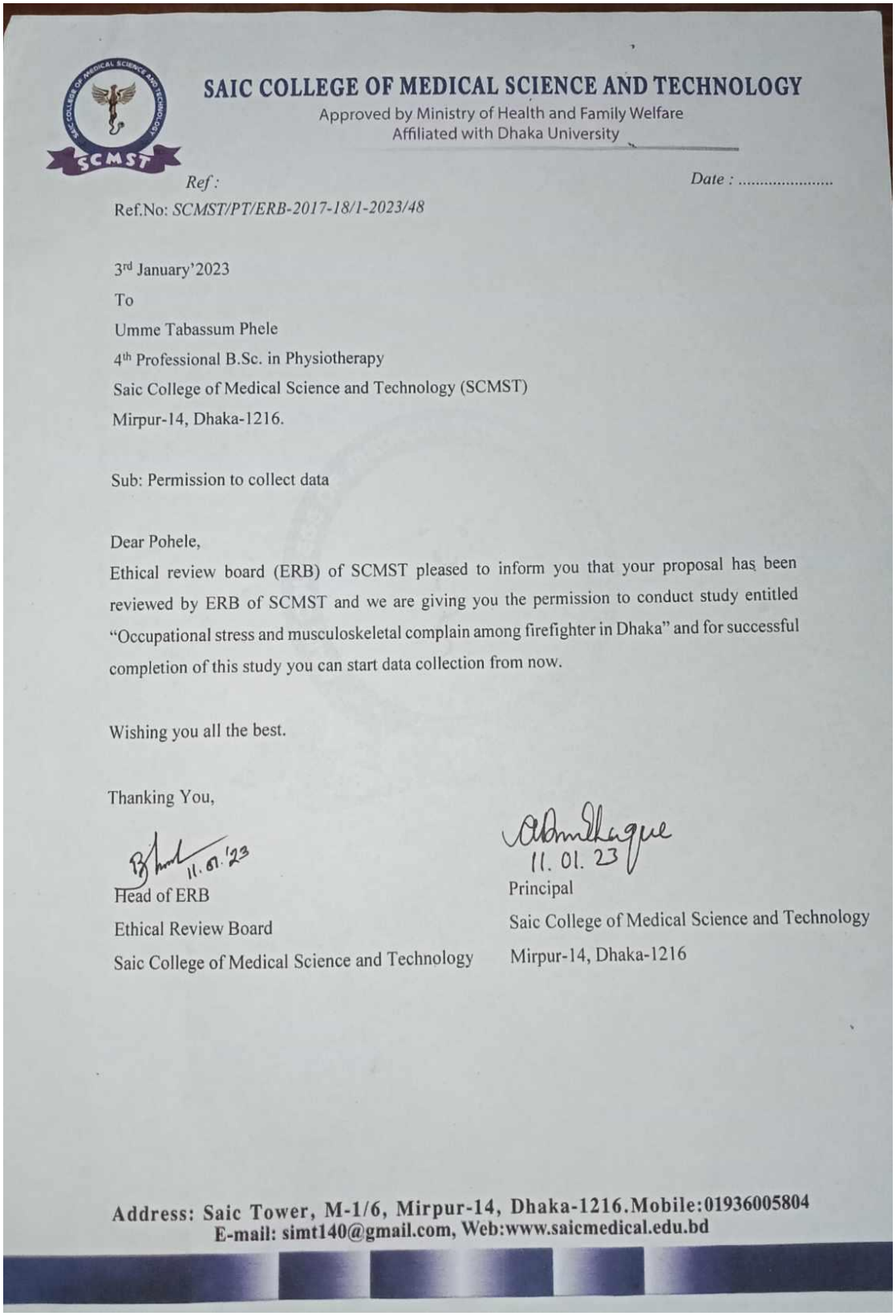
APPENDIX- A

Ethical Review Board (EBR) Permission Letter



SAIC COLLEGE OF MEDICAL SCIENCE AND TECHNOLOGY
Approved by Ministry of Health and Family Welfare
Affiliated with Dhaka University

Ref : *Date :* .....

Ref.No: *SCMST/PT/ERB-2017-18/1-2023/48*

3rd January'2023

To
Umme Tabassum Phele
4th Professional B.Sc. in Physiotherapy
Saic College of Medical Science and Technology (SCMST)
Mirpur-14, Dhaka-1216.

Sub: Permission to collect data

Dear Pohele,

Ethical review board (ERB) of SCMST pleased to inform you that your proposal has been reviewed by ERB of SCMST and we are giving you the permission to conduct study entitled "Occupational stress and musculoskeletal complain among firefighter in Dhaka" and for successful completion of this study you can start data collection from now.

Wishing you all the best.

Thanking You,

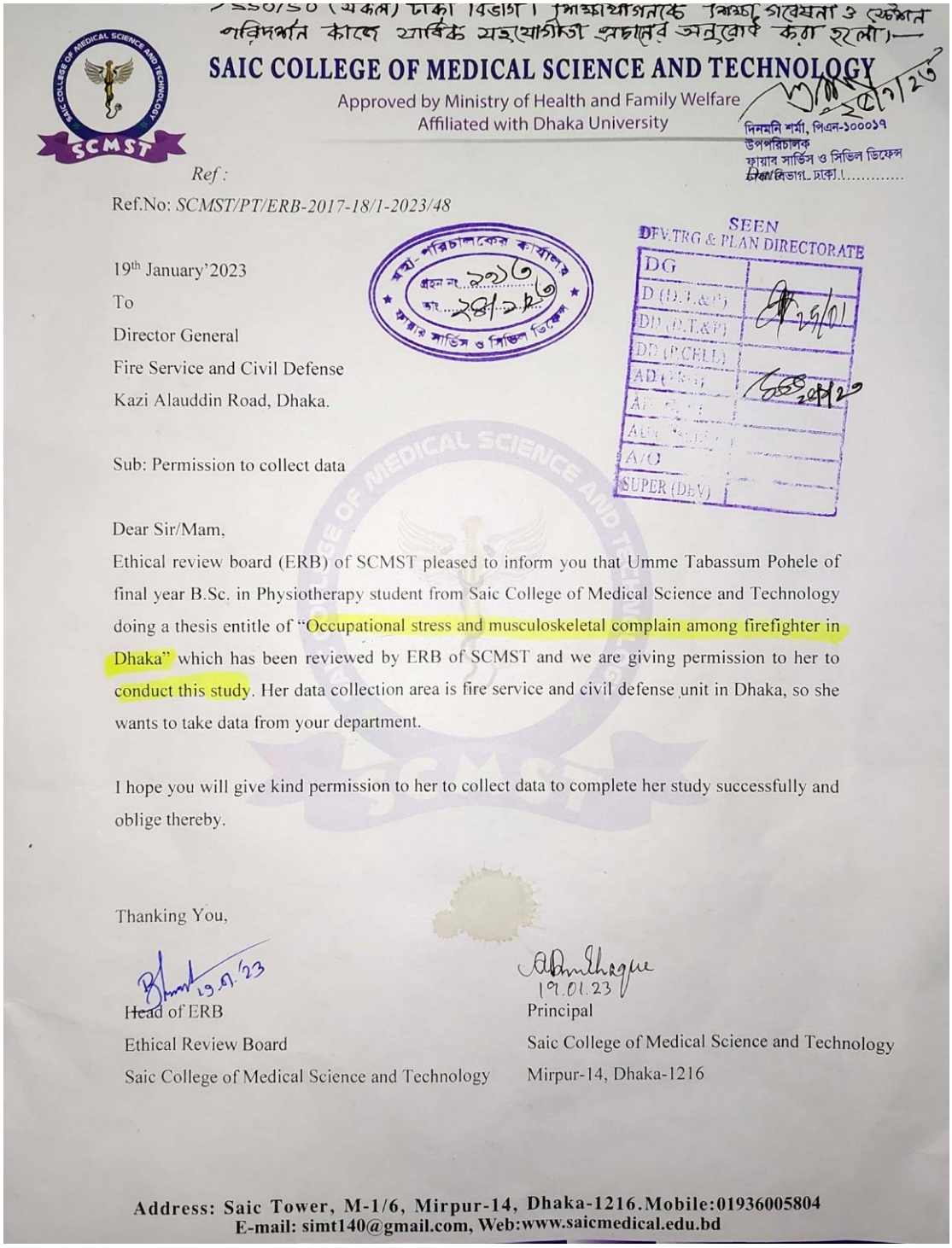
11.01.'23
Head of ERB
Ethical Review Board
Saic College of Medical Science and Technology

11.01.23
Principal
Saic College of Medical Science and Technology
Mirpur-14, Dhaka-1216

Address: Saic Tower, M-1/6, Mirpur-14, Dhaka-1216.Mobile:01936005804
E-mail: simt140@gmail.com, Web:www.saicmedical.edu.bd

APPENDIX- B

Permission letter for data collection



২৫০/১৩ (একল) ঢাকা বিভাগ। শিক্ষার্থীগনকে শিক্ষা গবেষনা ও ফেইল পরিদর্শন কাজে সার্বিক সহযোগিতা প্রদানের অনুরোধ করা হলো।—

SAIC COLLEGE OF MEDICAL SCIENCE AND TECHNOLOGY

Approved by Ministry of Health and Family Welfare
Affiliated with Dhaka University

দিলমনি শর্মা, পিএন-১০০০১৭
উপপরিচালক
ফায়ার সার্ভিস ও সিভিল ডিফেন্স
ঢাকা বিভাগ, ঢাকা।

Ref :

Ref.No: *SCMST/PT/ERB-2017-18/1-2023/48*

স্বাঃ-পরিচালকের কার্যালয়
গ্রহন নং ২০১৩
তাং ২৪/১/২৩
ফায়ার সার্ভিস ও সিভিল ডিফেন্স

SEEN
DFV.TRG & PLAN DIRECTORATE
DG
D (D.T.&P)
DD (P.T.&P)
DD (P.CELL)
AD
A/O
SUPER (DeV)

19th January'2023

To
Director General
Fire Service and Civil Defense
Kazi Alauddin Road, Dhaka.

Sub: Permission to collect data

Dear Sir/Mam,

Ethical review board (ERB) of SCMST pleased to inform you that Umme Tabassum Pohele of final year B.Sc. in Physiotherapy student from Saic College of Medical Science and Technology doing a thesis entitle of "Occupational stress and musculoskeletal complain among firefighter in Dhaka" which has been reviewed by ERB of SCMST and we are giving permission to her to conduct this study. Her data collection area is fire service and civil defense unit in Dhaka, so she wants to take data from your department.

I hope you will give kind permission to her to collect data to complete her study successfully and oblige thereby.

Thanking You,

19.01.23
Head of ERB
Ethical Review Board
Saic College of Medical Science and Technology

19.01.23
Principal
Saic College of Medical Science and Technology
Mirpur-14, Dhaka-1216

Address: Saic Tower, M-1/6, Mirpur-14, Dhaka-1216.Mobile:01936005804
E-mail: simt140@gmail.com, Web:www.saicmedical.edu.bd

APPENDIX- C

Consent from (English)

Respondent ID: | | | |

Dear participant,

I am Umme Tabassum Pohele, student of B.Sc. in physiotherapy program in the department of Saic College of Medical Science & Technology (SCMST) which is affiliated Dhaka University. I am conducting the study entitled **"Occupational stress factors and musculoskeletal complaints among firefighters in Dhaka city"** as a part of my thesis work for the partial fulfilment of B.Sc. in physiotherapy degree. There are the lists of question you need to fill- up which is include socio-demographic, information related, disease related and treatment related questions. For spending your time to participate in this self- administered interview, which will take around 15-20 minutes. There is list of questionnaires and you need to fill up each answer. The information gained from this questionnaire will be used to academic purposes and will be kept confidential. Your participation in this study is totally voluntarily and you have the right to withdraw from the interview without any clarification at any moment. You can ask any question to the researcher regarding the study to meet up your quarry. Looking forward your kind cooperation.

Declaration of the participant

I have been invited to participate in this survey. The foregoing information has been read to me and that have been answered to my satisfaction. I have noticed participation in this study is voluntary and I have the right to withdraw from the interview at any clarification. I give my consent voluntarily to be participants in this study.

Respondent name: Witness name:

Signature and date: Signature and date:

APPENDIX- D

সম্মতিপত্র (বাংলা)

প্রিয় অংশগ্রহণকারী, উত্তরদাতার আইডি নম্বরঃ | | | |

আমি উম্মে তাবাসসুম পহেলী, সাইক কলেজ অব মেডিকেল সাইন্স এন্ড টেকনোলজি (এসসিএমএসটি)-এর বিএসসি ইন ফিজিওথেরাপি বিভাগের ফাইনাল বর্ষের ছাত্রী। আমার বিএসসি ইন ফিজিওথেরাপি ডিগ্রী সম্পন্ন করতে গবেষণার অংশ হিসেবে "**ঢাকা শহরের অগ্নিনির্বাপকদের মধ্যে পেশাগত চাপের কারন এবং পেশিজনিত সমস্যা; একটি ক্রস বিভাগীয় গবেষণা**" শিরোনামের একটি গবেষণার কাজ করছি। এখানে আপনার পেশা সম্পর্কিত অগ্নিকান্ড নির্বাপক এর কারনে মাংশপেশীজনিত সমস্যা সম্বলিত কিছু প্রশ্নের তালিকা দেয়া আছে যা আপনাকে পূরণ করতে হবে। আপনার নিজের দ্বারা এই সাক্ষাৎকার দিতে ১৫-২০ মিনিট সময় লাগবে। আপনাকে প্রত্যেকটি প্রশ্নের উত্তর দিতে হবে। এই গবেষণার প্রাপ্ত তথ্য শুধুমাত্র শিক্ষা ক্ষেত্রে ব্যবহার করা হবে এবং অংশগ্রহণকারীর ব্যক্তিগত তথ্য সম্পূর্ণ গোপনীয়তার মধ্যে থাকবে, অন্য কোথাও প্রকাশ করা হবে না। গবেষণা চলাকালীন সময়ে অংশগ্রহণকারী কোন রকম দ্বিধা বা ঝুকি ছাড়াই যেকোনো সময় এটাকে বাদ দিতে পারবেন। আপনার একান্ত সহযোগিতা কামনা করছি।

অংশগ্রহণকারীর ঘোষণা

আমাকে এই নিরীক্ষার জন্যে আমন্ত্রন জানানো হয়েছে। আমাকে সম্পূর্ণ পড়ে বুঝানো হয়েছে এবং আমি কোন ধরনের দ্বিধা ছাড়াই উত্তর দিয়েছি। আমি লক্ষ্য করেছি, এই গবেষণায় আমার অংশগ্রহন সম্পূর্ণ স্বেচ্ছায় এবং আমি যে কোন সময় এটাকে বাদ দিতে পারব, কোন রকম ঝুকি ছাড়াই। আমি এই গবেষণায় অংশগ্রহনে সম্পূর্ণ সম্মতি জ্ঞাপন করছি।

অংশগ্রহণকারীর নামঃ

ঠিকানাঃ

মোবাইল নাম্বারঃ

টিপসই

Questionnaire (English)

Occupational stress factors and musculoskeletal complaints among firefighters in Dhaka city: A cross sectional study

Code | | | | no:

Participant Name: ……

Address: ….....

Date: …….

Mobile No: ……

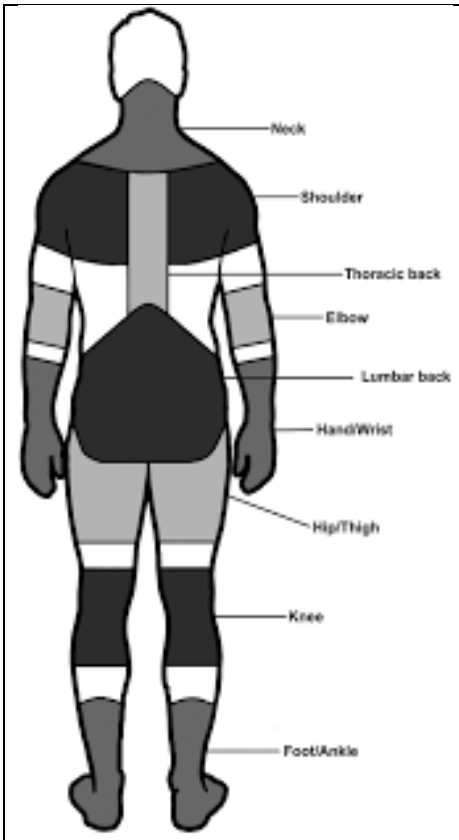
Section A: Sociodemographic information

Q.N	Question	Answer
1	Age of the participant (years).	
2	Gender of the participant.	1.Male
		2.Female
3	Weight of the participant (Kg).	
4	Height of the participant (Feet).	
5	Participant of the BMI	
6	Educational Qualification	1.SSC
		2.HSC
		3.Under-graduate
		4.Post-graduate
7	Marital status	1.Married
		2.Unmarried
8	Religion	1.Muslim
		2.Hindu
		3.Buddhist
		4.Christian
9	Smoking habit	1.Yes
		2.No

Section B: Employment-related factors

10	Work shift	Fixed
		Rotational
11	Experience(years)	1.1-5
		2.6-10
		3.>10
12	Monthly income	1.<30000
		2.31000-50000
		3.>50000
13	Does work require you to sit for long periods?	1.Yes
		2.No
14	Does work require you to stand for long periods?	1.Yes
		2.No
15	Do you have to carry heavy objects during work?	1.Yes
		2.No
16	Do you have to travel a long distance while work?	1.Yes
		2.No

Section C: Nordic Musculoskeletal Questionnaire



Trouble with the locomotive organs			
Have you at any time during the last 12 months had trouble (ache, pain, discomfort in:		To be answered only by those who have had trouble	
		Have you at any time during the last 12 months been prevented from doing your normal work (at home or away from home) because of the trouble?	Have you had any trouble at any time during the last 7 days?
Neck	Yes	Yes	Yes
	No	No	No
Shoulders	No	Yes	Yes
	Right		
	Left	No	No
	Both		
Elbows	No	Yes	Yes
	Right		
	Left	No	No
	Both		
Wrist/hands	No	Yes	Yes
	Right		
	Left	No	No
	Both		
Upper back	Yes	Yes	Yes
	No	No	No
Low back	Yes	Yes	Yes
	No	No	No
Hips/thighs	No	Yes	Yes
	Right		
	Left	No	No
	Both		
Knees	No	Yes	Yes
	Right		
	Left	No	No
	Both		
Ankles/feet	No	Yes	Yes
	Right		
	Left	No	No
	Both		

Section D: Work stress questionnaire

1. Do you have time to finish your assignments?

a. Yes, always.
b. Yes, rather often.
c. No, seldom.
d. No, never.

2. Do you have the possibility to influence decisions at work?

a. Yes, always.
b. Yes, rather often.
c. No, seldom.
d. No, never.

3. Does your supervisor consider your views?

a. Yes, always.
b. Yes, rather often.
c. No, seldom.
d. No, never.

4. Can you decide on your work pace?

a. Yes, always.
b. Yes, rather often.
c. No, seldom.
d. No, never.

5.1. Has your workload increased?

a. Yes.
b. No (if no: go to question 6.1).

5.2. If yes: Do you perceive that as stressful?

a. Stressful.
b. Less stressful.
c. Not stressful.
d. Very stressful.

6.1. Are the goals for your workplace clear?

a. Yes (if yes continue to question 7.1).
b. Partly.
c. No.

6.2. If partly or no: Do you perceive that as stressful?

a. Stressful.
b. Less stressful.
c. Not stressful.
d. Very stressful.

7.1. Do you know which assignments your work tasks include?

a. Yes (if yes continue to question 8.1).
b. Partly.
c. No.

7.2. If partly or no: Do you perceive that as stressful?

a. Stressful.
b. Less stressful.
c. Not stressful.
d. Very stressful

8.1. Do you know who is making decisions concerning your workplace?

a. Yes (if yes continue to question 9.1).
b. Partly.
c. No.

8.2. If partly or no: Do you perceive that as stressful?

a. Stressful.
b. Less stressful.
c. Not stressful
d. Very stressful.

9.1. Are there any conflicts at work?

a. Yes.
b. No (if no: continue to question 10.1).

9.2. If yes: Do you perceive that as stressful?

a. Stressful.
b. Less stressful.
c. Not stressful
d. Very stressful

10.1. Are you involved in any conflicts at your workplace?

a. Yes.

b. No (if no: continue to question 11.1).

10.2. If yes: Do you perceive that as stressful?

a. Stressful.

b. Less stressful.

c. Not stressful

d. Very stressful.

11.1. Have your supervisor done anything to solve the conflicts?

a. Yes (if yes continue to question12.1).

b. Partly.

c. No.

11.2. If partly or no: Do you perceive that as stressful?

a. Stressful.

b. Less stressful.

c. Not stressful

d. Very stressful

12.1. Do you put high demands on yourself at work?

a. Yes.

b. No (if no: continue to question 13.1).

12.2. If yes: Do you perceive that as stressful?

a. Stressful.

b. Less stressful.

c. Not stressful

d. Very stressful

13.1. Do you often get engaged in your work?

a. Yes.

b. No (if no: continue to question 14.1).

13.2. If yes: Do you perceive that as stressful?

a. Stressful.

b. Less stressful.

c. Not stressful

d. Very stressful.

14.1. Do you think about work after your working day?

a. Yes
b. Partly.
c. No (if no: continue to question 15.1).

14.2. If yes or partly: Do you perceive that as stressful?

a. Stressful.
b. Less stressful.
c. Not stressful
d. Very stressful.

15.1. Do you find it hard to set a limit to work assignment although you have a lot to do?

a. Yes
b. Partly.
c. No (if no: continue to question 16.1).

15.2. If yes or partly: Do you perceive that as stressful?

a. Stressful.
b. Less stressful.
c. Not stressful
d. Very stressful.

16.1. Do you take more responsibility at work than you ought to?

a. Yes.
b. No (if no: continue to question 17.1).

16.2. If yes: Do you perceive that as stressful?

a. Stressful.
b. Less stressful.
c. Not stressful
d. Very stressful.

17.1. Do you work after ordinary working hours to finish your assignments?

a. Yes
b. Partly.
c. No (if no: continue to question 18.1).

17.2. If yes or partly: Do you perceive that as stressful?

a. Stressful.
b. Less stressful.
c. Not stressful
d. Very stressful

18.1. Do you find it hard to sleep because your mind is occupied with work?

a. Yes
b. Partly.
c. No (if no: continue to question 19).

18.2. If yes or partly: Do you perceive that as stressful?

a. Stressful.
b. Less stressful.
c. Not stressful
d. Very stressful

19. Due to work, do you find it hard to find time to be with your nearest?

a. Yes, always.
b. Yes, rather often.
c. No, seldom.
d. No, never.

20. Due to work, do you find it hard to find time to be with your friends?

a. Yes, always.
b. Yes, rather often.
c. No, seldom.
d. No, never.

21. Due to work, do you find it hard to find time for your recreational activities?

a. Yes, always.
b. Yes, rather often.
c. No, seldom.
d. No, never.

প্রশ্নপত্র (বাংলা)

ঢাকা শহরের অগ্নিনির্বাপকদের মধ্যে পেশাগত চাপ এবং পেশিজনিত সমস্যা; একটি ক্রস

বিভাগীয়

গবেষণা

কোড নং: | | | |

অংশগ্রহণকারীর নামঃ .....

ঠিকানাঃ .....

তারিখঃ .....

মোবাইল নাম্বারঃ.....

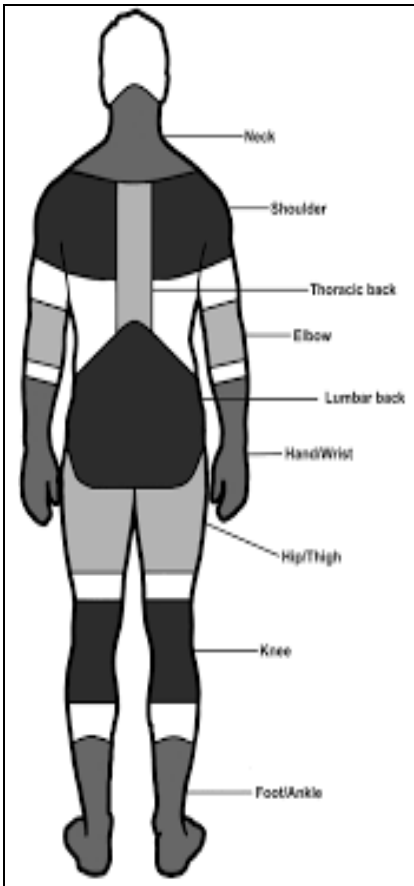
বিভাগ এঃ সামাজিক জনসংখ্যা সংক্রান্ত তথ্য

প্রশ্ন নং	প্রশ্ন	উত্তর
১	অংশগ্রহণকারীর বয়স (বছর)	
২	অংশগ্রহণকারীর লিঙ্গ	১।পুরুষ
		২।মহিলা
৩	অংশগ্রহণকারীর ওজন (কেজি)	
৪	অংশগ্রহণকারীর উচ্চতা (ফুট)	
৫	অংশগ্রহণকারীর বিএমআই	
৬	শিক্ষাগত যোগ্যতা	১। এসএসসি
		২। এইচএসসি
		৩। স্নাতক
		৪। স্নাতকোত্তর
৭	বৈবাহিক অবস্থা	১। বিবাহিত
		২। অবিবাহিত
৮	ধর্ম	১। মুসলিম
		২। হিন্দু
		৩। বৌদ্ধ
		৪। খ্রিষ্টান
৯	ধুমপানের অভ্যাস	১। হ্যাঁ
		২। না

বিভাগ বিঃ কর্মসংস্থান সম্পর্কিত কারণ

১০	কাজের ধরন	১। নির্ধারিত
		২।চক্রাকার
১১	অভিজ্ঞতা(বছর)	১ । ১-৫
		২। ৬-১০
		৩।>১০
১২	মাসিক আয়	১। <৩০০০০
		২। ৩১০০০-৫০০০০
		৩। >৫০০০০
১৩	কাজের জন্য কি আপনাকে দীর্ঘ সময় ধরে বসে থাকতে হয়?	১। হ্যাঁ
		২। না
১৪	কাজের জন্য কি আপনাকে দীর্ঘ সময় ধরে দাঁড়িয়ে থাকতে হয়?	১। হ্যাঁ
		২। না
১৫	কাজের সময় ভারী জিনিস বহন করতে হয়?	১। হ্যাঁ
		২। না
১৬	কাজের সময় আপনাকে কি দীর্ঘ দূরত্ব ভ্রমণ করতে হয়?	১। হ্যাঁ
		২। না

বিভাগ সিঃ নরডিক মাংশপেশিজনিত প্রশ্ন



চলাফেরাজনিত অঙ্গগুলির সাথে সমস্যা			
আপনার গত ১২ মাসে কোনো সময় সমস্যা হয়েছিল (ব্যাথা,অস্বস্তি ভাব,অবস অবস ভাব)?		যারা সমস্যায় পড়েছেন তারাই উত্তর দিবে	
		আপনি কি গত ১২ মাসে স্বাভাবিক কাজকর্ম করতে বাড়িতে বা বাড়ির বাহিরে কোনো সমস্যায় পড়েছিলেন কিনা?	আপনি গত ৭ দিনে কোনো সময়ে সমস্যায় পড়েছিলেন কিনা?
ঘাড়ে ব্যথা	১। হ্যাঁ	১। হ্যাঁ	১। হ্যাঁ
	২। না	২। না	২। না
কাঁধে ব্যথা	১। না	১। হ্যাঁ	১। হ্যাঁ
	২। ডান		
	৩। বাম	২। না	২। না
	৪। উভয়		
কনুই ব্যথা	১। না	১। হ্যাঁ	১। হ্যাঁ
	২। ডান		
	৩। বাম	২। না	২। না
	৪। উভয়		
কব্জি/ হাতে ব্যথা	১। না	১। হ্যাঁ	১। হ্যাঁ
	২। ডান		
	৩। বাম	২। না	২। না
	৪। উভয়		
পিঠের উপরে	১। হ্যাঁ	১। হ্যাঁ	১। হ্যাঁ
	২। না	২। না	২। না
পিঠের নিচের দিকে	১। হ্যাঁ	১। হ্যাঁ	১। হ্যাঁ
	২। না	২। না	২। না

	নিতম্ব বা উরু	১। না	১। হ্যাঁ	১। হ্যাঁ
		২। ডান		
		৩। বাম	২। না	২। না
		৪। উভয়		
	হাঁটু ব্যথা	১। না	১। হ্যাঁ	১। হ্যাঁ
		২। ডান		
		৩। বাম	২। না	২। না
		৪। উভয়		
	পায়ের গোড়ালি বা পা	১। না	১। হ্যাঁ	১। হ্যাঁ
		২। ডান		
		৩। বাম	২। না	২। না
		৪। উভয়		

বিভাগ ডিঃ কাজের চাপজনিত প্রশ্নবলী

১। আপনি কি আপনার কাজ নির্দিষ্ট সময়ের মধ্যে শেষ করতে পারেন?

ক। হ্যাঁ, সবসময়

খ। হ্যাঁ, প্রায়ই

গ। না, সামান্য

ঘ। না, কখনোই না

২। কর্মক্ষেত্রে সিদ্ধান্ত নেওয়ার সময় কোন প্রভাব পড়ে কিনা?

ক। হ্যাঁ, সবসময়

খ। হ্যাঁ, প্রায়ই

গ। না, সামান্য

ঘ। না, কখনোই না

৩। আপনার সুপারভাইজার আপনার মতামতকে সঠিকভাবে বিবেচনা করেন কিনা?

ক। হ্যাঁ, সবসময়

খ। হ্যাঁ, প্রায়ই

গ। না, সামান্য

ঘ। না, কখনোই না

৪। আপনি কি আপনার কর্মক্ষেত্রে নিজের সম্পর্কের সিদ্ধান্ত নিজে নিতে পারেন?

ক। হ্যাঁ, সবসময়

খ। হ্যাঁ, প্রায়ই

গ। না, সামান্য

ঘ। না, কখনোই না

৫.১। কর্মক্ষেত্রে আপনার কাজের চাপ বেড়েছে কিনা?

ক। হ্যাঁ

খ। না (যদি না হয় তাহলে প্রশ্ন ৬.১ এ যান)

৫.২। যদি হ্যাঁ হয়, আপনার কাছে এটা চাপজনক মনে হয় কিনা?

ক।চাপ তুলনামুলুক বেশি

খ। চাপ কম

গ। চাপ মনে হয় না

ঘ। খুবই চাপ

৬.১। কর্মক্ষেত্রের লক্ষ্য/ উদ্দেশ্য আপনি বুঝতে পেরেছেন কিনা?

ক। হ্যাঁ (যদি হ্যাঁ হয় তাহলে প্রশ্ন ৭.১ এ যান)

খ। আংশিকভাবে

গ। না

৬.২। যদি আংশিক বা না হয়, তবে আপনার কাছে এটা চাপজনক মনে হয় কিনা ?

ক।চাপ তুলনামুলুক বেশি

খ। চাপ কম

গ। চাপ মনে হয় না

ঘ। খুবই চাপ

৭.১। আপনার কাজের মধ্যে কোন আস্যাইনমেন্ট অন্তর্ভুক্ত আছে কিনা?

ক। হ্যাঁ (যদি হ্যাঁ হয় তাহলে প্রশ্ন ৮.১ এ যান)

খ। আংশিকভাবে

গ। না

৭.২। যদি আংশিক বা না হয়, তবে আপনার কাছে এটা চাপজনক মনে হয় কিনা?

ক।চাপ তুলনামুলুক বেশি

খ। চাপ কম

গ। চাপ মনে হয় না

ঘ। খুবই চাপ

৮.১। আপনার কাজ সম্পর্কে অন্য কেউ সিদ্ধান্ত নেয় কিনা?

ক। হ্যাঁ (যদি হ্যাঁ হয় তাহলে প্রশ্ন ৯.১ এ যান)

খ। আংশিকভাবে

গ। না

৮.২। যদি আংশিক বা না হয়, তবে আপনার কাছে এটা চাপজনক মনে হয় কিনা?

ক।চাপ তুলনামুলুক বেশি

খ। চাপ কম

গ। চাপ মনে হয় না

ঘ। খুবই চাপ

৯.১। কর্মক্ষেত্রে আপনার কোন বিবাদ বা ঝামেলা আছে কিনা?

ক। হ্যাঁ

খ। না (যদি না হয় তাহলে প্রশ্ন ১০.১ এ যান)

৯.২। যদি হ্যাঁ হয়, আপনার কাছে এটা চাপজনক মনে হয় কিনা?

ক।চাপ তুলনামুলুক বেশি

খ। চাপ কম

গ। চাপ মনে হয় না

ঘ। খুবই চাপ

১০.১। আপনার কর্মক্ষেত্রে আপনি কি কোনো বিবাদ বা ঝামেলার সাথে জড়িত আছেন?

ক। হ্যাঁ

খ। না (যদি না হয় তাহলে প্রশ্ন ১১.১ এ যান)

১০.২। যদি হ্যাঁ হয়, আপনার কাছে এটা চাপজনক মনে হয় কিনা?

ক।চাপ তুলনামুলুক বেশি

খ। চাপ কম

গ। চাপ মনে হয় না

ঘ। খুবই চাপ

১১.১। বিবাদ বা ঝামেলা সমাধানের জন্য আপনার সুপারভাইজার কিছু করেন কিনা?

ক। হ্যাঁ (যদি হ্যাঁ হয় তাহলে প্রশ্ন ১২.১ এ যান)

খ। আংশিকভাবে

গ। না

১১.২। যদি আংশিক বা না হয়, তবে আপনার কাছে এটা চাপজনক মনে হয় কিনা?

ক।চাপ তুলনামুলুক বেশি

খ। চাপ কম

গ। চাপ মনে হয় না

ঘ। খুবই চাপ

১২.১। কর্মক্ষেত্রে আপনার নিজের উপর বিশ্বাস রাখেন কিনা?

ক। হ্যাঁ

খ। না (যদি না হয় তাহলে প্রশ্ন ১৩.১ এ যান)

১২.২। যদি হ্যাঁ হয়, তবে আপনার কাছে এটা চাপজনক মনে হয় কিনা?

ক।চাপ তুলনামুলুক বেশি

খ। চাপ কম

গ। চাপ মনে হয় না

ঘ। খুবই চাপ

১৩.১। আপনি কি আপনার কাজে নিজেকে প্রায়ই ব্যস্ত রাখেন?

ক। হ্যাঁ

খ। না (যদি না হয় তাহলে প্রশ্ন ১৪.১ এ যান)

১৩.২। যদি হ্যাঁ হয়, তবে আপনার কাছে এটা চাপজনক মনে হয় কিনা?

ক।চাপ তুলনামুলুক বেশি

খ। চাপ কম

গ। চাপ মনে হয় না

ঘ। খুবই চাপ

১৪.১। অবসর সময়ে আপনি কি আপনার কাজ নিয়ে চিন্তা করেন?

ক। হ্যাঁ (যদি হ্যাঁ হয় তাহলে প্রশ্ন ১৫.১ এ যান)

খ। আংশিকভাবে

গ। না

১৪.২। যদি আংশিক বা না হয়, তবে আপনার কাছে এটা চাপজনক মনে হয় কিনা?

ক।চাপ তুলনামুলুক বেশি

খ। চাপ কম

গ। চাপ মনে হয় না

ঘ। খুবই চাপ

১৫.১। আপনার কাছে অনেক কিছু থাকা সত্ত্বেও কাজের আস্যাইনমেন্ট একটি সীমা নির্ধারণ করা কঠিন বলে মনে হয় কি?

ক। হ্যাঁ

খ। আংশিকভাবে

গ। না (যদি না হয় তাহলে প্রশ্ন ১৬.১ এ যান)

১৫.২। যদি হ্যাঁ বা আংশিক হয়, তবে আপনার কাছে এটা চাপজনক মনে হয় কিনা?

ক।চাপ তুলনামুলুক বেশি

খ। চাপ কম

গ। চাপ মনে হয় না

ঘ। খুবই চাপ

১৬.১। আপনি কি আপনার কর্তব্যের চেয়ে বেশি দায়িত্ব নেন?

ক। হ্যাঁ

খ। না (যদি না হয় তাহলে প্রশ্ন ১৭.১ এ যান)

১৬.২। যদি হ্যাঁ হয়, তবে আপনার কাছে এটা চাপজনক মনে হয় কিনা?

ক।চাপ তুলনামুলুক বেশি

খ। চাপ কম

গ। চাপ মনে হয় না

ঘ। খুবই চাপ

১৭.১। আপনার আস্যাইনমেন্টগুলি শেষ করার জন্য নির্দিষ্ট সময়ের পরেও কাজ করেন কি?

ক। হ্যাঁ

খ। আংশিকভাবে

গ। না (যদি না হয় তাহলে প্রশ্ন ১৮.১ এ যান)

১৭.২। যদি হ্যাঁ বা আংশিক হয়, তবে আপনার কাছে এটা চাপজনক মনে হয় কিনা?

ক।চাপ তুলনামুলুক বেশি

খ। চাপ কম

গ। চাপ মনে হয় না

ঘ। খুবই চাপ

১৮.১। কাজের চাপের কারনে আপনার ঘুমাতে কষ্ট হয় কিনা?

ক। হ্যাঁ

খ। আংশিকভাবে

গ। না (যদি না হয় তাহলে প্রশ্ন ১৯.১ এ যান)

১৮.২। যদি হ্যাঁ বা আংশিক হয়,তবে আপনার কাছে এটা চাপজনক মনে হয় কিনা?

ক।চাপ তুলনামুলুক বেশি

খ। চাপ কম

গ। চাপ মনে হয় না

ঘ। খুবই চাপ

১৯। কাজের ব্যস্ততার কারনে আপনার পরিবারের মানুষদের জন্য সময় বের করা কঠিন বলে মনে করেন কিনা?

ক। হ্যাঁ, সবসময়

খ। হ্যাঁ, বরং প্রায়ই

গ। না, সামান্য

ঘ। না, কখনোই না

২০। কাজের ব্যস্ততার কারনে আপনার বন্ধুদের জন্য সময় বের করা কঠিন বলে মনে করেন কিনা?

ক। হ্যাঁ, সবসময়

খ। হ্যাঁ, প্রায়ই

গ। না, সামান্য

ঘ। না, কখনোই না

২১। কাজের ব্যস্ততার কারনে আপনার বিনোদনের জন্য সময় বের করা কঠিন বলে মনে করেন কিনা?

ক। হ্যাঁ, সবসময়

খ। হ্যাঁ, প্রায়ই

গ। না, সামান্য

ঘ। না, কখনোই না

Gant chart

Activities/ Month	July 22	Aug 22	Sep 22	Oct 22	Nov 22	Dec 22	Jan 23	Feb 23	Mar 23	Apr 23	May 23	Jun 23
Proposal Presentation												
Introduction												
Literature Review												
Methodology												
Data Collection												
Data Analysis												
Result												
1st Progress Presentation												
Discussion												
Conclusion And Recommendation												
2nd Progress Presentation												
Communication With Supervisor												
Final Submission												

Picture with firefighters


দরবার