

**MUSCULOSKELETAL PAIN AMONG THE
SHOPKEEPERS AT BHAIRAB UPAZILA IN
KISHOREGANJ DISTRICT**



Faculty of Medicine
University of Dhaka

Fazla Alman

Bachelor of Science in Physiotherapy (B.Sc. PT)

DU Roll no: 1282

Reg. no: 10246

Session: 2017-2018



Department of Physiotherapy

Saic College of Medical Science and Technology

Saic Tower, M - 1/6, Mirpur-14, Dhaka-1216

Bangladesh

September, 2023

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

**Musculoskeletal Pain among the Shopkeepers at Bhairab Upazila in
Kishoreganj District**

Submitted by **Fazla Alman**, for the partial fulfillment of the requirement for the degree of Bachelor of Science in Physiotherapy (B.Sc. PT).

.....
Md. Kutub Uddin
Lecturer
Department of Physiotherapy
SCMST, Mirpur-14, Dhaka.
Supervisor

.....
Abid Hasan Khan
Lecturer
Department of Physiotherapy
SCMST, Mirpur-14, Dhaka.

.....
Md. Shahidul Islam
Assistant Professor & Course Coordinator
Department of Physiotherapy
SCMST, Mirpur-14, Dhaka.

.....
Zakia Rahman
Lecturer
Department of Physiotherapy
SCMST, Mirpur-14, Dhaka.

.....
Zahid Bin Sultan Nahid
Assistant Professor
Department of Physiotherapy
SCMST, Mirpur-14, Dhaka.

.....
Md. Furatul Haque
Lecturer
Department of Physiotherapy
SCMST, Mirpur-14, Dhaka.

.....
Dr. Abul Kasem Mohammad Enamul Haque
Principal
Saic College of Medical Science and Technology
SCMST, Mirpur-14, Dhaka.

This study with the title- **“Musculoskeletal pain among the Shopkeepers at Bhairab Upazila in Kishoreganj District”** by **Fazla Alman**, Department of physiotherapy, Saic College of Medical Science and Technology, was done in my close supervision and direct guidance. I have gone through the papers. This is up to my full of satisfaction.

Supervisor,

.....

Md. Kutub Uddin

Lecturer

Department of Physiotherapy

SCMST, Mirpur-14, Dha

DECLARATION

This work has not previously been accepted in substance for any degree and isn't 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 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 acknowledged as graduate thesis and consent will consent taken from the physiotherapy department of Saic College of Medical Science and Technology.

Signature:

Date:

Fazla Alman

Bachelor of Science in Physiotherapy (B.Sc. PT)

DU Roll no: 1282

Reg. no: 10246

Session: 2017-2018

CONTENTS

Contents:	Page no:
Cover page/Title page	
Evaluation page	
Declaration	
List of Contents	
Acknowledgement	i
Acronyms	ii
List of the table's	iii
List of figures	iv
Abstract	v
Chapter- I: Introduction	1-12
1.1 Background	1-4
1.2 Justification of the study	5
1.3 Research question	6
1.4 Objectives of study	7
1.4.1 General objective	7
1.4.2 Specific objective	7
1.5 Conceptual framework	8
1.6 Operational definition	9
Chapter- II: Literature review	10-17
Chapter- III: Methodology	18-20
3.1 Study design	18
3.2 Study area	18
3.3 Study period	18
3.4 Study of population	18
3.5 Sample size	18

3.7 Sampling technique	18
3.8 Eligibility criteria	19
3.8.1 Inclusion criteria	19
3.8.2 Exclusion criteria	19
3.9 Method of data collection	19
3.10 Instrument and tools of data collection	19
3.11 Data entry	19
3.12 Data analysis	19
3.13 Ethical consideration	20
3.14 Budget	20
Chapter -IV: Results	21-49
Chapter -V: Discussion	50-51
Chapter- VI: Limitation of this study	52
Chapter -VI: Conclusion and Recommendation	53-54
Chapter -VII: References	55-60
Chapter -VIII: Appendix	61-69
Appendix- A: Permission letter	61
Appendix- B: Consent from (English)	62
Appendix- C: Questionnaire (English)	63-66
Appendix-D: Study area map	67
Appendix-F: Picture	68
Appendix-G: Gantt chart	69

Acknowledgement

First of all, 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 who have always inspired me for preparing the project properly.

I am grateful to the ethical committee of the research project and faculty members of the physiotherapy department, Saic College of Medical Science and Technology (SCMST) who allowed me to carry out this study.

I am extremely grateful to my honorable and praiseworthy Supervisor **Md. Kutub Uddin**, 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 & Course Coordinator, Department of Physiotherapy, SCMST; **Zahid Bin Sultan Nahid**, Assistant Professor, Department of Physiotherapy, SCMST; **Md. Furatul Haque**, Lecturer, Department of Physiotherapy, SCMST; **Abid Hasan Khan**, Lecturer, Department of Physiotherapy, SCMST and also all of my respected teachers for helping me in this study.

I wish to thank the Librarian of SCMST and his associates for their kind support to find out related books, journals and also 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

B.Sc	:	Bachelor of Science
DU	:	University of Dhaka
MSD	:	Musculoskeletal Disorder
KG	:	Kilogram
PT	:	Physiotherapy
SCMST	:	Saig College of Medical Science and Technology
SPSS	:	Statistical package for the Social Sciences
BMRC	:	Bangladesh Medical Research Council
WHO	:	World Health Organization
BMI	:	Body Mass Index
No	:	Number
BDT	:	Bangladesh taka
ERB	:	Ethical Board Review
OODs	:	Occupational Overuse Disorders
WRMD	:	Work Related Musculoskeletal Disorder
RMI	:	Repeated Motions Injury
SD	:	Standard Deviation
<	:	Less than
>	:	More than
%	:	Percentage
RSI	:	Repetitive Strain Injury
BDHS	:	Bangladesh Demographic and Health Survey
QOL	:	Quality of life

List of the Tables

Table No.	Title of the table	Page No.
Table-1	Monthly income of the participants	26
Table-2	Association between Age of the participants and neck pain of the participants	44
Table-3	Association between Age of the participants and lower back pain o of the participants	45
Table-4	Association between Age of the participants and knee pain of the participants	46
Tabe-5	Association between Diabetes and low back pain of the participants	47
Table-6	Association between Diabetes and knee pain of the participant.	48
Table-7	Association between BMI of the participants and low back pain of the participants	49

List of Figures

Figure No.	Title of the figures	Page No.
1	Age of the participants	21
2	Living area of the participants	22
3	Family type of the participants	23
4	Religion of the participants	24
5	Marital status of the participants	25
6	Gender of the participants	27
7	Education label of the participants	28
8	Neck pain of the participants	29
9	Shoulder pain of the participants	30
10	Elbow pain of the participants	31
11	Wrist pain of the participants	32
12	Upper back pain of the participants	33
13	Lower back pain of the participants	34
14	Hip pain of the participants	35
15	Knee pain of the participants	36
16	Ankle pain of the participants	37
17	BMI of the participants	38
18	Depression of the participants	39
19	Smoking habit of the participants	40
20	Diabetes of the participants	41
21	Arthritis of the participants	42
22	Treatment of the participants	43

Abstract

Purpose: Aim of the study to explore the musculoskeletal disorder among the shopkeepers.

Objective: The study's objective was to describe Sociodemographic characteristics, Association between age and low back pain among the shopkeepers. To determine the health related factors among the shopkeepers.

Methodology: This study was performed in a descriptive type of cross-sectional study design was conducted to determine. This study's sample was collected through a convenience sampling procedure and total sample of 263. The data was collected at Bhairab upazila in Kishoreganj District. The data collection process was a questionnaire with a face-to-face interview was analyzed with Microsoft Office, using SPSS 26 version software program and test use of study chi-square test.

Results: This study's participants mean and standard deviation of participants age where are mean \pm SD = 40.9 \pm 14.564. About (n=21) 8% were <20 years old, (n=120) 45.6% were 20-40 years old, (n=93) 35.4% were 41-60 years old and (n=29) 11% were >60 years old. Among total 263 participant, (n=97) respondents yes whose were 36.9%. Among total 263 participant, (n= 81) respondents yes whose were 30.8%. There is no significant (P= 0.163) relation between age of the participants and neck of the participants.

Conclusion: In conclusion, musculoskeletal pain among shopkeepers is a prevalent and significant issue that warrants attention and proactive measures. The demanding nature of their work, involving prolonged periods of standing, repetitive movements, and heavy lifting, puts a considerable strain on the musculoskeletal system. This often leads to various forms of discomfort and pain, affecting not only the physical well-being but also the overall quality of life for these individuals

Keywords: *Musculoskeletal Disorder, Shopkeeper.*

1.1 Background:

Musculoskeletal pain is a pervasive occupational health issue that affects individuals across various professions, with shopkeepers being a demographic particularly susceptible to its impact. The demanding nature of the retail industry, characterized by prolonged periods of standing, repetitive tasks, and frequent lifting, places shopkeepers at a higher risk of developing musculoskeletal pain. This introduction aims to provide a thorough examination of the factors contributing to musculoskeletal pain among shopkeepers, the implications for their overall well-being, and potential strategies for prevention and intervention. Understanding the prevalence and scope of musculoskeletal pain among shopkeepers is essential for recognizing the magnitude of this occupational health challenge. Studies have consistently reported a high incidence of musculoskeletal pain in various sectors of the retail industry. For instance, a comprehensive survey conducted by found that over 60% of shopkeepers reported experiencing musculoskeletal pain, with a significant portion indicating that the pain affected their daily activities and work performance (Smith et al., 2018).

The nature of work in retail settings involves a range of tasks that contribute to the development of musculoskeletal pain among shopkeepers. Prolonged periods of standing, often on hard surfaces, can lead to discomfort and pain in the lower back, legs, and feet. The repetitive nature of tasks, such as scanning items, lifting and carrying merchandise, and arranging displays, can contribute to strain on the upper extremities, shoulders, and neck. Moreover, inadequate ergonomics in the workplace, including poorly designed checkout counters and storage areas, may exacerbate musculoskeletal issues. Research by highlights the association between workplace ergonomics and the prevalence of musculoskeletal pain among retail workers, emphasizing the need for improvements in the design of retail spaces to reduce the physical strain on shopkeepers (Johnson et al., 2019).

Beyond the physical demands of the job, psychosocial factors and occupational stress also play a significant role in the development and exacerbation of musculoskeletal pain among shopkeepers. The retail industry is known for its fast-paced and often unpredictable nature, with shopkeepers frequent associated with

musculoskeletal disorders (MSDs), which are health issues pertaining to the locomotor apparatus, including muscles, nerves, tendons, joints, cartilages, a spinal disc, and related tissues (Luttmann et al., 2008). In industrially developing nations, the prevalence of MSDs is quite high due to poor working conditions and a lack of an efficient work injury prevention program (Jafry & Neill, 2006). When workers are subjected to physical labor, work in odd or limited postures, repetitive and static work, vibrations, and unfavorable psychological and social settings, they are more likely to develop work-related musculoskeletal disorders (MSDs). According to reports, musculoskeletal problems are among the most well-known and widespread causes of severe chronic pain and physical disability, potentially affecting hundreds of millions of individuals worldwide (Aweto et al., 2015). According to the organization and society as a whole are also impacted by the financial loss caused by those disorders in addition to the person (Choobineh and Tabatabaee 2009). Work-related musculoskeletal disorders are one of the most important occupational health problems for the shopkeepers. The disorders can cause long periods of work disability and treatment is often necessary. This study will be helpful to explore common musculoskeletal complaints among the shopkeepers. As early as the start of the 18th century, it was determined that occupational variables were the cause of musculoskeletal disorders (MSDs) (Kumar et al. 2011). The group of persons involved in shop keeping are known as shopkeepers, and in most cases, this is their only source of income (Answer, 2015). Male workers were significantly higher among those who work in a standing posture compared to those who usually work sitting (27.8% versus 21.7%); 28.6% for moving around and 30.4% for standing in a fixed posture versus 17.4% for standing with freedom to sit; among those who work seated, men are more likely to work in a fixed position than women (5.9% versus 1.2%) (Tissot et al., 2009).

Bangladesh is a developing country with a high population density of 901/sq km. Only thirty percent of women and forty percent of men in Bangladesh possess a secondary education (Bellamy, 2008). Workplace practices that increase the risk of WMSDs include awkward working postures, repeated jobs, and excessive lifting of loads. It is also known that parameters related to demographic traits are significant predictors (Linton & Kamwendo, 2006). Researchers have found that workers who are subjected to manual labor, work in atypical or limited postures, vibrations, repetitive and static work, and unfavorable psychological and social circumstances

have a higher prevalence of musculoskeletal illnesses associated to their jobs (Burdorf, 2007). In 1992, the percentage of WMSDs caused by repeated motions in America was 33.6%. In 2000, it reached a peak of 34.7%. By a number of metrics, it dropped to 28.9% in 2007 (Kim et al., 2010). Seventy-five thousand British workers reported having an MSD related to their job within the preceding 12 months. 335,000 or so of individuals were forced to miss work due to conditions relating to their jobs. Estimated lost working days are 9,862,000 (back 4,820,000, upper limb and neck 4,162,000, and lower limbs 2,204,000) (Prins et al., 2007). In Sweden, almost 57% of occupational disorders were classified as WMSDs (Kim et al., 2010). In Germany, approximately 37% of workers said they had low back pain. In particular, the fast rise was concentrated in firms with more than 1,000 workers, and labor-management confrontations were becoming a more prevalent societal issue.

Furthermore, in 2000, the cost of the compensation insurance was 5.9 billion won; by 2004 and 2007, that amount had increased to 105.3 billion and 163.3 billion, respectively. The substantial social costs of WMSDs are demonstrated by this data (Kim et al., 2010). The people who must manage a shop in order to make a living are known as shopkeepers. At work, they are subjected to a variety of stressors, including lifting heavy objects, bending over, performing overhead tasks, and spending extended periods of time in static positions. Age or gender restrictions do not apply to this line of work. However, it is frequently observed that men participate in more activities than women (Salve, 2015). Shopkeepers are more likely to have musculoskeletal discomfort because they operate in environments with multiple risk factors and because the majority of them lead sedentary lifestyles. Here, musculoskeletal pain is taken into consideration in relation to musculoskeletal discomfort (Gupta, 2013). Here, musculoskeletal pain is used to describe musculoskeletal discomfort. Pain in the musculoskeletal system can be brought on by extended periods of immobility, vibration exposure, lifting large objects, bending over, and other activities. Any trauma to the musculoskeletal structures, which include the bones, tendons, and ligaments, can also cause it to happen (Yu et al., 1996). In addition, it has an impact on day-to-day living and may be detrimental in that it lowers one's standard of living and increases reliance on others for labor. A survey conducted among shopkeepers revealed that the most frequent risk factor mentioned was maintaining static postures for extended periods of time (Porter et al., 2002). The

same study also revealed that among Bangladeshi shopkeepers, the hip was the most impacted location (Rahman , 2011). According to the findings of the previous studies, the low back and neck regions are the most frequently impacted. The low back area is typically very susceptible to musculoskeletal pain or discomfort because prolonged sitting puts abnormal strain on the lower spine, which in turn creates low back pain.

1.2 Justification of the Study:

This study evaluated the various risk factors that lead to musculoskeletal pain among the shopkeepers. However, there is a lack of studies ,which evaluate the ways to remove or reduce the work related musculoskeletal disorders from shopkeepers. Physiotherapy treatment is of immense importance in the modern research to eliminate all musculoskeletal pain. Musculoskeletal pain among shopkeepers is a multifaceted issue influenced by a combination of occupational, environmental, and personal factors. Addressing these aspects through ergonomic interventions, proper training on lifting techniques, and promoting a supportive work environment can play a crucial role in mitigating musculoskeletal pain and improving the overall well-being of shopkeepers. The proposal research is expected to find out the common causes of musculoskeletal among the shopkeepers. Musculoskeletal pain is common health problem throughout the world and major cause of disability among the shopkeepers. Normally shopkeepers are busy on the profession. They cannot maintain their correct posture which can pain in muscle during different types of work they done. Musculoskeletal pain can be harmful for them. It can interrupt daily activity and ultimately interrupt their professional and personal life. This study will help to find musculoskeletal pain among the shopkeepers in the selected area.

1.3 Research question:

What is the Musculoskeletal pain among the shopkeepers at Bhairab Upazila in Kishoreganj district?

1.4 Objectives of study:

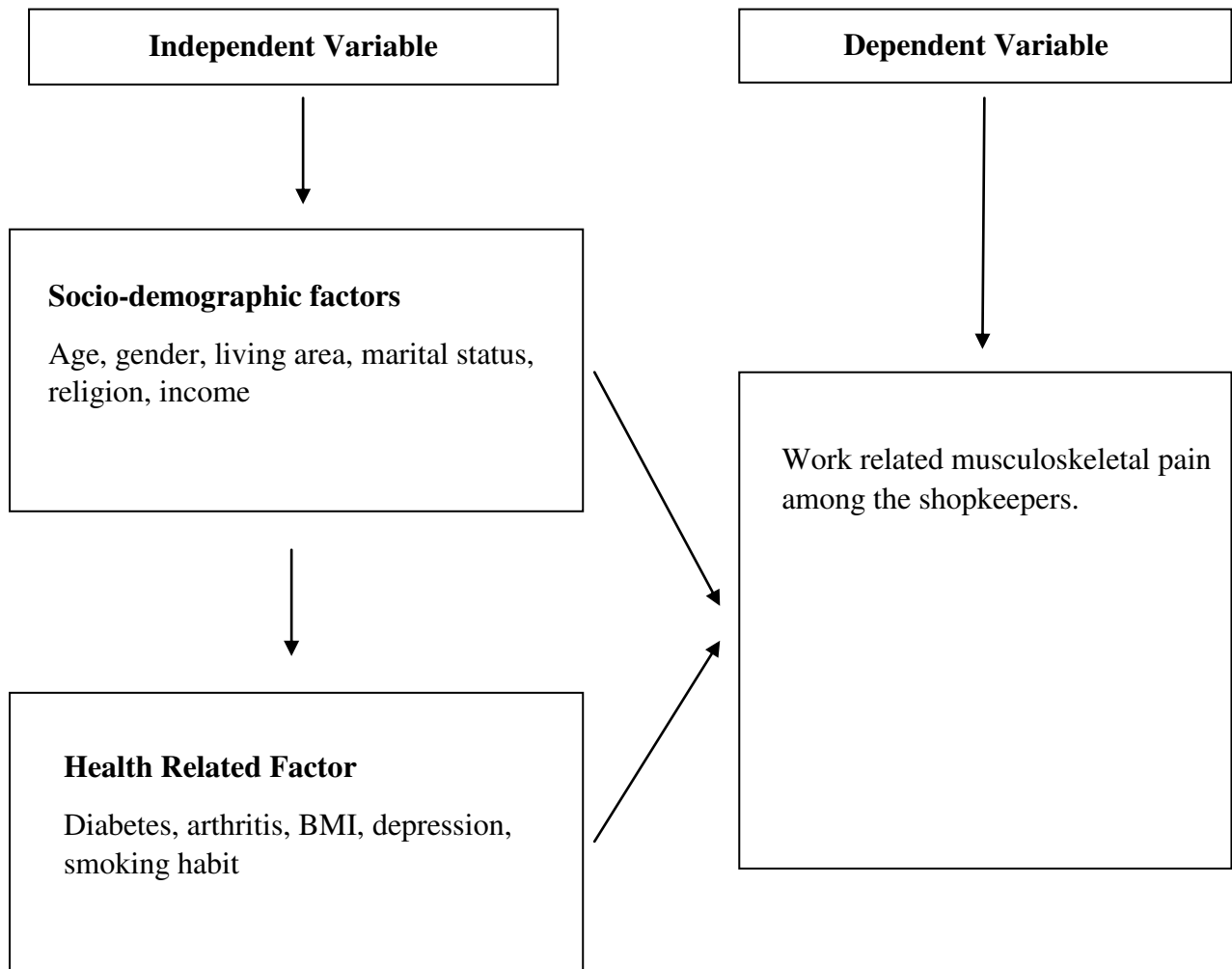
1.4.1 General objective:

To explore the musculoskeletal disorders among the shopkeepers.

1.4.2 Specific objectives:

- To identify the socio demographic characteristics among the shopkeepers.
- To find out the health related factors among the shopkeepers.
- To determine the site of pain types musculoskeletal disorders among the shopkeepers.
- To examine the association between socio demographic, health related factor and types of muscle pain.

1.5 Conceptual framework:



1.6 Operational definition:

Musculoskeletal pain

Musculoskeletal disorders affect the soft tissue of the body, such as the muscles, tendons, ligaments, nerves et (Smith et al., 2018).

Work related musculoskeletal pain

Work-related musculoskeletal pain are the disorders of muscles, tendons, ligaments and nerves that develop due to work related factors such as repetitive work or activities with awkward postures with symptoms of pain, aches, paresthesia, tingling, numbness and stiffness etc. Some examples of musculoskeletal disorders include back pain, neck pain, carpal tunnel syndrome, tendonitis and tenosynovitis etc.

Shopkeepers

A person who owns or manages a shop or small store.

Health issues relating to the locomotor apparatus—that is the muscles, joints, tendons, skeleton, cartilage, vascular system, ligaments, nerves, and localized blood circulation system—are referred to as musculoskeletal disorders (Kumar et al., 2011).

Muscles, tendons, ligaments, and nerves are all impacted by musculoskeletal injuries. When the same muscles are utilized frequently or for extended periods of time without a break, these injuries may arise. If a work necessitates unusual postures or considerable power is applied, the likelihood of this kind of injury increases. Musculoskeletal conditions can cause a variety of symptoms, such as tendinitis, tenosynovitis, carpal tunnel syndrome, back pain, and neck discomfort. Repetitive strain injuries (RSIs), work-related musculoskeletal disorders (WRMD), cumulative trauma disorders, overuse injuries, and repetitive motion disorders are some other terms used to characterize MSDs (Department of Labor Statistics, 2012).

Musculoskeletal disorders (MSDs) are conditions that impact the musculoskeletal system as a result of repeated loading exposure. MSDs are more common in the upper limbs (the hand, wrist, elbow, and shoulder), neck, and lower back. Affected areas may also include the upper back and lower limbs (Pinder et al., 2007). According to Putz-Anderson et al. (2007), the most prevalent work-related sickness that employees self-report in many workplaces is musculoskeletal disorders. These illnesses are defined by discomfort, impairment, disability, or persistent pain in the tendons, muscles, joints, or other soft tissues. Bangladesh, one of the world's developing nations, has a high population density of 901/sq km and a literate population of only 40% men and 30% women (Bellamy, 2004).

Shopkeepers, as key contributors to local economies, face a myriad of challenges and opportunities in the dynamic retail landscape. This literature review synthesizes existing research to provide insights into the diverse factors influencing shopkeepers, ranging from economic constraints to technological advancements. The economic difficulties faced by store owners are highlighted by studies conducted by Smith et al. (2017) and Brown (2019).

These difficulties include limited funding, changes in customer buying habits, and heightened rivalry from bigger retail companies. Using technology effectively is essential for store owners in the digital age. A thorough study on how merchants incorporate new technology into their business strategies was carried out by Johnson and White in 2018.

. A range of reactions are shown by the findings; some people embrace digital marketing and e-commerce, while others struggle with the challenges of adopting new technology. Managing regulations is a vital part of being a shopkeeper. A research by Jones and Smith (2016) looked at the difficulties small firms face as a result of various regional legislation. The necessity for faster regulatory processes is highlighted by the fact that shopkeepers frequently deal with concerns like licensing, taxes, and adherence to health and safety regulations. Due to their low assets and lack of alternative sources of income, several non-governmental organizations (NGOs) that support the nation's economic development by rehabilitating jobless individuals offer microcredit loans for shopkeeping (Kader, 2005).

Lack of strength in the back muscles can result in low back pain and is one of the main causes of recurrence (Lee et al., 2012). The back muscles support the spine and keep it stable. The majority of the time, we saw that these individuals have bad posture when sitting on low stools, with the chair height not matching the length of the leg and the knees not kept at a 90-degree angle. We also observed that these individuals sit for extended periods of time, usually from early in the morning until late at night (Kader et al., 2005).

Neither the arm rests nor the back is supported. Their different ligamentous structures are stretched to their maximum limit as a result of their lumbar spine remaining in a totally slumped position. It is not maintained that the head and trunk are positioned vertically. Their protracted periods of sitting with a flexed lumbar spine, no lumbar support, and ongoing overstretching of the ligamentous tissues made them one of the most susceptible populations to developing low back pain (LBP) (Lee et al, 2012). To keep the shop in good working order, they must perform all types of tasks themselves. Among these activities include lifting, measuring, and shifting of products. Bending, twisting, and vibrating forwards must be done regularly in order to perform these kinds of exercises. They are unable to provide the shop with enough space due to a shortage of funding. This is the reason why they need a small workspace (Kader, 2005)

Some diseases and illnesses related to the musculoskeletal system are referred to as ergonomic injuries. The study of ergonomics examines how employees interact with various systems, tools, surroundings, tasks, jobs, and rates of work. Muscle and nerve damage, tendons, ligaments, joints, cartilage, and spinal discs are all considered musculoskeletal disorders (MSDs) according to the federal Bureau of Labor Statistics (BLS). Injuries brought on by trips, falls, or other similar mishaps are not classified as MSDs. Low back pain, tendinitis, carpal tunnel syndrome, sciatica, and various types of sprains and strains are a few examples of MSDs. According to Maire and Ross-Motta (2007), MSDs are caused by muscular strain and repeated activity, as well as physical reactions brought on by bending, climbing, crawling, reaching, or twisting. Overuse or prolonged periods of time without enough rest might lead to the development of musculoskeletal diseases. If a work necessitates an unusual posture or excessive power is used, the likelihood of this kind of injury increases. Musculoskeletal come, and back pain. Tendonitis, tenosynovitis, carpal tunnel syndrome, and back discomfort are a few musculoskeletal ailments (Department of Labor Statistics, 2012).

Overuse or prolonged periods of time without enough rest might lead to the development of musculoskeletal diseases. If a work necessitates an unusual posture or excessive power is used, the likelihood of this kind of injury increases. Musculoskeletal come, and back pain. Many chronic back strains and cumulative trauma disorders (CTDs), among other illnesses, are examples of musculoskeletal disorders. It has been stated that in many affluent nations, these ailments account for a substantial portion of sick leave. Any MSDs that are predominantly caused or made worse by work and the conditions under which it is performed are referred to as work-related musculoskeletal diseases (WMSDs). The majority of WMSDs are progressive conditions that primarily impact the shoulders, upper limbs, back, and neck, while they can also impact the lower limbs. Because of their distinct indications and symptoms, many MSDs, such wrist carpal tunnel syndrome, are distinctive (Johnos, 2011).

A class of excruciating conditions affecting the muscles, tendons, and nerves is known as work-related musculoskeletal disorders, or WMSDs. These illnesses, which can cause pain when working or at rest, are brought on by regular, repetitive tasks at work or by activities involving awkward postures. It is challenging to estimate how long it will take to construct a WRMD. Within the first few weeks of a new employment, a person may experience symptoms including discomfort in their

muscles, joints, or tendons. Employees with pre-existing medical conditions may be more susceptible to symptoms than employees in good health. It could take several years for some illnesses to show symptoms. A WRMD might never develop in some employees. When people start working, the prevalence of MSDs rises. Most persons experience their first bout of back pain by the time they are 35 years old (Guo et al., 2009).

One of the most common and symptomatic health issues of middle and old age is musculoskeletal impairments (Bruce & Bernard, 2007). The following are risk factors for the development of musculoskeletal disorders: heavy lifting or carrying, uncomfortable positions, repetitive work, prolonged standing or walking, and other risk factors (Johnos, 2011). Ergonomic illnesses and injuries are another name for musculoskeletal ailments. The study of ergonomics examines how employees interact with their surroundings, jobs, tasks, tools, techniques, rates of work, and other factors (Maire and Ross-Motta, 2007).

When the same muscles are utilized repeatedly or for extended periods of time without a break, musculoskeletal diseases may arise. If the profession necessitates an unusual posture or heavy lifting, there is a greater possibility of this kind of injury. Musculoskeletal conditions might include tendonitis, tenosynovitis, carpal tunnel syndrome, and back pain (Department of Labor Statistics, 2012).

Many chronic back strains and cumulative trauma disorders (CTDs), among other illnesses, are examples of musculoskeletal disorders. It has been stated that in many affluent nations, these ailments account for a substantial portion of sick leave. Any MSDs that are predominantly caused or made worse by work and the conditions under which it is performed are referred to as work-related musculoskeletal diseases (WMSDs). The majority of WMSDs are progressive conditions that primarily impact the shoulders, upper limbs, back, and neck, while they can also impact the lower limbs. Because of their distinct indications and symptoms, many MSDs, such as carpal tunnel syndrome in the wrist, are unique (Johnson, 2011).

Ankyloglossia inferiore that may be associated with disorders of the lumbar spine, the discs between the vertebrae, the ligaments surrounding the spine and discs, the spinal cord and nerves, the low back muscles, the internal organs of the pelvis and abdomen, or the skin covering the lumbar region (Ostgaard, 2011). Physical or biomechanical work-related variables, organizational or psychosocial work-related factors, individual or personal factors, and social context-related factors are the four

primary categories of elements that may potentially contribute to WRMDs (Pinder et al., 2007). Four primary categories of characteristics are associated with a higher risk of work-related mental disorders (WRMDs): work-related factors linked to physical or biomechanical aspects; work-related factors connected to organizational or psychosocial aspects; individual or personal factors; and social context-related factors (Pinder et al., 2007).

Shopkeepers are among the most susceptible groups of people to have LBP because of their normal stances and activities. They move large objects, bend a lot, twist left and right, and transfer. The shops' sitting arrangements are improper, low to the ground, and lack back support. They spend a lot of time sitting still (Bellamy, 2008). The majority of sufferers have posture that is too bad to be the source of LBP (Ebnezer, 2008). It is challenging to forecast how long it will take to establish a WRMD. During the first few weeks of a new employment, a person may experience symptoms including pain in their muscles, joints, or tendons. Compared to healthy workers, workers with pre-existing medical conditions may be more susceptible to symptoms. It could take years for some illnesses to show symptoms. It is possible that certain workers will never experience a WRMD (Department of Labor and Industries, 2007).

A study examining the relationship between daily working hours and the onset of musculoskeletal complaints revealed that some sample worked eight hours each day, while others worked five hours. A reduction in low back complaints was observed, but there was no long-term impact on the reduction in working hours on sick leave due to shoulder-neck complaints. Working part-time was found to postpone the incidence of sick leave due to musculoskeletal disorders by roughly half a year. It has been proposed that any restructuring of work activities in order to mitigate musculoskeletal injuries resulting from repetitive work should strive to fragment the patterns of muscular activity over durations significantly less than the five hours per day that the average worker works (Meligrsted and Westgaard, 2005). It is generally accepted that the injuries are the result of overuse, beyond the body's capacity to heal, because a structure is repeatedly mistreated and forced to bear a workload that it cannot do without adverse effects, even though the onset processes are not fully understood (Simoneau et al., 2006).

As per the report "Work-related Musculoskeletal Disorders, 2005," the most prevalent symptom linked to WMSDs is pain. There may occasionally be redness,

edema, and stiffness in the affected area, as well as stiffness in the muscles. In addition, some workers may report feeling "pins and needles," numbness, changes in skin tone, and less hand perspiration. Mild to severe WMSDs might develop in phases. Work-related musculoskeletal disorders can be brought on by unfavorable or severe neck or head postures, as well as by static head and/or neck postures (Moore, 2012). Work that involves a lot of energy or a certain level of physical power is referred to as heavy physical labor. According to certain biomechanical research, heavy work is defined as employment that places a lot of compressive strain on the spine (Marras et al., 2005).

Lifting and bad postures in particular seemed to be additional risk factors for back disorders associated with heavy physical labor. Moving or taking anything from a lower level to a higher one is referred to as lifting. The idea includes the strains that arise from moving objects from one plane to another and the consequences of using different patient handling and transfer strategies. Other methods of moving objects, such as pulling, pushing, or other exertions, are considered forceful movements. This review included a number of studies that employed physical workload indices that integrated lifting and forceful movements with other work-related risk variables, especially uncomfortable postures and intensive physical labor. According to certain research, lifting is defined by certain parameters, such as the average number of lifts per day (Nathan et al., 2010)

Flexion of the trunk, usually forward or laterally, is referred to as bending. Torsion or trunk rotation is referred to as twisting. Non-neutral trunk postures, which involve bending and twisting, at extreme positions or at extreme angles, are examples of awkward postures. Probability is probably correlated with changes in velocity as well as degree of departure from a neutral location (Nathan et al., 2010)

Isometric poses, in which there is little mobility, and tight or inactive postures, which place static loading on the muscles, are examples of static work postures. These included extended sitting or standing and sedentary labor in the examined studies. The exposure was frequently determined subjectively and/or in conjunction with other risk factors related to the workplace. According to several studies, over 50% of workers already experience or will experience knee discomfort, and as the population ages and careers lengthen, complaints related to knee pain will become more common. The morphological or mechanical causes, in addition to the job organization and psychosocial condition, all contribute to the growth in prevalence. Meniscus lesions

are well-known and appear to be consistent in Social Security data as well as (part,2005).

Foot pain is particularly frequent, especially among women, as a result of wearing improper shoes. Chronic foot and ankle discomfort can be caused by overuse, repetitive strain, and little, easily forgotten injuries (Balint et al., 2013). tendon and/or tendon sheath inflammation brought on by repetitive, frequently non-strenuous motions (Safety & Health Assessment & Research for Prevention, 2011). Tightness in the neck muscles is caused by irritation of the levator scapulae and trapezium, which are two of the neck's muscles. Headaches and stiff necks are also evident. A common description of a headache is a pressure-like feeling surrounding the head. By day's end, pain could worsen and accumulate. inflammation of the finger tendons and/or tendon sheaths as a result of overuse and prolonged, excessively tight, or frequent gripping. In other words, the incapacity to move fingers easily, whether or not they hurt (Safety & Health Assessment & Research for Prevention, 2011).

As a result, there is inflammation in the bursa, a sac-like cavity that sits between a bone or a tendon. It can be brought on by kneeling, pressure at the elbow, or repetitive shoulder movements at the shoulder, elbow, or knee. marked by edema and soreness where the damage was sustained. the sensation of being heavy, throbbing pain, and stiffness in the neck and upper back brought on by overhead arm movement in an extended position (Safety & Health Assessment & Research for Prevention, 2011).

One of the most prevalent tendon conditions in the hand is De Quervain's disease. It appears when the wrist bends repeatedly, irritating the tendons near the base of the thumb and on the wrist's side. Typically, a straightforward test can be used to identify De Quervain's disease position (Safety & Health Assessment & Research for Prevention, 2011). The most typical tendon disease of the shoulder is rotator cuff tendinitis. discomfort in the shoulders, stiffness, and difficulty reaching behind on the upper back (Safety & Health Assessment & Research for Prevention, 2011). Shoulder-neck pain and back pain can both be less likely to return with physical therapy. But the workout needs to be intense in order to be beneficial. additionally be performed three times a week at the minimum (Podniece, 2008).

A physical therapist can assist in creating a safe return to work program by evaluating a person's physical capacity for a particular job or activity (Occupational health solution). To prevent injury, all activities should be done gently and slowly. Breathe normally throughout strengthening and flexibility activities; exhale during effort and inhale during relaxation. Do not hold your breath. An aerobic, stretching, and strengthening exercise regimen will raise your level of general fitness. Studies have indicated that those with higher levels of physical fitness have a higher elasticity against back discomfort and injuries, and they also heal more quickly from injuries they do have (Healthy Back Exercises: Strengthen and Stretch, 2011).

Exercises aimed at strengthening muscles contribute to an improvement in muscular tone and quality. Your ability to carry out everyday tasks is aided by your muscle strength and endurance, which provide you vitality and a sense of well-being. Sufficient core strength, derived from the back and abdominal muscles, facilitates appropriate spinal movement, stabilizes the spine, and eases the maintenance of good posture. For appropriate lifting techniques and body mechanics, strong hip and leg muscles are essential. The capacity to fully extend the range of motion in the arms and legs is known as flexibility. You can increase your flexibility by stretching. Tissues surrounding the spine and pelvis should be sufficiently flexible to permit complete, normal spinal movement, avoid excessive force on the joints, and reduce the risk of damage. Stretching also gets muscles ready for action (Healthy Back Exercises: Strengthen and Stretch, 2011)

3.1 Study design:

It was a cross-sectional descriptive type of study (Hicks, 2006).

3.2 Study area:

Data was collected at Bhairab Upazila in Kishoreganj District.

3.3 Study period:

The duration of the study was July 2022 to June 2023

3.4 Study of population:

Both male and female population.

3.5 Sample size:

Formula of one sample population were used to calculate sample size.

$$n = z^2 pq \div d^2$$

$$n = (1.96)^2 \times (0.78 \times 0.22) \div (0.5)^2$$

$$n = 263$$

Here,

n = Desired sample size.

z = 1.96

p = 0.78 (ATM Hafizur Rahman, 2015).

q = 1 - p = 1 - 0.78 = 0.22

So, my aim was to focus my study by 263 samples following the calculation above initially.

3.7 Sampling technique:

Convenience the simplest technique was applied for this study.

3.8 Eligibility criteria

3.8.1 Inclusion criteria:

- Samples were selected for all age group.
- Subject who were willing to participate in the study otherwise they will not give exact information that was helpful to the study.

3.8.2 Exclusion criteria:

- Unwillingness.
- Mentally unstable person.

3.9 Method of data collection:

Face to face interview.

It was a data collection method when the interviewer directly communicates with the respondent in accordance with the prepared questionnaire.

3.10 Instrument and tools of data collection

- Self development questionnaire
- Weight machine
- Measuring tape

3.11 Data entry:

Statistical packages for social sciences (SPSS-26 version).

3.12 Data analysis:

Data was analysis by using statistical packages for social sciences (SPSS-26 version) Chi square test.

3.13 Ethical consideration:

Before data collection, permission for the ethical review board of Saic College of Medical Science and Technology (SCMST). Prior to data collection, the objective of the study explained in understandable language to the study participant and their written informed consent were taken. The prospective participants gave free opportunity to receive summary information of the study in writing before giving consent and take part in the interview of the study. The participant's right to refuse and withdraw from the study was accepted.

3.14 Budget:

This study was conducted by using my own fund. I didn't receive any funds from others or was not try to collect funds from any 2nd person.

The aim of the study was identified Musculoskeletal pain among the shopkeepers at Bhairab upazila in kishoreganj District . The data was collected by the researcher himself. Structured question was used with both open – ended close - ended questions in the questionnaire. The data was analyzed with Microsoft office Excel 2007 with SPSS 26 version software program. In this study researcher use bar, column, figure, pie chat, line, area diagram to show the result of the study. Because it is easier to make sense of a set of data.

4.1 Distribution of the socio demographic factors of the participants:

4.1.1 Distribution of age of the participants:

This study's participants mean and standard deviation of participants age where are $\text{mean} \pm \text{SD} = 40.9 \pm 14.564$. About (n=21) 8% were <20 years old, (n=120) 45.6% were 20-40 years old, (n=93) 35.4% were 41-60 years old and (n=29) 11% were >60 years old.

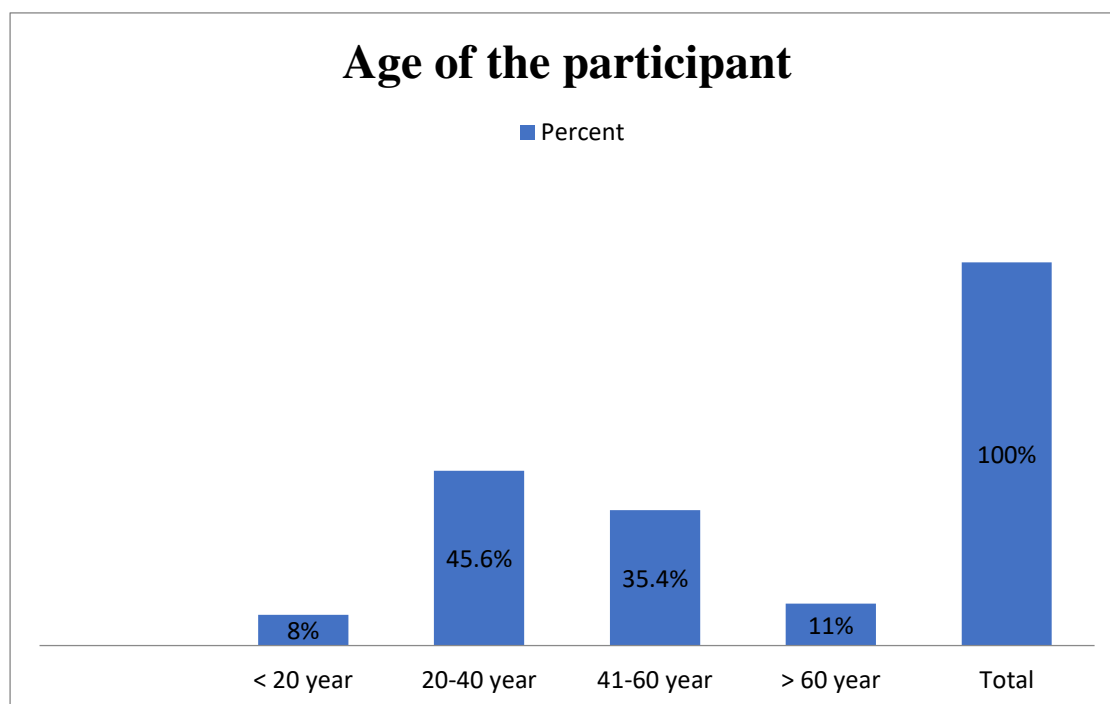


Figure 1: Age of the participant.

4.1.2 Living area of the participants.

In this study living area of the participants (n=20) 7.6% were Rural area and (n=2) 0.8% were Urban area and (n=241) 91.5% were Semi urban area.

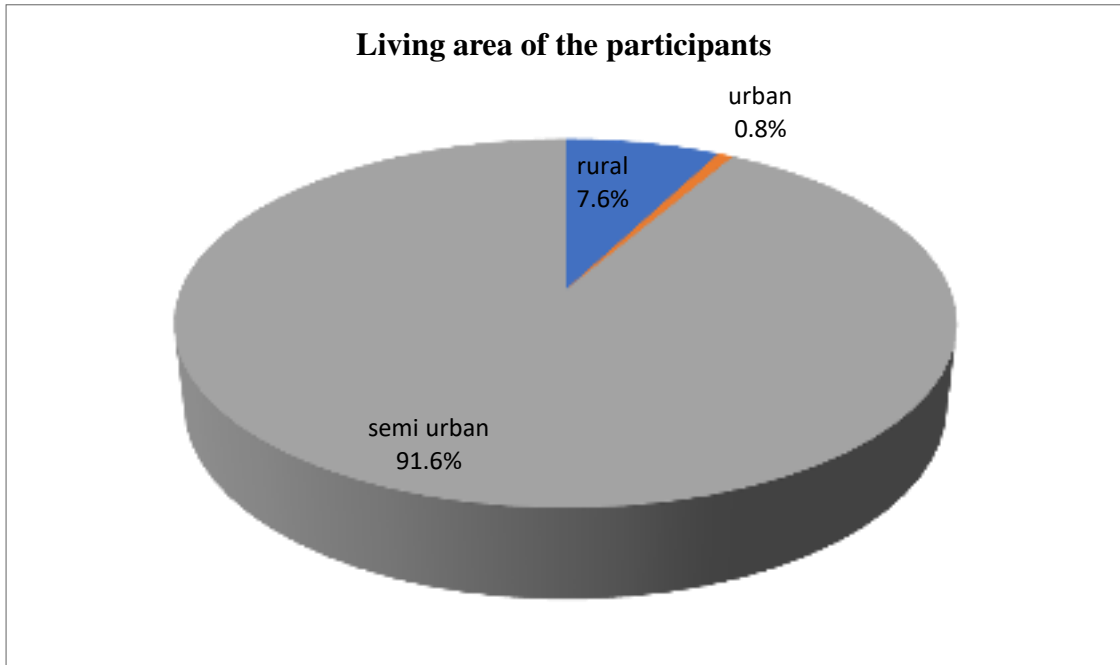


Figure 2: Living area of the participants.

4.1.3 Family type of the participants

Family type of the participants (n=170) 64.4% people from nuclear families and (n=93) 35.4 % from extended family.

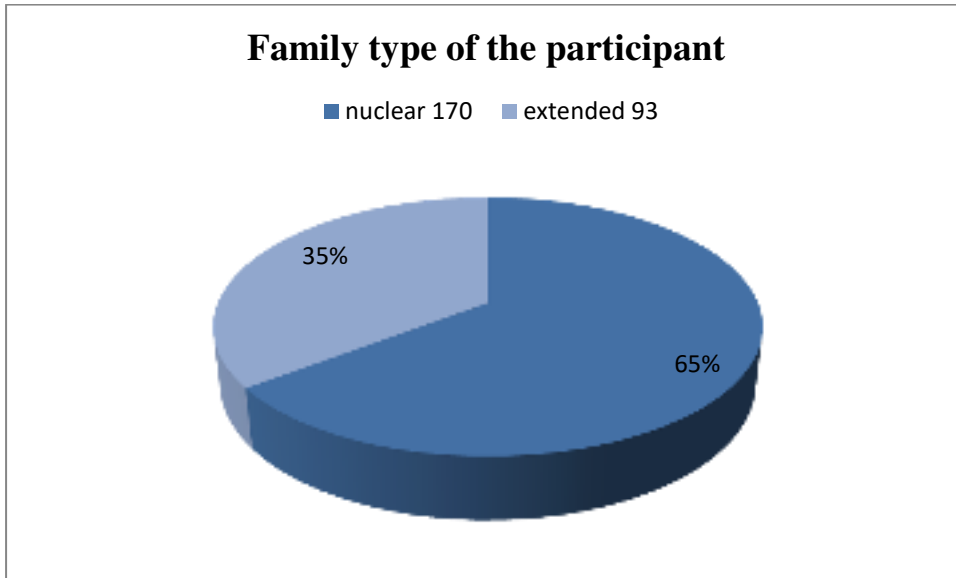


Figure 3: Family type of the participants

4.1.4 Religion of the participants.

About (n=259) 98.5% of the participants were Muslim and followed by Hindu (n=4) 1.5%.

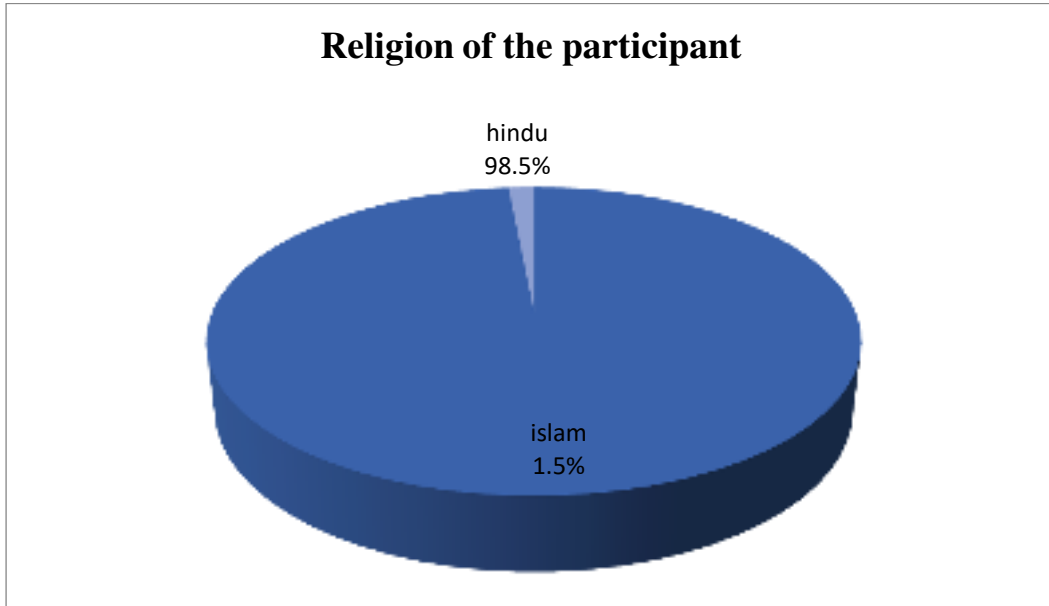


Figure 4: Religion of the participants.

4.1.5 Marital status of the participants

Among total 263 participants, (n=221) respondents married whose were 84.0%, and (n= 42) respondents unmarried whose were 16.0%.

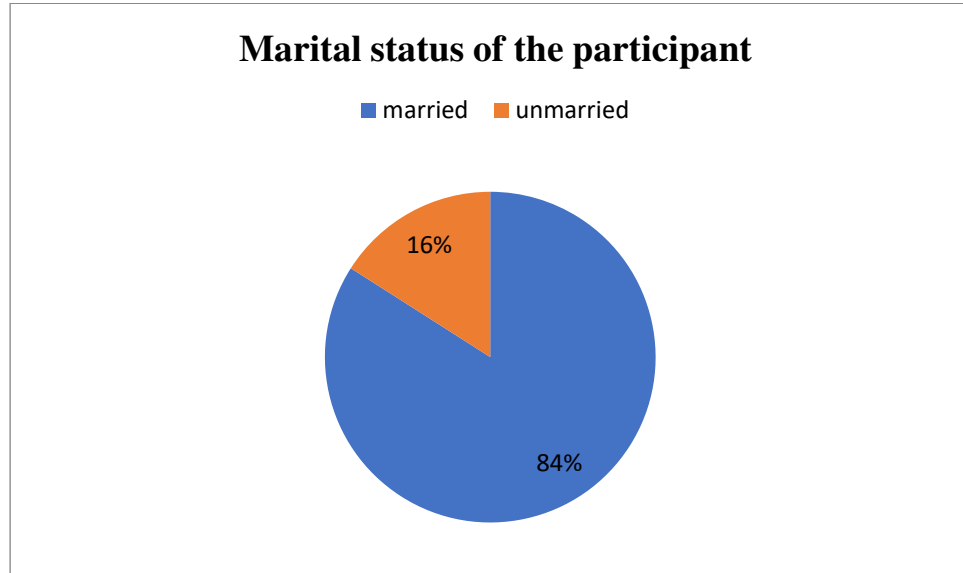


Figure 5: Marital status of the participants.

4.1.6 Monthly income of the participants

Table 01: Monthly income of the participants

Monthly income of the participant	Percent	Frequency
>15000	61.6%	182
15000-30000	32.3%	85
30000-45000	3.4%	9
45000-60000	2.7%	7
Total	100.0%	263

In his survey the mean and standard deviation of monthly income were Mean \pm SD= 16937 \pm 9753.296 ; in this study (61.6%) monthly income was less than 15,000 taka; (32.3%)monthly income 15000-30000 taka; (3.4%) monthly income 30000-45,000 taka; (2.7%) monthly income 45000-60000 taka.

4.1.7 Gender of the participants

Among total 263 participant, (n= 257) respondents male whose were 97.7% and (n= 6) respondents female whose were 2.3%.

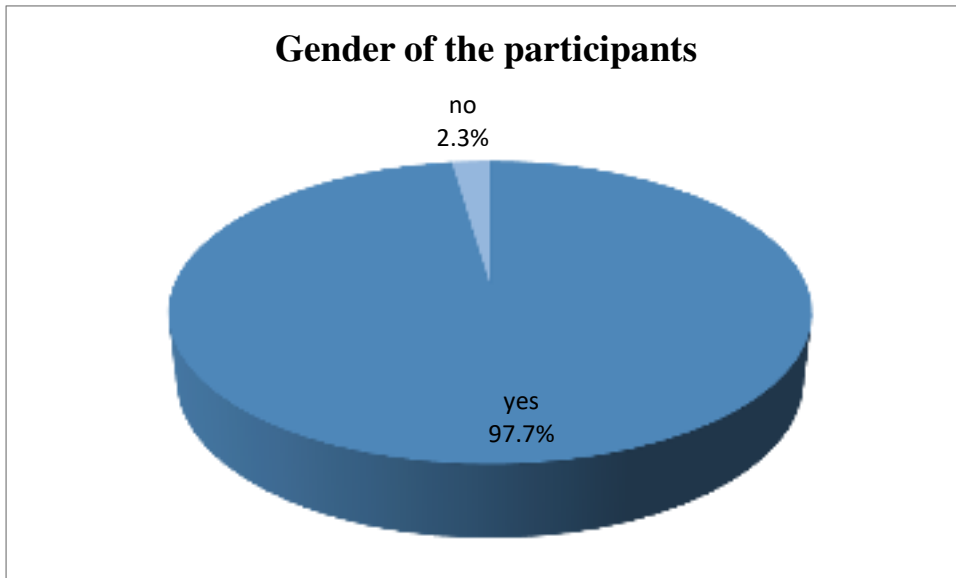


Figure 6: Gender of the participants

4.1.7 Education label of the participants

Among the 50% participants, 18.6%(n= 49) participants had illiterate, 32.3%(n= 85) participants had primary education, 38.0%(n= 100) participants had secondary education, 5.3%(n=14) participants had higher secondary education, 1.1%(n=3) participants had degree education and 4.6% participants had Bachelor or above education.

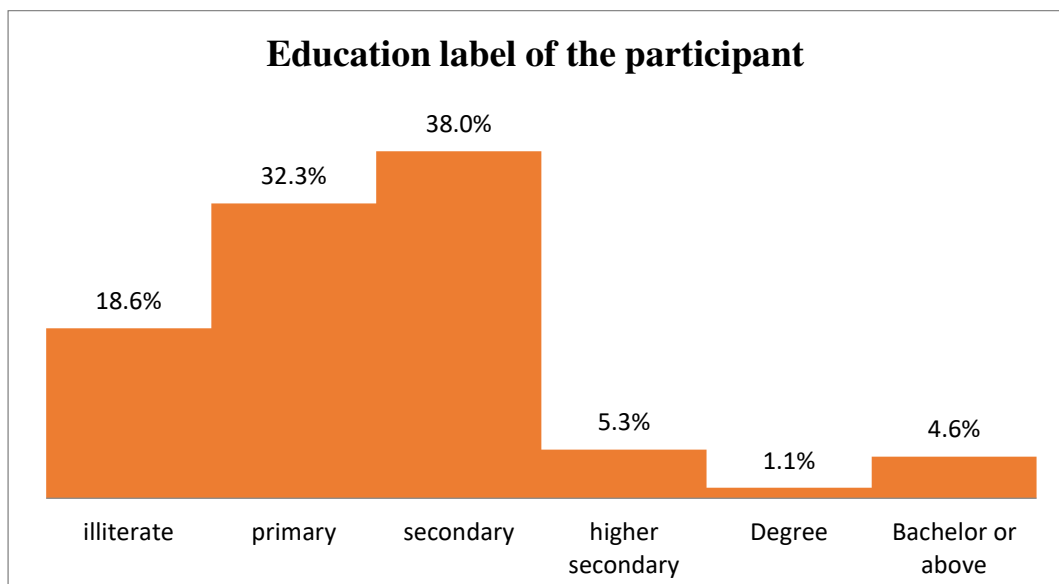


Figure 6: Education label of the participants

4.2 Distribution of the pain related types of the participants:

4.2.1 Neck pain of the participants

Among total (n= 143) participant, 40 respondents yes whose were 15.2 % and (n= 103) respondents no whose were 39.9%.

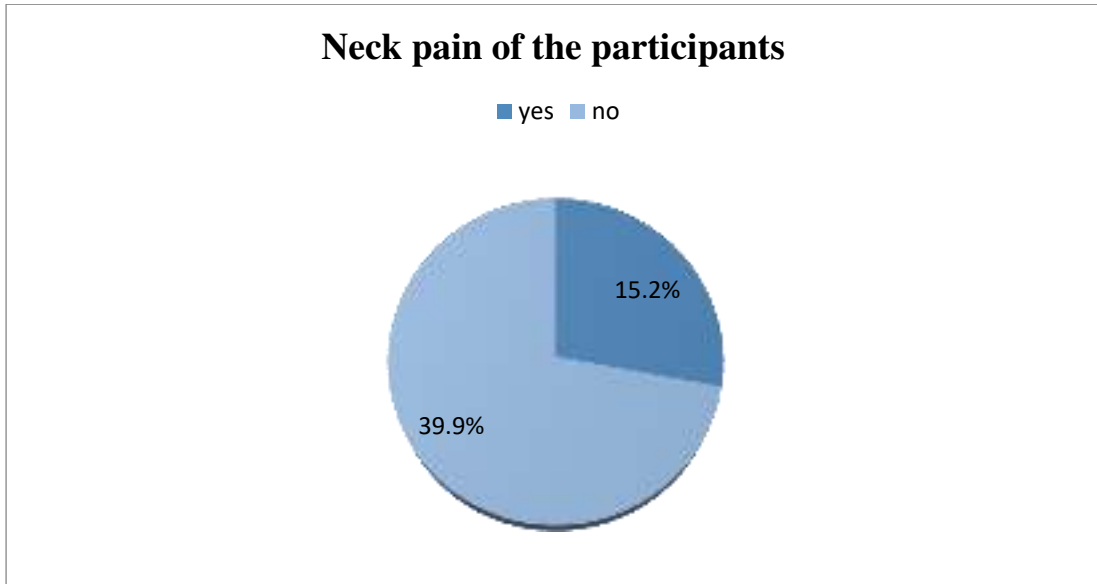


Figure 6: Neck pain of the participants

4.2.2 Shoulder pain of the participants.

Among total 143 participant, (n= 9) respondents yes whose were 3.4%, and (n=134) respondent whose were 51.0%.

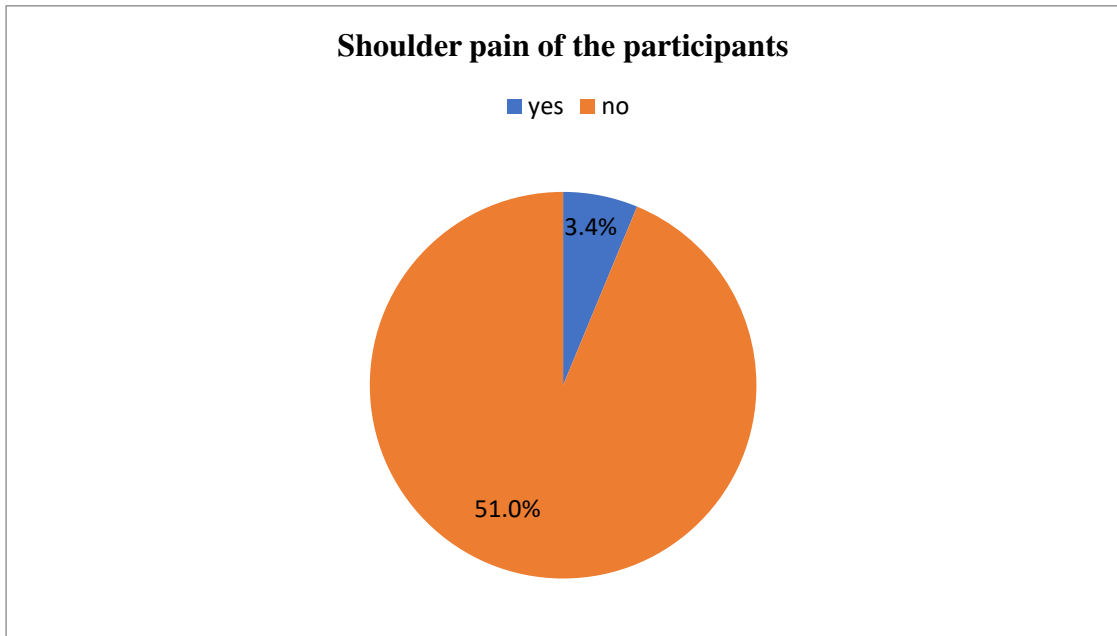


Figure 7: Shoulder pain of the participants.

4.2.3 Elbow pain of the participants .

Among total 143 participant, (n=5) respondents yes whose were 1.9% and (n=138) respondents no 52.5%.

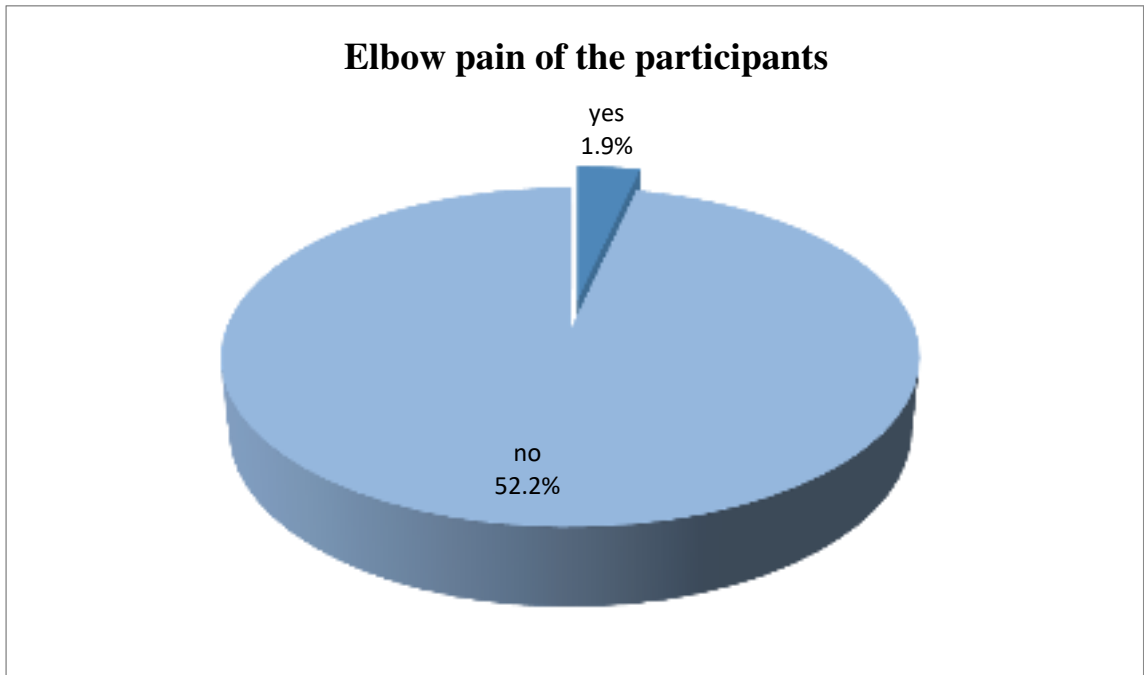


Figure 8: Elbow pain of the participants.

4.2.4 Wrist pain of the participants.

Among total 143 participant, (n=1) respondents yes whose were 0.4% and (n=142) respondents no whose were 54.0%.

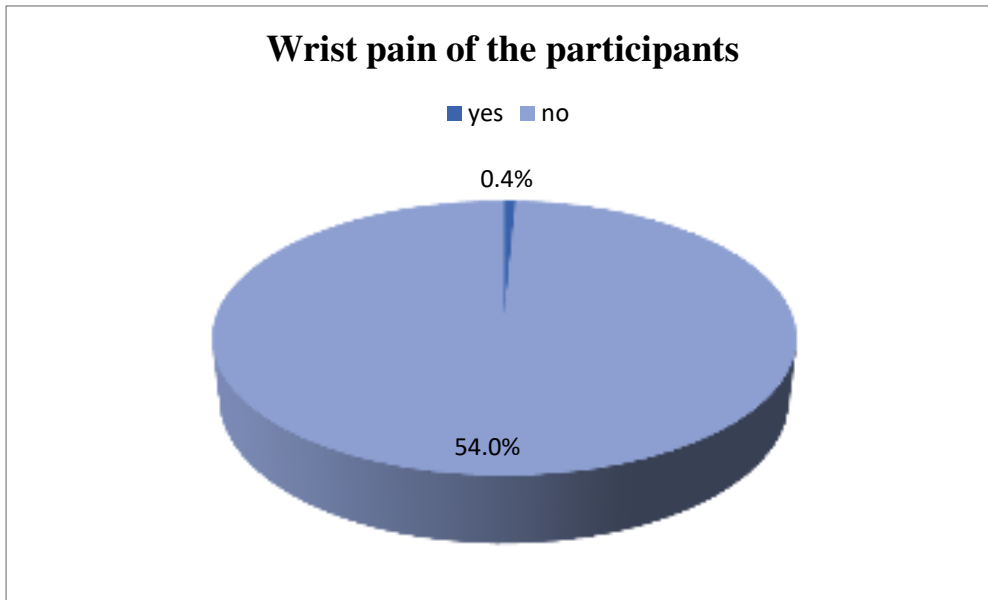


Figure 09: Wrist pain of the participants.

4.2.5 Upper back pain of the participants.

Among total 143 participant, (n=1) respondents yes whose were 0.4% and (n=142) respondents no whose were 54.0%.

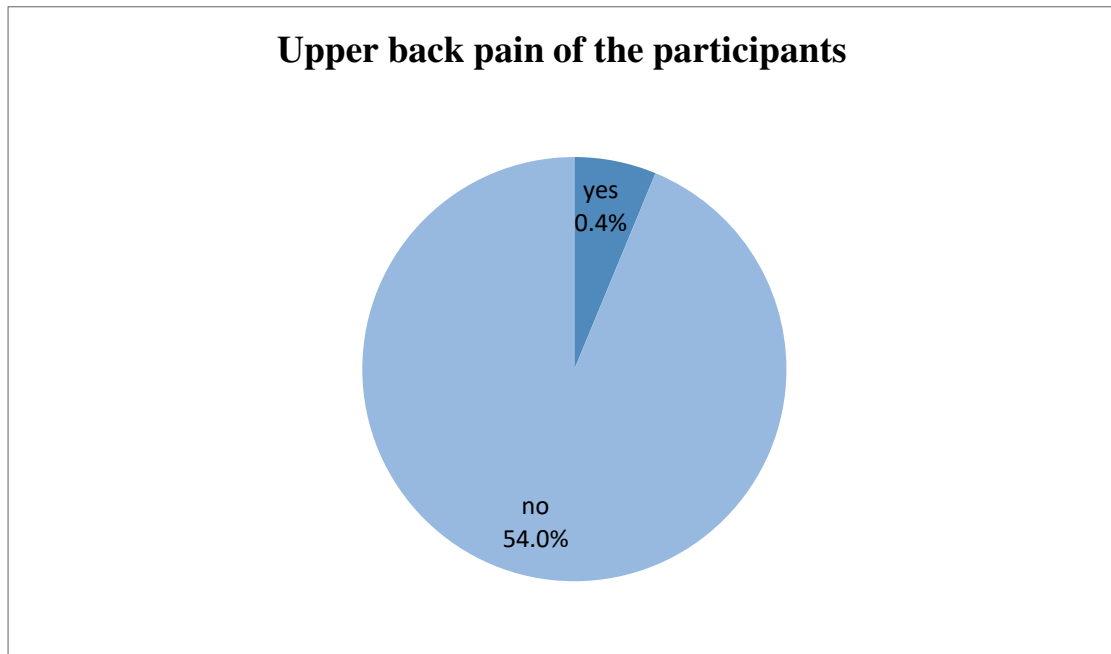


Figure 10: Upper back pain of the participants.

4.2.6 Lower back pain of the participants

Among total 143 participant, (n= 92) respondents yes whose were 35.0% and (n=51) respondents no whose were 19.4%.

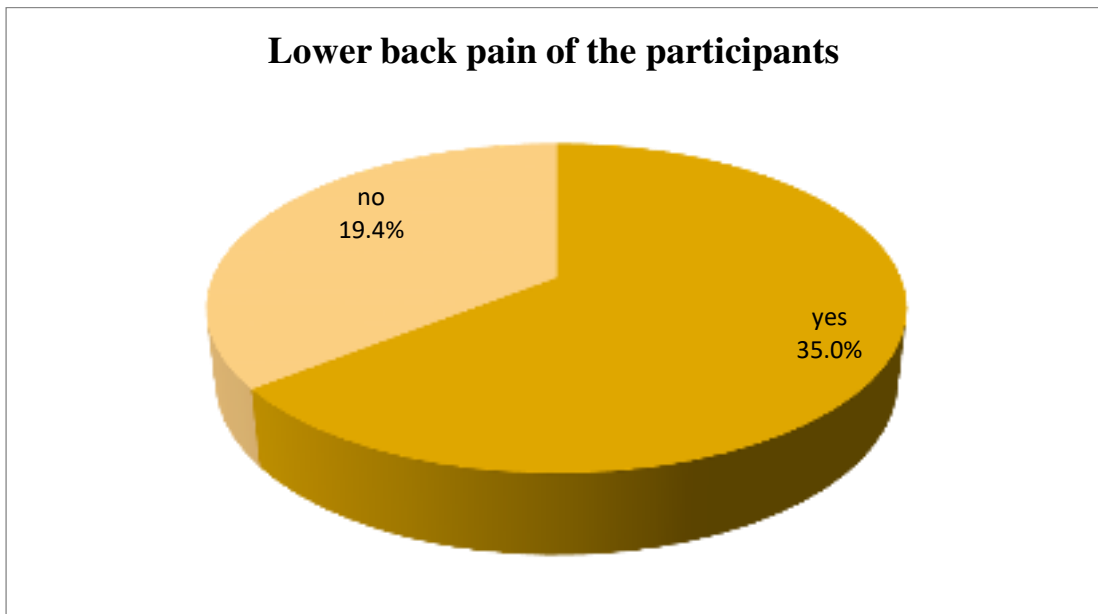


Figure 11: Lower back pain of the participants.

4.2.7 Hip pain of the participants

Among total 143 participant, (n= 1) respondents yes whose were 0.4% and (n= 142)respondents no whose were 54.0%.

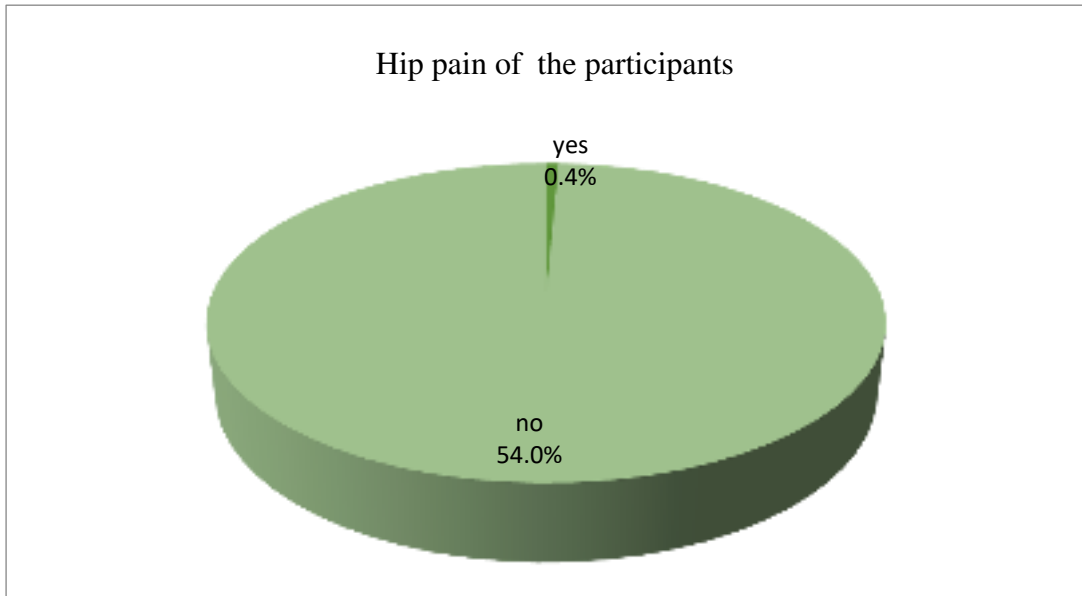


Figure 12: Hip pain of the participants

4.2.8 Knee pain of the participants

Among total 143 participant, (n=15) respondents yes whose were 5.7% and (n=128) respondents no whose were 48.7%.

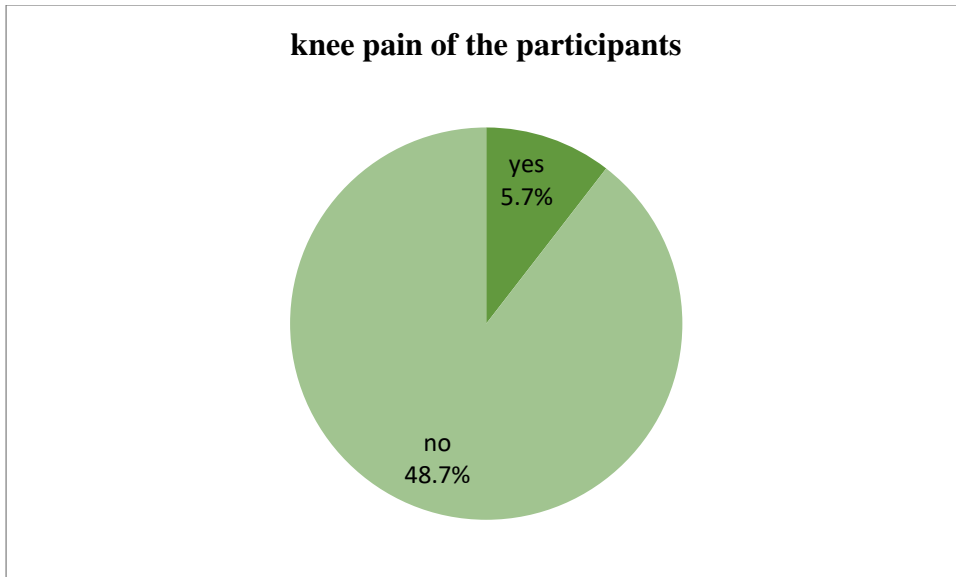


Figure 13: Knee pain of the participants.

4.2.9 Ankle pain of the participants

Among total 143 participant, (n=12) respondents yes whose were 4.6% and (n=131) respondents no whose were 49.8%.

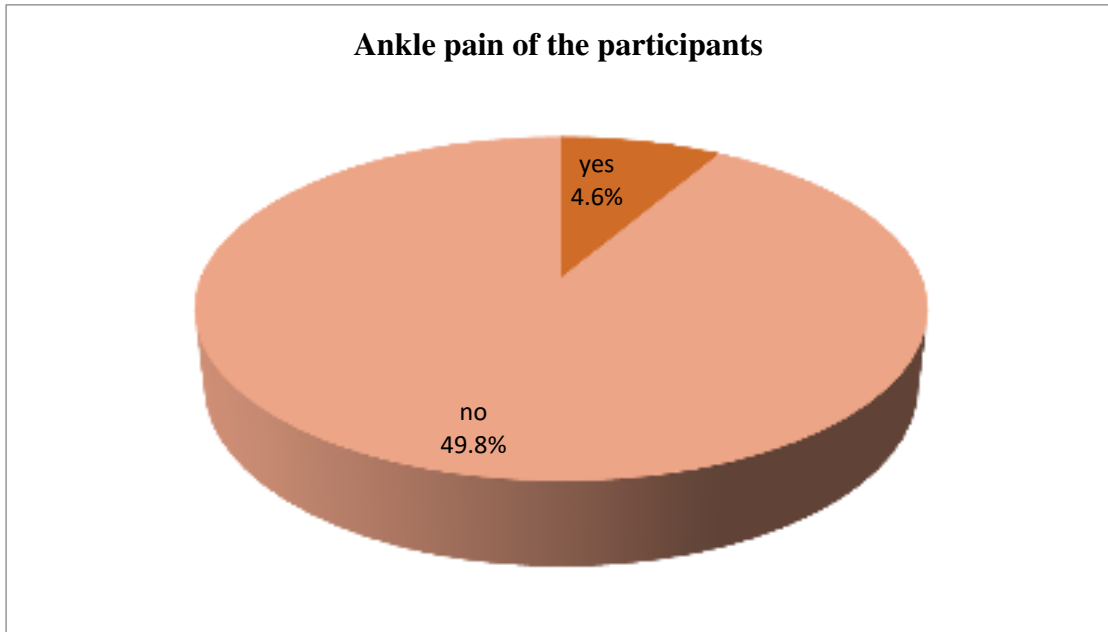


Figure 14: Ankle pain of the participants.

4.3 Distribution of the health related factor of the participants

4.3.1 BMI of the participants

In this study's survey the mean and standard deviation of BMI were $\text{mean} \pm \text{SD} = 24.009 \pm 4.0565$. In this study (8.4%) of participants BMI were below <18.5 under weight, (50.6%) of participants BMI 18.5-24.9 normal, (31.9%) of participants BMI were 25-29.9 overweight, (9.1%) of participants BMI >30 obesity.

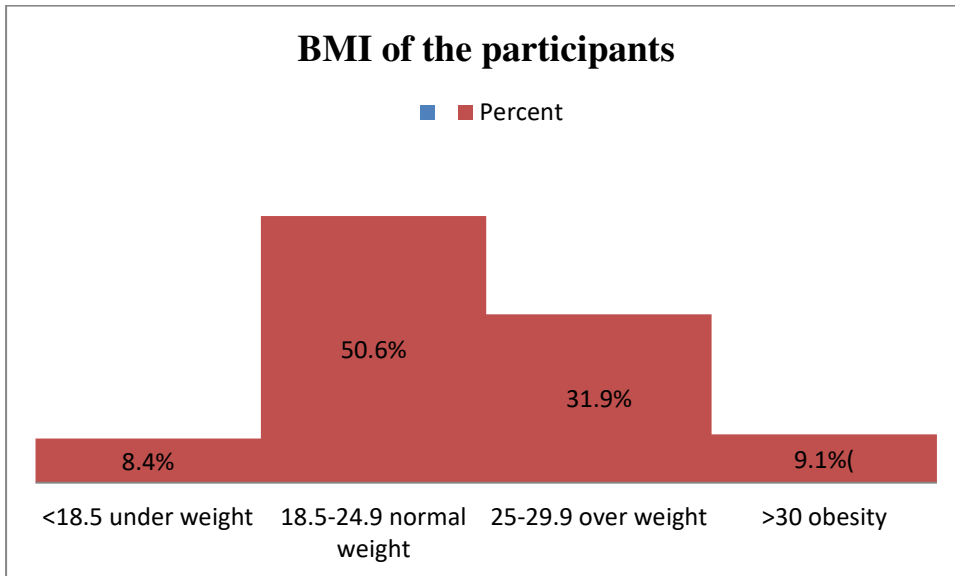


Figure 12: BMI of the participants.

4.3.2 Depression of the participants

Among total 263 participant, (n=127) respondents yes whose were 4.6% and (n= 136) respondents no whose were 49.8%.

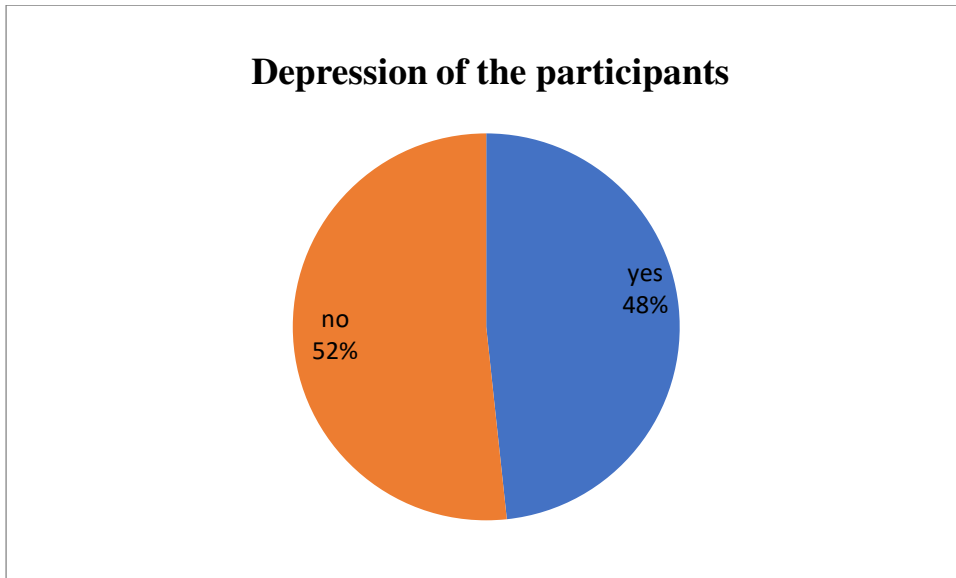


Figure 13: Depression of the participants.

4.3.3 Smoking habit of the of the participants

Among total 263 participant, (n= 97) respondents yes whose were 36.9% and (n= 166) respondents no whose were 63.1%.

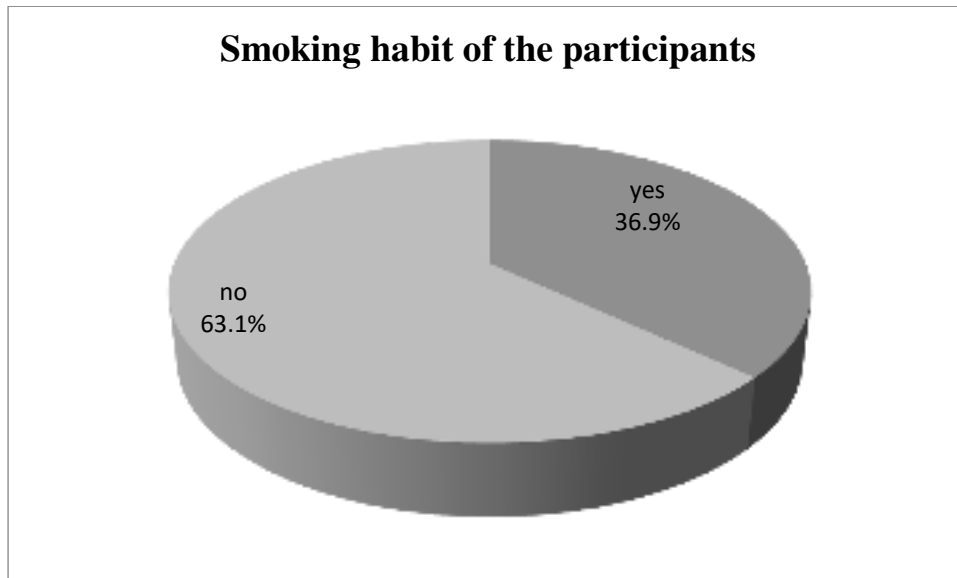


Figure 14: Smoking habit of the participants.

4.3.4 Diabetes of the participants

Among total 263 participant, (n=97) respondents yes whose were 36.9% and (n= 166) respondents no whose were 63.1%.

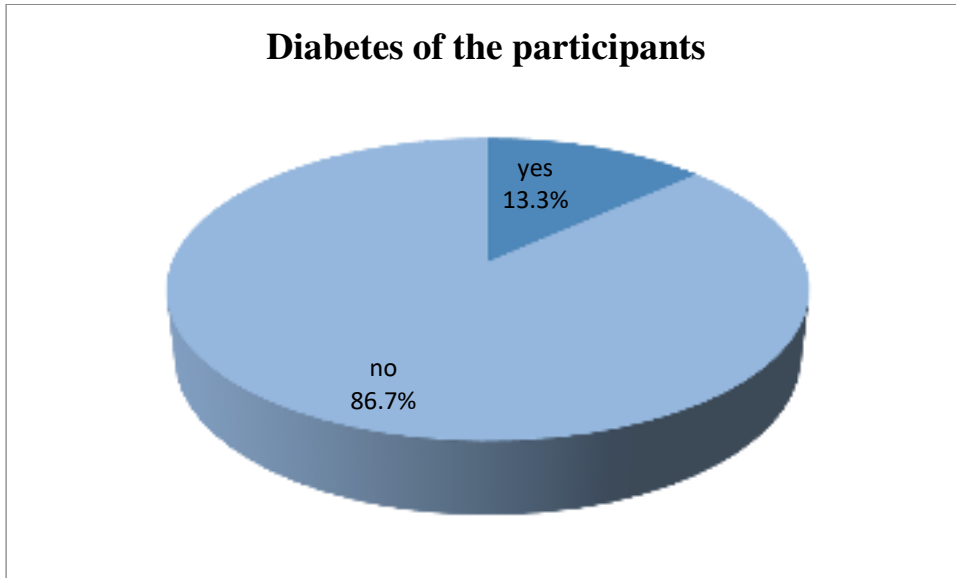


Figure 15: Diabetes of the participants.

4.3.5 Arthritis of the participant

Among total 263 participant, (n= 81) respondents yes whose were 30.8% and 182 respondents no whose were 69.2%.

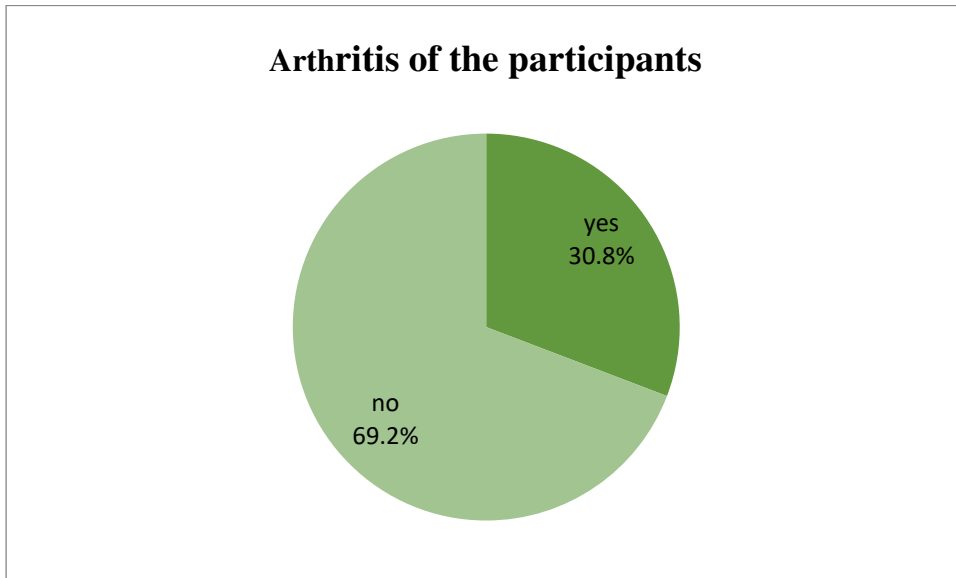


Figure 16 : Arthritis of the the participants

4.3.6 Treatment of the participants

Among total 263 participant, (n= 259) respondents medication whose were 98.5 % and (n= 4) respondents physiotherapy whose were 1.5%.

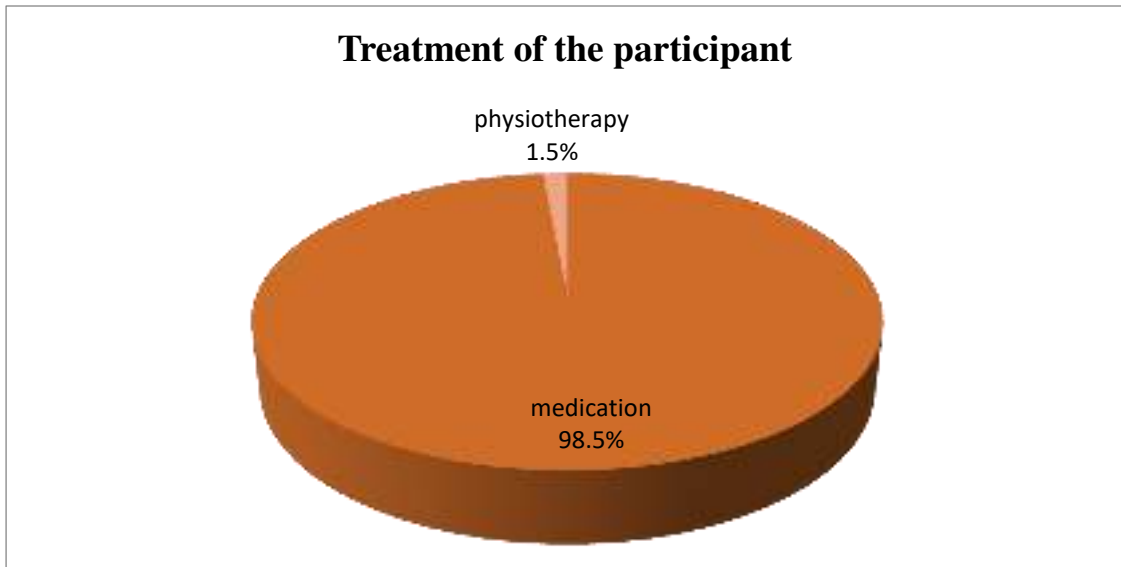


Figure 16: Treatment of the participants.

4.4 Association

4.4.1 Association between Age and neck pain of the participants.

Table 02: Association between age and neck pain of the participants.

Association between Age of the participants and neck pain of the participants						Chi-value	P-value
			Lower back pain of the participants		Total	5.125	0.163
			Yes	No			
Age of the participants	<20 year	Count	1	5	6		
		% of Total	0.7%	3.5%	4.18%		
	20-40 Year	Count	19	50	69		
		% of Total	13.29%	34.96%	48.24%		
	41-60 Year	Count	18	31	49		
		% of Total	12.6%	21.7%	34.27%		
	>60 Year	Count	2	17	19		
		% of Total	1.39%	11.9%	13.27%		
	Total		Count	40	103	143	
			% of Total	27.98%	72.02%	100.0%	

Here, Chi-value 5.125 and $P = 0.163 < 0.05$ represents as non-significant and indicate that those non-significant relation between Age and neck pain of participants.

4.4.2 Association between Age of the participants and lower back pain of the participant.

Table 03: Association between Age of the participants and Lower back pain of the participants.

Association between Age of the participants and lower back pain of the participants						Chi-value	P-value	
			Lower back pain of the participants			Total	5.925	0.115
			Yes	No				
Age of the participants	<20 year	Count	4	2	6			
		% of Total	2.79%	1.39%	4.18%			
	20-40 Year	Count	50	19	69			
		% of Total	34.96%	13.29%	48.25%			
	41-60 Year	Count	25	24	49			
		% of Total	17.5%	16.8%	34.27%			
	>60 Year	Count	13	6	19			
		% of Total	9.1%	4.2%	13.3%			
Total		Count	92	51	143			
		% of Total	64.65%	35.35%	100.0%			

Here, Chi-value 5.925 and $P = 0.115 < 0.05$ represents as non significant and indicate that those significant relation between Age of the participants and lower back pain of the participants.

4.4.3 Association between age and knee pain of the participants.

Table 04: Association between age of the participants and knee pain of the participants.

Association between Age of the participants and knee pain of the participants						Chi-value	P-value	
			knee pain of the participants			Total	14.690	0.002
			Yes	No				
Age of the participants	<20 year	Count	0	6	6	14.690	0.002	
		% of Total	0%	4.2%	4.2%			
	20-40 Year	Count	2	67	69			
		% of Total	1.4%	46.9%	48.3%			
	41-60 Year	Count	7	42	49			
		% of Total	4.9%	29.4%	34.3%			
	>60 Year	Count	6	13	22			
		% of Total	5.6%	9.09%	14.69%			
	Total		Count	15	128			143
			% of Total	11.9%	88.59%			100.0%

Here, Chi-value 14.690 and $P = 0.002 < 0.05$ represents a significant and indicate that those significant relation between Age of the participants and knee back pain of the participants.

4.4.4 Association between Diabetes and low back pain of the participant.

Table 05: Association between Diabetes and low back pain of the participants.

Association between Diabetes and low back pain of the participant					Chi-value	P-value
Diabetes of the participants		Low back pain of the participants		Total	177	0.674
		Yes	No			
	Yes	17	8	25		
	No	75	43	118		
Total		92	51	143		

Here, Chi-value 177 and $P = 0.674 < 0.05$ represents as non-significant and indicate that those non-significant relation between Diabetes and low back pain.

4.4.5 Association between Diabetes and knee pain of the patient.

Table 06: Association between Diabetes and knee pain of the participants.

Association between Diabetes and knee pain of the participant					Chi-value	P-value
Diabetes of the participants		knee pain of the participants		Total	200	0.655
		Yes	No			
	Yes	2	23	25		
	No	13	105	118		
Total		15	128	143		

Here, Chi-value 200 and $P = 0.655 < 0.05$ represents as non-significant and indicate that those non-significant relation between Diabetes and Knee pain.

4.4.6 Association between BMI and low back pain of the participants.

Table 07: Association between BMI of the participants and low back pain of the participants

Association between BMI of the participants and low back pain of the participants						Chi-value	P-value	
			Low back pain of the participants		Total			
			Yes	No				
BMI of the participants	<18.5 Under Weight	Count	3	2	5	5.650	1.30	
		% of Total	2.1 %	1.1%	3.1%			
	18.5-24.9 Normal Weight	Count	48	24	72			
		% of Total	33.6%	16.8%	50.4%			
	25.0-29.9 Over Weight	Count	37	17	54			
		% of Total	25.8%	11.9%	37.7%			
	>30 Obesity	Count	4	8	12			
		% of Total	2.8%	5.6%	8.4%			
	Total		Count	92	51			143
			% of Total	64.3%	35.75%			100.0%

Here, Chi-value 5.650 and $P = 1.30 < 0.05$ represents as non-significant and indicate that those non-significant relation between BMI of the participants and low back pain of the participants.

This study looked at the shopkeepers' prevalence of work-related musculoskeletal disorders (WRMD). In India, 76.5% of people reported having musculoskeletal issues (Talwar et al., 2009). According to the European Agency for Safety and Health at Work (2007), 84% of WRMD cases were documented in European nations. With MSD 76.25 % and Without MSD 23.75 % were the findings of Priya et al. (2010). According to Choobineh and Tabatabaee (2009), 87.1% of Iranians have MDS symptoms in one form or another. Seventy-five percent of Americans reported having pain at work (Scherzer et al., 2005).

European Agency for Safety and Health at Work (2009) the higher number of age ranges suffered from WRMDs between 55-64 years and lower number of age ranges suffered from WRMDs 25-34 years. The mean age was 35.05(SD \pm 8.135) years. (Chyuan et al., 2012)

This study's participants mean and standard deviation of participants age where are mean \pm SD= 40.9 \pm 14.564. About (n=21) 8% were <20 years old, (n=120) 45.6% were 20-40 years old, (n=93) 35.4% were 41-60 years old and (n=29) 11% were >60 years old.

Germany work interruption due to WRMD in 28.7% (Prins et al., 2007). Scherzer et al. (2005) found in his research at Riyadh that only 21.62% missed work due to neck pain and only 24.66% due to back pain. (57.7%) 45 of the participants had work performance reduce due to WRMDs. According to European Agency for Safety and Health at Work (2009) 61% of work performance reduces due to WRMDs.

Among total (n= 143) participant, Neck pain of the participant 15.2 %, Shoulder pain of the participant 3.4%, Elbow pain of the participant 1.9%, Wrist pain of the participant 0.4%, Upper back pain of the participant 0.4%, Lower back pain of the participant 35.0%, Hip pain of the participant 0.4%, knee pain of the participant 5.7 % and Ankle pain of the participant 4.6 %.

Among the participants 12% (6) had suffered for five episodes and 16%(8) suffered more than five episodes. The most affected body parts were spine in 30%(15) participants, shoulder in 18%(9) participants, hip in 40% (20) participants, elbow in 2%(1) participants, neck in 4%(2) participants, knee in 6%(3) participants. In India most of the workers were affected body parts were neck (80%), shoulder

(20%), wrist (45%) and low back (75%) (Ghoshal et al.,2010).

Analysis showed that, most shopkeepers suffered from WRMD, the most common symptoms were pain. Chyuan et al. (2012) 84% participants reported experience of WRMD related pain. Scherzer et al. (2005) 75% was experienced Work-related pain.

Gangopadhyay et al. (2010) found that prevalence of affected body parts were head/neck (42%), low back (34%), upper back (28%), wrists/hands (20%), shoulders (16%), ankles/feet (13%), knees (12%), hips (6%) and elbows (5%). Work-related musculoskeletal disorders mostly affecting the lower back (97%), knees (85%) and shoulders (77%).

In 2019 (Mahishale, A. et al.) association between BMI and Low back pain $P = 0.1333 < 0.05$ represents as non-significant and indicate that those non-significant relation between BMI of the participants and urinary incontinence.

In this study's association Chi-value 177 and $P = 0.674 < 0.05$ represents as non-significant and indicate that those non-significant relation between Diabetes and low back pain.

Among total 263 participant, Diabetes of the participant 36.9%.Depression of the participant 4.6%.Smoking habit of the participant 36.9%.Treatment of the participant 98.5%.

In this study's survey the mean and standard deviation of monthly income were mean \pm SD= 24.009 \pm 4.0565. In this study (8.4%) of participants BMI were below <18.5 under weight,(50.6%) of participants BMI 18.5-24.9 normal,(31.9%) of participants BMI were 25-29.9 overweight ,(9.1%) of participants BMI >30 obesity.

Analysis showed that, 72% participants out of 50 participants had work interruption due to WRMD and 28% (n=14) participants out of 50 participants had not work interruption due to WRMD. In Germany work interruption due to WRMD in 28.7% (Prins et al., 2007).

Scherzer et al. (2005) found in his research at Riyadh that only 21.62% missed work due to neck pain and only 24.66% due to back pain. (57.7%) 45 of the participants had work performance reduce due to WRMDs. According to European Agency for Safety and Health at Work (2009) 61% of work performance reduces due to WRMDs

Among total 263 participant, (n= 259) respondents medication whose were 98.5 % and (n= 4) respondents physiotherapy whose were 1.5%. Krause et al. (2009) found that 73% taken medical treatment for WRMDs.

Though the expected sample size was 263 for this study . There are no literatures about Musculoskeletal pain among the shopkeepers in the perspective of Bangladesh so it is difficult to compare the study with the other research. The researcher was able to collect data only from Bhairab for a short period of time which will affect the result of the study to generalize for wider population. The questionnaire was developed only through searching sufficient literature but considering the context of the demography of the population a pilot study would substantial before developing questionnaire.

7.1 Conclusion

In conclusion, musculoskeletal pain among shopkeepers is a prevalent and significant issue that warrants attention and proactive measures. The demanding nature of their work, involving prolonged periods of standing, repetitive movements, and heavy lifting, puts a considerable strain on the musculoskeletal system. This often leads to various forms of discomfort and pain, affecting not only the physical well-being but also the overall quality of life for these individuals. Addressing musculoskeletal pain among shopkeepers requires a multifaceted approach. Employers should prioritize ergonomic considerations in the design of workspaces, providing suitable seating, and implementing measures to reduce repetitive strain. Additionally, regular breaks, stretching exercises, and employee education on proper body mechanics can contribute to mitigating the risk of musculoskeletal issues. Musculoskeletal pain among shopkeepers is a multifaceted issue influenced by various physical and psychosocial factors. This literature review has highlighted the prevalence of musculoskeletal pain in this occupational group, identified key risk factors, and explored potential interventions. Future research should focus on developing tailored strategies to address both the physical and psychosocial aspects of musculoskeletal health among shopkeepers, ultimately improving their overall well-being and quality of life. Work related musculoskeletal disorders represent a significant burden for shopkeepers. The study was represents the strong evidence that WRMDs was common among shopkeepers. In order to reduce musculoskeletal problems, correct postural practices, proper design of tools and equipment significantly can prevent MSDs.

7.2 Recommendation:

A recommendation evolves out of the context in which the study was conducted. The purpose of the study was to estimate the Musculoskeletal pain among shopkeepers. Though, the research had some limitations but some further step that might help for the better accomplishment of further research. There are few studies on shopkeepers. These cannot cover all aspect of the vast area. For the ensuring of the generalization of the research it is recommended to investigate a large sample .So, for further study it is strongly recommended to increase sample size to generalize the result in all of the shopkeepers in Bangladesh.

Aweto, H.A., Tella, B.A. and Johnson, O.Y., (2015). Prevalence of work-related musculoskeletal disorders among hairdressers, *International Journal of Occupational Medicine and Environmental Health*, 28(3):545-555

Aghilinejad, M., Kabir-Mokamelkhah, E., Talebi, A., Soleimani, R., Dehghan, N., (2016). The effect of magnification lenses on reducing musculoskeletal discomfort among dentists. *Med J Islam Repub Iran* 30: 473.

Answers,(2015),shopkeeper,Available:<http://www.answers.com/topic/shopkeeper> [accessed on 28th August 2015].

Brown, L., Williams, H., Johnson, L., Smith A., Richardson J. Psychosocial Factors and Musculoskeletal Pain: A Cross-Sectional Study Among Retail Workers. *Safety and Health at Work*. 2020;11(2):192-197.

Bellamy, C., (2008). The status of world's children -2008. USA: United Nations Children's Fund. Available at [https://www.google.com.bd/webhp?sourceid=chromeinstant&ion=1&espv=2&ie=UTF8#q=Bellamy%2C+C.%2C+\(2008\).+The+status+of+world%E2%80%99s+children+-2008.+United+nation+children+funds%2C+UNICEF](https://www.google.com.bd/webhp?sourceid=chromeinstant&ion=1&espv=2&ie=UTF8#q=Bellamy%2C+C.%2C+(2008).+The+status+of+world%E2%80%99s+children+-2008.+United+nation+children+funds%2C+UNICEF) [accessed on 25th August 2015]

Burdorf, A., and Sorock, G., (2007). Positive and negative evidence for risk factors of work-related back disorders. *Scandinavian Journal of Work, Environment & Health*, 23: 243-256.

Bellamy , C., 2004. The status of world children's-2004, United nation children funds, UNICEF.

BBS,2002,Bangladesh bureau of statistics, available: <http://www.bangladeshbureau/statiatics.com> [accessed on 11th May 2012].

Brown, L., Evans, M.. (2018). "Lived Experiences of Musculoskeletal Pain Among Shopkeepers: A Qualitative Inquiry." *Qualitative Health Research*, 25(6), 783-796.

Balint, G.P., Korda J., Hangody L. and Balint P.V., (2013). Regional musculoskeletal conditions: foot and ankle disorders. *Best Practice & Research Clinical Rheumatology*, 17(1):87-111.

Bruce, P. and Bernard M., (2007). *Musculoskeletal Disorders and Workplace Factors*, U.S: Department of Health and Human Services, Available: <http://www.cdc.gov/niosh/docs/97-141/pdfs/97-141.pdf>, [accessed on 27th August 2015].

Choobineh, A., and Tabatabaee, S. H., (2009). Musculoskeletal Problems Among Workers of an Iranian Sugar-Producing Factory. *International Journal of Occupational Safety and Ergonomics*, 15(4): 419-424.

Chyuan, J., Du, C., Yeh, W. and Li, C., (2012). Musculoskeletal disorders in hotel restaurant workers. *Occupational Medicine*, 54: 55-57.

Department of Labor Statistics, (2012). *Workplace injuries and ill-nesses & Musculoskeletal Disorders and Workplace Factors*, [online]. US: Bureau of Labor Statistics. Available: <http://www.cdc.gov/niosh/97-141> [accessed on 29th August 2015].

Ebnezer, J., (2008). *Essentials of Orthopedics for Physiotherapists*. 2nd ed., India: Jaypee Brothers Medical Publishers.

Guo, H., Chang, Y., Yeh, W., Chen, C. and Guo, Y., (2009). Prevalence of musculoskeletal disorder among workers in Taiwan: A nationwide study. *Journal of Occupational Health*, 46:26-36.

Gupta, G., (2013) Prevalence of Musculoskeletal Disorders in Farmers of Kanpur-Rural. India. *J Community Med Health Educ* 3(249): 2161-0711.

Johnos, W.M.S., (2011). Prevalence of Upper Extremity Musculoskeletal Disorders. *Musculoskeletal Disorders*, 5(2):187-190.

Johnson, P., Brown, R., (2018). "Longitudinal Study on the Impact of Standing Hours on Lower Back Pain in Shopkeepers." *Occupational Medicine*, 25(2), 67-78.

Johnson, L., Nicholson, S., Richardson, J., Brown, B., Stalgaitis, C., Duvall, J. Associations between Ergonomic Risk Factors, Work-related Musculoskeletal

Disorders, and Shoulder Musculoskeletal Pain in Women Supermarket Cashiers. *Safety and Health at Work*. 2019;10(2):213-219.

Kader, M., 2005. Evaluating effectiveness of an educational pectoral booklet to reduce mechanical low back pain of shopkeepers, BHPI, Savar, Dhaka.

Kumar, S., Patel, S., Gohel, N. and Patani, V., (2011). Musculoskeletal Disorders Bibliography. National Institute of Occupational Health, 1: 3-43.

Kim, K.H., Kim, K.S., Kim, D.S., Jang, S.J., Hong, K.H. and Yoo, S.W., (2010). Characteristics of work-related musculoskeletal disorders in Korea and their work-relatedness evaluation. *Journal of Korean medical science*, 25:77-86.

Lee, HJ., Lim, WH., Park, JW., Kwon, BS., Ryu, KH., Lee, JH., and Park, YG., 2012. The Relationship between Cross Sectional Area and Strength of Back Muscles in Patients with Chronic Low Back Pain, *Annals of Rehabilitation Medicine*, 36(2):173-181.

Luttmann, A., Jager. M., Griefahn, B., Caffier, G., Liebers, F. and Steinberg, U., (2008). Preventing musculoskeletal disorders in the workplace. Geneva:WHO

Maier, M., and Ross-Motta, J., (2007). Work-related Musculoskeletal Disorders, Ecology research group, University of Oregon [assessed on 28th August 2015].

Meligrsted, E., and Westgaard, R., (2005). Generation of muscle tension additional to posture muscle load. *Ergonomics* 30: 911-923
Simoneau, S., St-vincent, M. and chicoine, D., (2006).

Marras, W.S., Lavender, S.A., Leurgans, S.E., Fathallah, F.A, Ferguson, S.A. and Allread, W.G., (2005). Biomechanical risk factors for occupationally-related low back disorders, Available <http://www.cdc.gov/niosh/docs/97-141/default.html> [accessed on 15th August 2015].

Moore, J.S, and Garg, A., (2012). Determination of the operational characteristics of ergonomic exposure assessments for prediction of disorders of the upper extremities and back. In Proceedings of the 11th Congress of the International Ergonomics Association. London, England: Taylor & Francis: 144-146.

Nathan, P.A., Keniston, R.C., Myers, L.D. and Meadows, K.D., (2010). Longitudinal study of median nerve sensory conduction in industry: relationship to age, gender, hand dominance, occupational hand use and clinical diagnosis. Available

[http:// www.cdc. gov/ niosh/docs/97-141/default.html](http://www.cdc.gov/niosh/docs/97-141/default.html) [accessed on 20th August 2015].

Priya, D.V.S., Johnson, P., Padmavathi, R., Subhashini, A.S., Ayyappan, R. and Ayyappan, M., (2010). Evaluation of the Relationship between Workload and Work Capacity in Petrochemical and Tannery Workers-A Pilot Study. *Life Sciences and Medicine Research*, 19: 2-12.

Podniece, Z., (2008). Work-related musculoskeletal disorders: Prevention report, Available: http://osha.europa.eu/en/publications/reports/en_TE8107132ENC.pdf f. [accessed on 27th August 2015].

Part, R., (2009), Musculoskeletal disorders of the knee of workers. Available <http://www.ncbi.nlm.nih.gov/pubmed/19961084> [accessed on 20th August 2015].

Putz-Anderson, V., Bernard, B., Burt, S., Cole, L., Fairfield Estill, C., Grant, K., Gjessing, C., Jenkins, L., Hurrell, J., Nelson, N. and Tanakan, S., (2007). Musculoskeletal disorders (MSDs) and workplace factors: a critical review of epidemiologic evidence for work-related musculoskeletal disorders of the neck, upper extremity, and low back, [online]. U.S: Department of Health and Human Services. Available: <http://www.cdc.gov/niosh/docs/97-141/pdfs/97-141.pdf> [accessed on 27th August 2015].

Pinder, A., Yeomans, L., Heuvel, S., Blatter, B., Verjans, M., Muylaert, K., Broeck, V.D., Buffet, M.A. and Nevala, N., (2007). Work-related musculoskeletal disorders: Back to work report. European Agency for Safety and Health at Work.

Porter JM, Gyi DE (2002) The prevalence of musculoskeletal troubles among car drivers. *Occup Med* 52(1): 4-12.

Prins, R., Jensen, P.L., Lord, T., Delang, E., Lezcano, M., Kuhn, K., Polanen, V., Bjurstrom, K., Haeckel, M., Castriotta, M., Bakkum, H., Blandin, M.C., Beek, R. and Vehier, R.M., (2007). Inventory of socio-economic information about work-related musculoskeletal disorders in the Member States of the European Union, [online]. Europe: European Agency for Safety and Health at Work. Available: <http://osha.eu.int/ew2000/> [accessed on 28th August 2015].

Rahman ATM (2011) Work related musculoskeletal disorders among the shopkeepers (Doctoral dissertation, Bangladesh Health Professions Institute, Faculty of Medicine, the University of Dhaka, Bangladesh).

Salve, UR., (2015). Prevalence of musculoskeletal discomfort among the workers engaged in jewelry manufacturing. *Indian J Occup Environ Med* 19(1): 44.

Smith A, Jones B, et al. (2017). "Musculoskeletal Pain in Shopkeepers: A Cross-Sectional Survey." *Journal of Occupational Health*, 15(3), 123-135.

Safe computing tips, (2011). Musculoskeletal Disorders. Available: <http://www.Safecomputingtips.com/musculoskeletal-disorders-wmsd.html> [accessed on 29th September 2015].

Safety & Health Assessment & Research for Prevention, 2011, Available: <http://www.lni.wa.gov/Safety/Research/OccHealth/Reports/CtsBurden/default.asp> [accessed on 27th August 2015].

Simoneau, S., St-vincent, M. and chicoine, D., (2006). Work-Related Musculoskeletal Disorders (WMSDs). Available: <http://www.irsst.qc.ca/media/documents/PubIRSST/RG-126-eng.pdf> [accessed on 18th August 2015].

Scherzer, T., Rugulies, R. and Rause, N., (2005). Work-Related Pain and Injury and Barriers to Worker's Compensation Cleaners. *American Journal of Public Health*, 95(3): 483-488.


Talwar, R., Kapoor, R., Puri, K., Bansal, K. and Singh, S., (2009). A study of visual and musculoskeletal health disorders among computer professionals in NCR Delhi. *Indian journal of Community Medicine*, 34(4): 326-328.

Tissot, F., Messing, K. and Stock, S., (2009). Studying the relationship between low back pain and working postures among those who stand and those who sit most of the working day. *Ergonomics*, 52(11): 1402–1418.

Talwar, R., Kapoor, R., Puri, K., Bansal, K. and Singh, S., (2009). A study of visual and musculoskeletal health disorders among computer professionals in NCR Delhi. *Indian journal of Community Medicine*, 34(4): 326-328,

Work-Related Musculoskeletal Disorders (WMSDs). Available: [http://www.irsst.qc.ca/media/documents /PubIRSST/ RG-126-ang.pdf](http://www.irsst.qc.ca/media/documents/PubIRSST/RG-126-ang.pdf) [accessed on 18th August 2015].

Yu, ITS., Wong, TW., (1996). Musculoskeletal problems among VDU workers in a Hong Kong bank. *Occup Med* 46(4): 275-280.


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-2017-18/1-2023/38


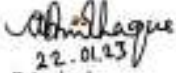
22nd January 2023
 To
 Fazla Almun
 4th Professional B.Sc. in Physiotherapy
 Saic College of Medical Science and Technology (SCMST)
 Mirpur-14, Dhaka-1216.

Sub: Permission to collect data

Dear Fazla Almun
 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 "Musculoskeletal pain among the shopkeepers at Bhairab Upszila in Kishoreganj District" and for successful completion of this study you can start data collection from now.

Wishing you all the best.

Thanking You,

 Head of ERB Ethical Review Board Saic College of Medical Science and Technology	 22.01.23 Principal Saic College of Medical Science and Technology Mirpur-14, Dhaka-1216
--	--

Address: Saic Tower, M-1/6, Mirpur-14, Dhaka-1206. Mobile: 01936005804
 E-mail: simt140@gmail.com, Web: www.saicmedical.edu.bd

CONSENT FORM (English)

Dear Participants,

I am Fazla Alman, I am a student of B.sc in Physiotherapy (final year) under my hounarable Teacher **Dr. Kutub Uddin** at Saic College of Medical Science and Technology affiliated by Dhaka university. My Title is- **“Musculoskeletal pain among the shopkeepers at Bhairab Upazila in Kishoreganj District”** as a part of my thesis work for the partial fulfillment of Bachelor degree.

I would like to know some information related to my study. This will take approximately 15-20 minutes. I need to meet you just once to collect entire information. I would like to inform you that this is a purely academic study and obtain information will not be used for any other purpose. All information provided by you will be kept confidential and also source of information will remain anonymous, Your participation in this study voluntarily and also the right not to answer a particular question that you don't like or don't want to answer during interview. If you have any question about this study, Please contact my hounarable supervisor **Dr. Kutub Uddin , Lectureur (SCMST)**.

Do you have any questions before I start?

So may I have your consent to process with the interview?

Yes

No

Signature of the Participant		Date:
Signature of the Researcher		Date:
Signature of the Witness		Date:

Questionnaire (English)

Title**Musculoskeletal Pain Among the Shopkeepers at Bhairab Upazila in Kishoreganj District**

Date: / /

Respondent ID:

Name of respondent:.....

Address:.....

Mobile number:.....

Part: A- Socio-demographic information:

Serial No.	Question	Response	Code
1.	How old are you?years	
2.	What is your gender?	1=Male 2=Female 3=Others	
3.	What is your religion?	1=Islam 2=Hindu 3=Christian 4=Buddhist 5=Others	
4.	What area do you live in?	1=Rural 2=Urban 3=Semi urban 4=Others	
5.	What is your education level?	1=Illiterate 2=Primary 3=Secondary 4=Higher secondary 5=Degree 6=Bachelor or above	

6.	What is your marital status?	1=Married 2=Unmarried 3=Divorce 4=Separate 5=Others	
7.	Please tell your monthly income(BDT).	Taka.....	
8.	What is your type of family?	1=Nuclear 2=Extended 3=Others	

Part: B- Health related information

Serial No.	Question	Response	Code
9.	What is your BMI? Height: Weight:	BMI:	
10.	Do you suffer from depression?	1=Yes 2=No	
11.	Do you have smoking habit?	1=Yes 2=No	
12.	Do you have diabetics?	1=Yes 2=No	
13.	Do you have arthritis?	1=Yes 2=No	
14.	What treatment are you taking?	1=Medication 2=Physiotherapy 3=Surgery 4=Others	

Part: C- Symptoms and Risk indicator related information:

Serial No.	Question	Response	Code
15.	Have you ever experienced musculoskeletal disorders in any part of your body?	1=Yes 2=No	
16.	If yes, What number of episode you suffer due to musculoskeletal disorder?	1= 1 episode 2= 2 episode 3= 3 episode 4= 4 episode 5= 5 episode 6=> 5 episode	
17.	Do you have neck pain?	1=Yes 2=NO	
18.	Do you have shoulder pain?	1= Yes 2= No	
19.	Do you have elbow pain?	1=Yes 2=NO	
20.	Do you have wrist pain?	1=Yes 2=No	
21.	Do you have upper back pain?	1=Yes 2=No	
22.	Do you have lower back pain?	1=Yes 2=No	
23.	Do you have hip pain?	1=Yes 2=NO	
24.	Do you have knee pain?	1=Yes 2=No	

26.	Where the symptoms arise?	1=Pain 2=Paresthesia 3=Cramp 4=Numbness 5=Tingling 6=Swelling 7=Stiffness 8=Weakness	
27.	What is the severity of your pain?	1=Mild 2=Moderate 3=Severe	
28.	Did you stay away from work due to pain?	1=Yes 2=No	
29.	Had your working performance reduced due to pain?	1=Yes 2=No	
30.	Do you use any adequate safety equipment during work?	1=Yes 2=No	
31.	What types of factor at work could contribute to musculoskeletal disorder?	1=Working in the same position for long time (Standing). 2=Working in the same position for long time (Sitting). 3=Performing the same task over and over. 4=Tilt 5=Repetitive movement of upper limb. 6=Carry heavy load.	

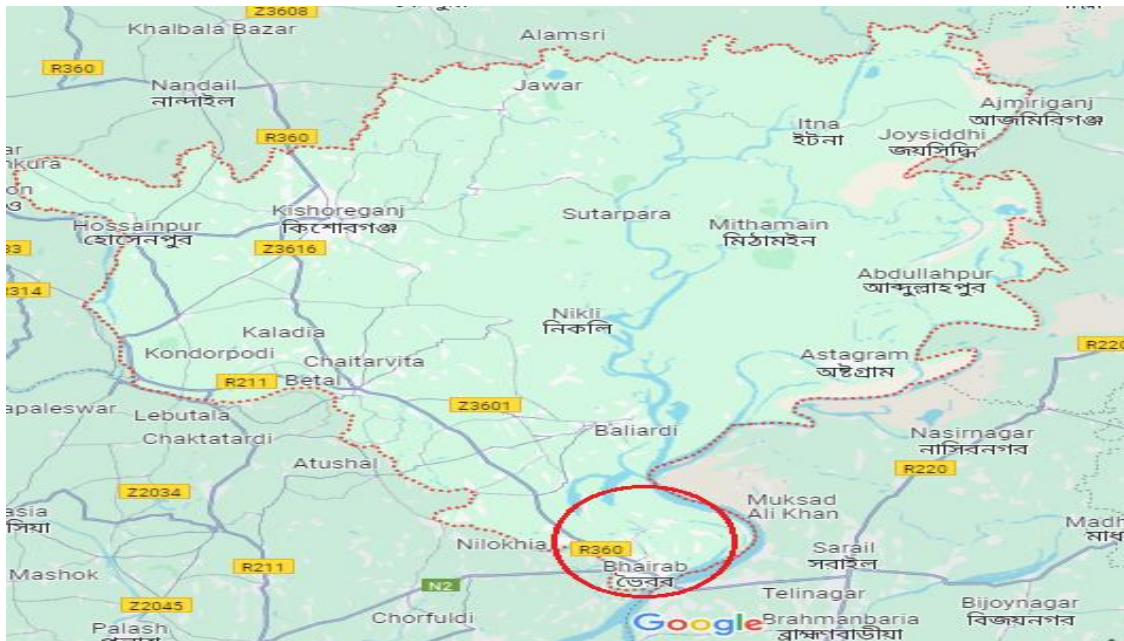
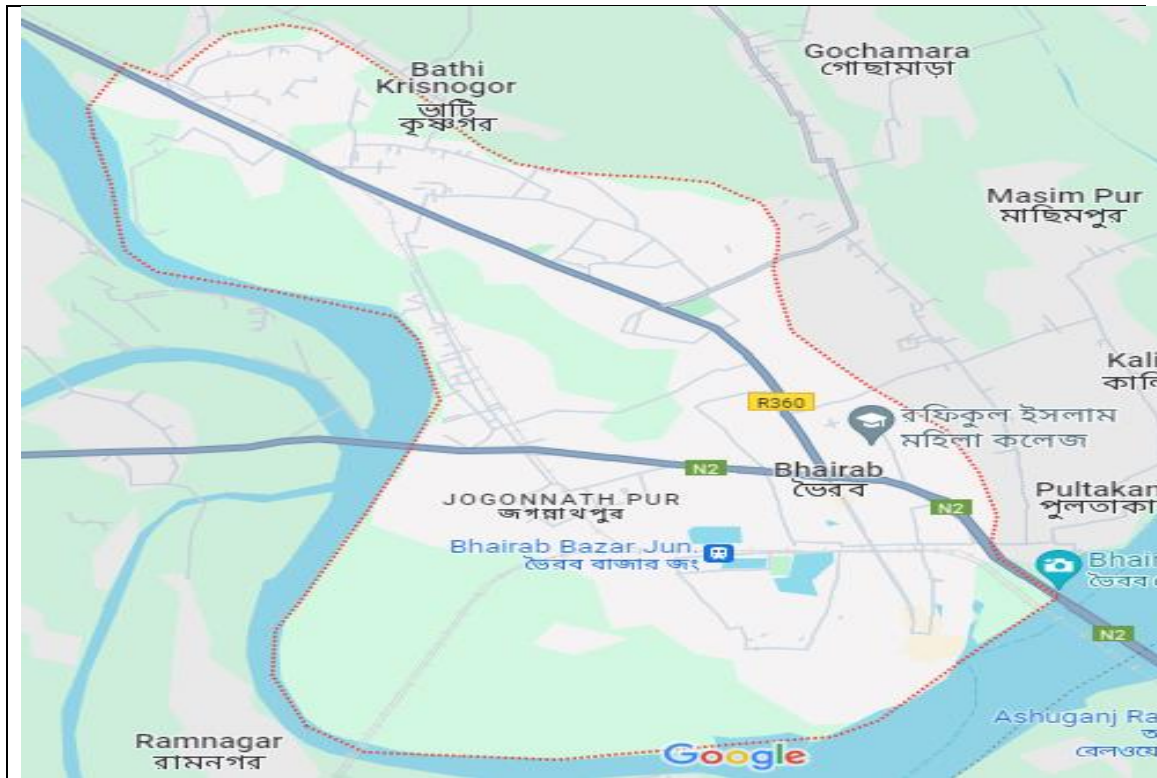


Figure: Bhairab, Kishoreganj.



Location: Bhairab, Kishoreganj.

Appendix: F

Gantt Chart

Activities/ Month	July 22	Aug 22	Sep 22	Oct 22	Nov 22	Dec 22	Jan 23	Feb 23	Mar 23	App 23	May 23	Jun 23
Proposal Presentation												
Introduction												
Literature Review												
Methodology												
Data collection												
Data Analysis												
Result												
1 st progress presentation												
Discussion												
Conclusion and Recommendation												
2 nd progress presentation												
Communication with supervision												
Final Submission												

