Title:

MUSCULOSKELETAL PROBLEMS AMONG THE DRUMMERS IN DHAKA CITY

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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

MUSCULOSKELETAL PROBLEMS AMONG THE DRUMMERS
In DHAKA CITY

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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 is 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 consent taken from the physiotherapy department of Saic College of Medical Science and Technology (SCMST)

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Acronyms

B.Sc. PT	:	Bachelor of Science in Physiotherapy
DU	:	Dhaka University
LL	:	Lower Limb
MSD	:	Musculoskeletal Disorders
NPRS	:	Numeric Pain Rating Scale
SCMST	:	Saic College of Medical Science and Technology
SPSS	:	Statistical Package for the Social Science
UL	:	Upper Limb

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Abstract

Purpose: The purpose of the study is to identify the Musculoskeletal problem among the drummers in Dhaka city.

Objective: To find out the musculoskeletal complications of drummers during the performing and post-performing periods. Analyze the frequency of musculoskeletal pain among drummers in the upper and lower quadrant. Association between age and severity of pain on different body parts.

Methodology: It was a cross-sectional type of descriptive study. This study, focusing on male drummers aged 18-40 in Dhaka, adopted a convenient sampling method. Data were collected through a pre-tested questionnaire containing both open and closed questions. SPSS V.25 was utilized to analyze data.

Result: This study examined 54 male drummers in Dhaka, categorizing them by age and experience. 81.5% experienced wrist pain, 51.9% ankle pain, and 50% shoulder pain. Daily activities were impacted by 51.9% of drummers. Paresthesia occurred in 24% upper limb, 18.5% lower limb, and 11.1% back. Regular exercise is linked to less pain ($p=0.195$). Drummers with more experience reported lower pain levels. 42.6% experienced sharp pain. Analysis of pain severity, age group, and drumming years shows long-term drummers experience lesser pain ($p=0.002$, $p=0.001$, both <0.05) this underscores significance.

Conclusion: This study highlights challenges faced by male drummers, revealing high rates of wrist, back, ankle, and shoulder pain. Longer drumming experience, regular exercise with lower pain. Preventive measures, including education on technique and exercise, are crucial for drummer well-being.

Key Words: Pain, Drummer, Musculoskeletal Disorder

CHAPTER – I INTRODUCTION

1.1 Background

Musculoskeletal disorders mess with muscles, joints, and nerves, causing long-lasting discomfort and making people feel super tired. Lots of jobs have things that can hurt these body parts, like sitting weirdly or lifting heavy stuff. Around half to three-quarters of workers face these risks, making them likely to get these problems. It's like a warning: if things at work aren't set up right or if we don't take care, our bodies might have a tough time, and we could end up with muscle and joint issues (Bhandare et al., 2020).

In the world of music, there are these four main types of instruments: strings, winds, keys, and percussion. Drumming falls under percussion, and let me tell you, it's quite a workout! Drumming isn't just about hitting drums; it's about being physically fit, strong, and super coordinated. They must use both your hands and feet, making it a total-body experience. Different music styles need different drumming styles. For heavy metal, drummers have to keep a super-fast and continuous beat, while blues might need a slow and smooth rhythm that can be done with just a single strike. To be awesome at drumming, you've got to practice a ton. It's like training your muscles to remember how to drum with energy and consistency (Fleming et al., 2020).

Here's the thing: drumming isn't just about having a good beat. It's a physical art form. It demands muscles to work in different ways, depending on the music style. For example, heavy metal needs a drummer's muscles to keep going without stopping, while blues might need more controlled and relaxed movements. To be a top-notch drummer, you've got to put in long hours of practice. It's like teaching your muscles and brain to work together so that you can play with high energy every time. It's hard work, but that's what makes drummers so amazing. (Cuden, et al., 2015).

Playing the drums is fashionable but tough on the body too. The way drumming works - doing the same moves over and over again, using a lot of force, and even feeling the vibrations from the drums - can actually hurts It's like your body is under a lot of pressure. (Smith, M., 2009)

Drummers often feel pain because of a few things. Sometimes, they make small mistakes in how they play, or they practice too much without taking breaks. If they've had injuries before and didn't hear them right, that can cause pain too. Plus, if they're not sitting or moving in the right way while playing, it can hurt their bodies. Drummers can end up with too much pressure on their muscles and joints. This can lead to pain in the joints, especially when they start doing the same moves over and over again. It's like their bodies aren't used to it, and it's a shock to the system. So, drummers have to be careful. They need to pay attention to how they play, take breaks, and make sure they're sitting and moving in a way that doesn't hurt them. It's all about finding the balance between practicing enough to be great and not overdoing it so that it hurts. (Smith M., 2009)

Drum kits, the ones drummers use, often don't think much about how drummers move. That can make things tough for them. Studies show that drummers get hurt because they use their muscles too much, practice for a really long time without breaks, and don't sit or stand in ways that are good for their bodies. When drummers play, their wrists and elbows do the same moves over and over again. This puts a lot of pressure on these parts. Also, sitting for a long time while drumming can make their hips feel strained. These things can add up and make drumming painful (Fleming et al., 2020).

Imagine this: some drummers who play a special kind of drum, called the double bass drum, might end up with pain in their lower back. For other drummers, it's their wrists and hands that hurt because of the way they play. (Vedpathak et all., 2017)

So, the drum kits need to be better at fitting drummers. If the drums and seats are made to fit drummers' bodies better, it could help them avoid getting hurt. Drummers need to be more careful about how they play, take breaks, and sit or stand in a way that doesn't strain their bodies too much. It's a bit like finding a balance - practicing enough to be great at drumming but not doing it so much that it hurts. If drum kits and drummers work together better, it could make drumming a lot more fun and a lot less painful. (Vedpathak et all., 2017)

1.2 Justification of the study

Playing drums is as difficult as listening & and rejoicing to drums. A drummer does not become a maestro overnight. He has to put a lot of time and hard work behind this. He also has to go through contemplation and mostly mental and physical endurance. A good drummer practices for 6-8 hours every day. During this time the drummers have to endure lots of pain. Sitting for extended periods while drumming can cause back pain, ankle joint pain, wrist joint pain, and muscle soreness. These issues can worsen as drummers get older. Unfortunately, there is a lack of academic research on this subject in Bangladesh, which creates a knowledge gap.

Understanding the problems drummers face is crucial for two main reasons.
Firstly, listing the problems might help us to know better about the drummer's problems when performing the therapy.
Secondly, there is no such academic work available on this subject in Bangladesh which creates a knowledge vacuum.

This study aims to assess the impact of different levels of expertise on drumming performances and the experiences of drummers in Dhaka. By examining the distribution of experience levels among the participants, we hope to gain insights into the musculoskeletal problems faced by drummers in the city.

Therefore, this research seeks to understand the different musculoskeletal problems faced by drummers in Dhaka city. By studying these issues, we aim to gain insight into the specific challenges they face. Our goal is to deepen our understanding of the physical strains that come with drumming and develop targeted solutions and support for the drumming community. This study aims to create an injury index that can effectively guide the treatment of these common physical problems experienced by Dhaka city's drummers

1.3 Research Question

What are the Musculoskeletal problems among the drummers in Dhaka city?

1.4 Objective of the study

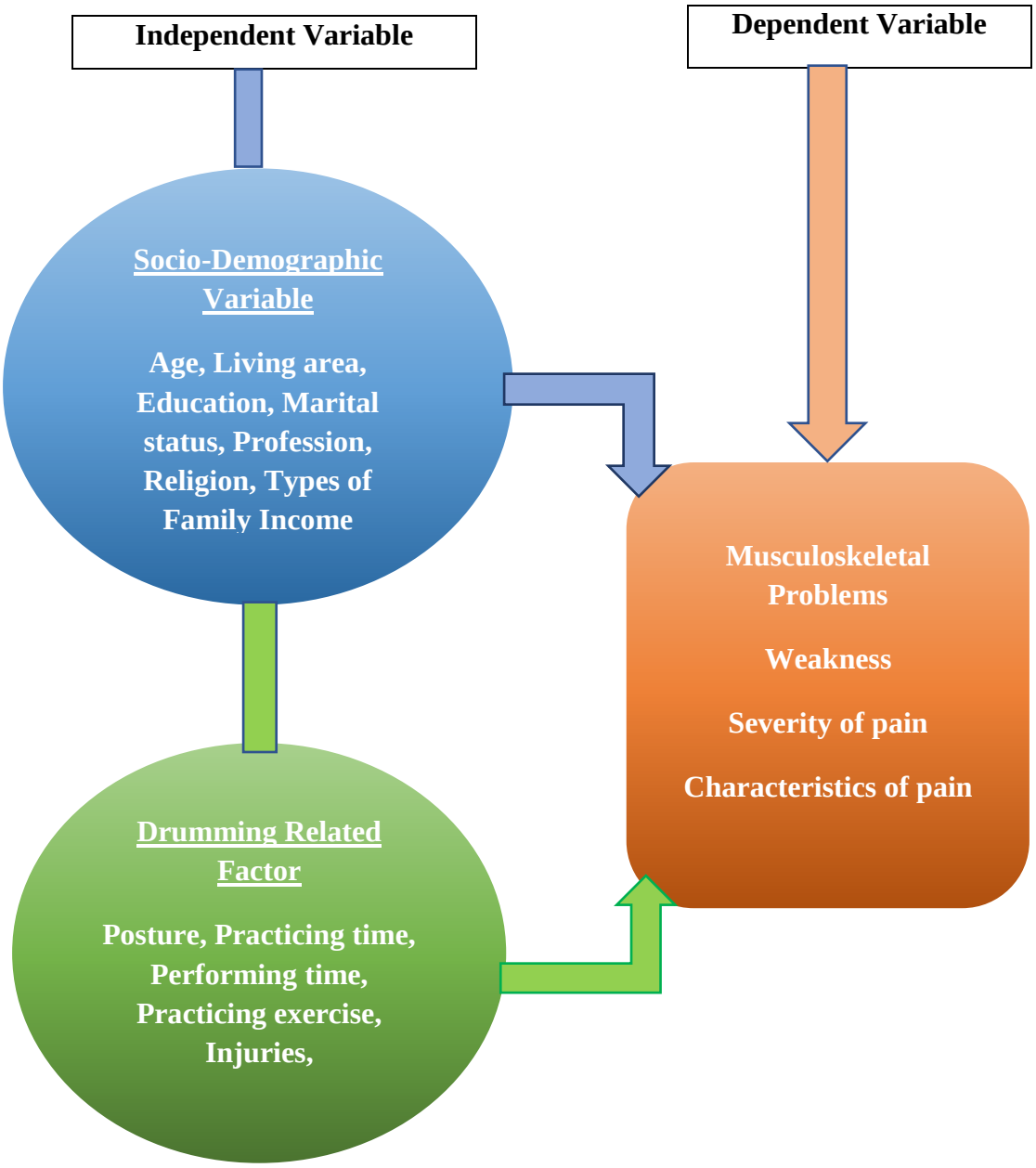
1.4.1 General objective:

To identify the musculoskeletal problems among the drummers of Dhaka city

1.4.2 Specific objectives:

1. To calculate the proportion of musculoskeletal problems among the drummers in Dhaka city
2. To determine the musculoskeletal problems of different body parts among the drummers in Dhaka city.
3. To find out the physical complications of drummers during the performing and post-performing period
4. To measure the severity of pain by the NPRS Scale
5. To describe the nature and characteristics of pain
6. To analyze the frequency of musculoskeletal pain among drummers in the upper and lower quadrant.
7. To explore the socio-demographic characteristics of the study population.
8. To explore the association between age and severity of pain on different body parts.

1.5 Conceptual Framework



1.6 Operational definitions of the variables

Drummer: A drummer is a percussionist who creates music using drums.

Musculoskeletal system: The musculoskeletal system is made of bones, muscles, joints, tendons, and ligaments which all work together to provide the body with support, protection, and movement.

Musculoskeletal disorder: Musculoskeletal disorders are injuries and disorders that affect the human body's movement or musculoskeletal system (i.e. muscle, tendon, ligaments, nerves, discs, blood vessels, etc.

Posture: Position or bearing the body or body parts for a special purpose.

Severity of Pain: Pain severity combines pain intensity, pain-related interference, and pain-related distress. Each component is rated by the patient on a numerical pain rating scale (NPRS) from 0 to 10 and subsequently translated into severity stages ("mild," "moderate," and "severe").

Mild pain: Based on the severity level of NPRS (0-4) considered mild pain.
Moderate pain: Based on the severity level of NPRS (4-7) considered moderate pain.
Severe pain: Based on the severity level of NPRS (7-10) considered severe pain.

Sharp pain: Sharp pain is typically described as sudden, stabbing pain.

Dull pain: Dull pain is usually used to describe chronic or persistent pain. This is a deep ache felt in an area, but typically doesn't from daily activities. Examples of dull pain may be a: slight headache.

Burning sensation: A burning sensation is a type of pain that's distinct from dull, stabbing, or aching pain.

Shooting pain: A severe pain that starts in one place and then quickly moves to another.

CHAPTER – II LITERATURE REVIEW

Musculoskeletal disorders encompass a broad spectrum of injuries or dysfunctions that affect the musculoskeletal system, including muscles, bones, nerves, tendons, ligaments, joints, cartilage, and spinal discs. These conditions can manifest in various forms such as sprains, strains, tears, stiffness, pain, carpal tunnel syndrome, disc herniation, and injuries to connective tissues. The National Institute for Occupational Safety and Health has conducted studies indicating a clear association between physical strain at the workplace and the development of job-related musculoskeletal issues (Costa et al., 2010).

The consequences of these disorders can significantly impact an individual's quality of life due to increased absenteeism, work restrictions, job changes, or even long-term disability, leading to considerable financial implications for both the affected individuals and the organizations they work for. Among the array of musculoskeletal issues, lower back pain is one of the most prevalent and debilitating conditions, especially among professionals like security officers who often find themselves standing for prolonged periods. The nature of their work predisposes them to adopt poor posture, leading to strained muscles and subsequent complications (Tinubu et al., 2010).

Research has also underscored the detrimental impact of long working hours on the development of lower back pain, emphasizing the growing recognition of musculoskeletal problems in various workplace settings. Physical risk factors such as repetitive motions, forceful movements, awkward postures, and exposure to environmental factors like vibration or low temperatures play a significant role in the development of musculoskeletal symptoms. These factors contribute to the prevalence of various symptoms, including limitations in range of motion, joint degeneration, limb deformities, and restrictions in the hip joint, among others (De Barros et al., 2003).

Amidst these challenges, it has become increasingly evident that musculoskeletal disorders represent a significant health concern in the context of various occupational settings. As industries continue to expand and evolve, creating new job roles and extending working hours to meet production demands, the prevalence of

musculoskeletal disorders is further exacerbated. This trend has a direct bearing on the workforce, particularly those belonging to the working class, who are more susceptible to experiencing musculoskeletal pain (Lee et al., 2018).

Studies have indicated that various factors, including trauma, repetitive motion, prolonged standing during work hours, and even psychological stress, can contribute to the development of musculoskeletal discomfort among workers. Understanding the critical physical risk factors associated with these disorders, such as repetition, force, awkward postures, and dynamic factors like movement velocity, mechanical compression, and vibration, is crucial in implementing effective preventive measures in occupational settings. Moreover, it is imperative to consider the influence of additional factors, such as the intensity and duration of exposure, and environmental factors like extreme temperatures, which significantly contribute to the likelihood of developing musculoskeletal diseases (Alrowayeh et al., 2010).

The history of drumming is involved in the evolution of human musical expression. From its ancient origins, as a means of communication and ritual, the drum has become a base of contemporary music. When the percussion instruments became more complex, the evolution of the modern drum set revolutionized the musical field (Fleming et al., 2020).

A drum kit is a dynamic assemblage of various percussive components, meticulously arranged to be played by a single drummer. The drum kit forms the rhythmic nucleus of any musical ensemble by combining essential elements like the snare drum, bass drum, hi-hat, tom-tom drums, and cymbals. The coordination required to operate the different elements of the drum kit, with each limb responsible for distinct tasks, exemplifies the skill and talent demanded of a proficient drummer. In the standardized configuration of the drum kit, the snare drum and tom-toms are struck with drumsticks, held at their pivotal fulcrum points, enabling precise control and nuanced expression. The bass drum, typically activated by the right foot, resonates with a deep, grounding thud, anchoring the ensemble's rhythm. The hi-hat, under the command of the left foot, produces a crisp, sibilant sound, further enhancing the rhythmic complexity (Cuden, et al., 2015).

Over the century, the modern drum kit has evolved significantly, encompassing a diverse range of musical instruments. Setting up a drum kit has become increasingly flexible, tailored to the individual preferences of the player. The typical arrangement, as depicted in the figure below, represents the widely accepted configuration of a drum kit (Cuden, et al., 2015).

The fundamental components of a drum kit, include the bass drum, snare drum, hanging toms, floor tom, hi-hat, crash cymbal, and ride cymbal.

1 Bass drum	2
Floor tom	3
Snare drum	4
Tom-toms	5
Hi-hat	6
Crash and Ride cymbals	

(Cuden, et al., 2015)

Drum kits are integral to various musical genres, acting as the rhythmic foundation for performances. The mixing of different components within a drum kit allows for a diverse range of sounds and textures, increasing the musical experience. Typically, a standard drum set encompasses a closely arranged mixture of instruments, strategically positioned to facilitate seamless playability. (Cuden, et al., 2015)

The weight of musical instruments can strain musicians, leading to muscle fatigue and potential injuries. Static loading, requiring continuous muscle contractions to hold instruments, and dynamic loading, from intricate movements during performances, contribute to musculoskeletal issues like tendinitis and bursitis. This can limit musicians' careers and affect their quality of life. Ergonomic instrument design and proper techniques can help reduce these risks. Regular physical conditioning and targeted exercises are also beneficial for maintaining musicians' musculoskeletal health and minimizing the risk of injuries (Fleming et al., 2020).

The art of drumming, combined with physical precision and creative expression, relies not just on the individual components of the drum kit, but also on the nuanced interplay between them. This interdependence emphasizes the necessity for a comprehensive understanding of the rhythmic potential that each component possesses, ultimately shaping the essence of musical performance (Fleming et al., 2020).

Playing the drums is not just a musical performance; it's a physically demanding effort that requires a unique blend of athleticism and artistry. Dr. Marcus Smith of Chichester University emphasizes that the stamina required by a rock band drummer rivals that of a premier league footballer. With the intense physical demands of their craft, drummers need exceptional fitness levels (Smith M. 2009).

During a typical hour-long concert, drummers can burn a striking 400-600 calories. Their heart rates, averaging between 140-150 beats per minute, spike up to 190 during performances, placing their cardiovascular exertion on par with top-tier athletes. However, what sets them apart from many athletes is their grueling touring schedules, performing night after night in various locations, while top footballers typically have one or two matches per week (Fleming et al., 2020).

The physical toll on drummers is often underestimated. Their daily performances, spanning three to six hours, subject them to constant discomfort and the risk of musculoskeletal injuries due to the repetitive movements and prolonged, awkward postures. The strain on their bodies, particularly their lower backs, is a common affliction within the drummer community (Smith M. 2009).

The challenges faced by drummers underscore the necessity of maintaining exceptional fitness levels. Endurance, speed, and precision are just a few of the crucial components required for their art. To endure the rigors of their profession, drummers must incorporate rigorous physical conditioning and preventive measures to safeguard their well-being. Despite the physical strains, their artistry remains a testament to the captivating fusion of music and athleticism. As Dr. Smith highlights, the drummers' absolute commitment to their craft demands recognition and appreciation for the extraordinary physical and artistic prowess they consistently demonstrate. (Cuden, et al., 2015)

Vedpathak and Haral (2017) noted that “regional musculoskeletal pain is common in Drummers, the main sites of complaint being as follows: Middle back > Calves > Lower back > Elbows and arms > Upper back > Knee > Neck, Wrist, Forearm, Hand and Heel. The upper limb was the most commonly affected body region (59%). The wrist joint (25%) and lower back (24%) were the most commonly affected locations within body regions (Vedpathak et al., 2017).

Musculoskeletal injuries are the most common disorder in musicians after the dancers, musicians are the second population most commonly treated by physiotherapists. Musculoskeletal injuries affect a variety of tissues including bones, joints, cartilage, ligaments, tendons, muscles, and other soft tissues (Roseiro et al., 2018).

Most of the drummers were aware of the importance of warm-up and cool-down exercises but very few were found to follow it regularly. Also, drummers need to be made more aware of Physiotherapy and its role in injury prevention as well as in complete rehabilitation post-injury (Roseiro et al., 2018).

The unique physical demands placed on drummers often result in a range of overuse injuries and musculoskeletal problems, making the diagnosis and treatment of these injuries complex. A simple cessation of drumming activities is often insufficient as it fails to address the underlying ergonomic and biomechanical issues leading to the problem. Consequently, many drummers are hesitant to seek professional care, and when they do, they often lack trust in the effectiveness of the treatment (Smith M., 2009).

To combat this issue, implementing physiotherapy camps and seminars within music schools and institutes can play a pivotal role in raising awareness among drummers. These initiatives can help them comprehend the significance of physiotherapy in both injury prevention and the post-injury rehabilitation process. By understanding the root causes of overuse injuries and recognizing early signs of such issues, drummers can proactively work toward their physical well-being (Azar R., 2022)

Moreover, the application of various physiotherapy treatment techniques tailored to the specific needs of drummers can significantly enhance their long-term performance and well-being. By integrating these strategies into their routines, drummers can not only prevent injuries but also experience a notable improvement in their physical and mental states, fostering greater motivation and confidence (Azar R,. 2022).

In a nutshell, teaching all drummers, regardless of their skill level, about the intricacies of overuse injuries and the importance of proactive physiotherapy can foster a culture of well-being within the drummer community. By prioritizing preventive measures and encouraging a proactive approach to physical health, the music industry can ensure the sustained well-being and performance of its invaluable percussionists (Vedpathak et al., 2017).

CHAPTER – III METHODOLOGY

3.1 Study design

It was a cross-sectional type of descriptive study.

By adopting a cross-sectional design, this study gains the advantage of efficiently capturing a broad overview of the drumming population in Dhaka City within the chosen age range, providing valuable insights into their characteristics and serving as a foundational study for potential future research endeavors. Also, all previous studies on this topic were cross-sectional.

3.2 Study Area

Data were collected from the Drummers living in Dhaka city

3.3 Study period

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

3.4 Study population

Male drummers of the Dhaka city aged between 18-40 constituted the study population for the present study.

3.5 Sample size

The sample size is calculated by the following equation,

$n = \left\{\frac{Z(1-a)}{d}\right\}^2 \times pq$

$n = \left(\frac{1.96}{0.05}\right)^2 \times .48 \times (1 - .48)$

$=1536.64 \times .48 \times .52$

$=383.54$

$=384$

Here,

z = 1.96

p = .48 (Vedpathak, S. 2017)

q = 1-p

d = 0.05

This sample size is for an infinite population.

It is known that there are 62 drummers in Dhaka City. So, the verified sample size has been corrected by the following formula

$nc = \frac{n}{1+\frac{n}{N}}$

$= \frac{384}{1+\frac{384}{62}}$

$= \frac{384}{7.2}$

$= 53.33$

$= 54$

Here,

n=384

N= 62 [number of drummers]

3.6 Sampling technique

A convenience sampling technique was adopted to select the required number of participants for the study

3.7.1 Inclusion criteria:

Age Group (18-35 years): The age range of 18 to 35 years was considered eligible or included in the study. Only individuals within this specified age range were part of the research or analysis.

Drummers in Dhaka City: The specific group of people drummers who are located in Dhaka City.

3.7.2 Exclusion criteria:

Mentally Retarded: This criterion excludes individuals who have been diagnosed with mental retardation. It implies that individuals with this condition were not included in the study population.

Unwilling Participants: This criterion excludes individuals who were not willing to participate voluntarily in the study. Those who did not provide consent or were not interested in being part of the research were not considered participants.

Non-Drummer: This criterion excludes individuals who do not meet the criteria of being a drummer. People who don't play the drums or aren't involved in drumming activities were not part of the study.

3.8 Method of Data Collection

Self-administered questionnaire method was applied to collect data from the participants

3.9 Procedure of Data Collection

The researcher himself collected the addresses of the drummers living in different areas of Dhaka city. Individual drummers were approached and the aims and the objective of the researcher were explained in detail to the participants. The drummers were included in the study if they agreed. Opting for written informed consent, the questionnaire was handed over to the participants and requested to go through it. They were also requested to respond to the questions written in the questionnaire and write answers in the appropriate place accordingly.

3.10 Instrument and tools of data collection Management of data

A pre-tested structured questionnaire was used as an instrument of data collection. The questionnaire was used as an instrument of data collection. The questionnaire contained both open and close-ended questions. The questionnaire had two sections. Section one contains questions on Sociodemographic characteristics. Section two included questions on musculoskeletal problems. NPRS scale was used to assess the severity of pain related to Musculoskeletal problems of the participants

3.10.1 Data Management

After the collection of the questionnaire from respondents, they were checked for any errors or inconsistencies. Necessary corrections were done.

3.10.2 Data analysis

The responses in the questionnaire were coded and entered into the computer. The data were analyzed using SPSS. V.25. for descriptive statistics, mean, SD, and percentage were calculated. The relationship between independent and dependent variables was examined.

3.10.3 Result of the study

The findings of the study have been presented with frequency tables, charts, diagrams and descriptions of the variables.

3.11 Ethical consideration

It should be ensured that it would maintain ethical consideration at all aspects of the study. It is a crucial part of all forms of research. The study was approved by the ethical committee of the research project before conducting the research project. The study has followed the guidelines of the World Health Organization (WHO) and Bangladesh Medical Research Council (BMRC). The participants were explained the purpose and goals of the study. The participants were ensured that their comments would not affect their occupational role. When they agreed to be participants the data collection was started.

CHAPTER – IV RESULTS

This was a cross-sectional study. The chief objective of the study was to identify the musculoskeletal problems of the drummers in Dhaka city & their socio-demographic status. A total of 54 data were collected from all over Dhaka city. Data were numerically coded and captured in Microsoft Excel calculated as percentages and presented by using the chart, pie chart, and table and using an SPSS25.0 version software program.

4.1 Sociodemographic Characteristics-

4.1.1 Age Group of the Participants-

The study involved 54 male drummers, categorized into three age groups. The first group comprised 57.4% (n=31) of drummers aged between 18 to 24, the second group included 29.6% (n=16) of drummers aged between 25 to 29, and the third group encompassed 13% (n=7) of drummers aged between 30 to 35. The mean age of all the participants was 24.80, with a standard deviation of 3.40.

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

Age Group in Years	Frequency	
	n	%
20-25	31	57.4
26-30	16	29.6
31-35	7	13.0
Total	54	100.0

Mean= 24.80. SD= 3.400

4.1.2 Socio-Demographic Variables of the Participants

The study comprised 54 male drummers residing in Dhaka city, with some residing in areas such as Savar and Gazipur. These participants were categorized into two groups based on their settlement types. The first group included 88.9% (n=48) of the drummers who lived in urban areas, while the second group encompassed 11.1% (n=6) of the drummers residing in semi-urban locations.

The majority of participants n=46 (85.2%) were from nuclear family and minor participants n=8 (14.8%) were from extended families.

According to the data collected from 54 participants, the majority, accounting for 51.8% (n=28), have completed their education at the HSC level. Meanwhile, 33.3% (n=18) of the participants hold a graduate degree, and 14.8% (n=8) have pursued post-graduate qualifications.

In this study, all of whom were professional drummers, but who also held other occupations. Among the participants, 68.5% (n=37) were students, while 5.6% (n=3) were teachers, 1.9% (n=1) were bankers, 3.7% (n=2) were businessmen, and 1.9% (n=1) were doctors. Additionally, 18.5% (n=10) of the participants were engaged in other professions. These findings underscore the diverse occupational backgrounds and engagements of the male drummers, highlighting the multidimensional nature of their pursuits beyond their drumming activities.

Among them, fifteen persons n=15 (27.8%) were married and thirty-nine persons n=39 (72.2%) were unmarried.

Here 38.9% (n=21) are Muslim religion, 33.3% (n=18) are Christian religion, 22.2% (n=12) are Hindu religion, & and 5.6% (n=3) are Buddhist religion**.**

Table No: 2. Frequency distribution of the participants by Socio-Demographic Variables

Variable Name		Frequency (N)	Percentage (%)
Settlement	Urban	48	88.9
	Semi-urban	6	11.1
Family Status	Nuclear	46	85.2
	Extended	8	14.8
Educational Qualification	HSC	26	48.1
	Graduate	18	33.3
	Post Graduate	8	14.8
	Others	2	3.7
Occupation	Teacher	3	5.6
	Banker	1	1.9
	Businessman	2	3.7
	Doctor	1	1.9
	Student	37	68.5
	Others	10	18.5
Marital Status	Married	15	27.8
	Unmarried	39	72.2
Religion	Muslim	21	38.9
	Hindu	12	22.2
	Christian	18	33.3
	Buddhist	3	5.6

4.1.3 Monthly Income of the Participants-

In this study, 54 male drummers participated (n=54). 38.9% (n=21) of participants' monthly income was 20000 – 80000/- taka; 50% of participant's monthly income was 81000 – 140000/- taka and 11.1% (n=6) of participant's monthly income was more than 141000/ taka.

Table No: 3. Frequency distribution of the participants by income.

Income	**Frequency**	
	N	**%**
20000 – 80000	21	38.9
81000 – 140000	27	50.0
141000-20000	6	11.1
Total	54	100%

4.2. Musculoskeletal Pain & Complications

4.2.1 Proportion of Musculoskeletal Problem

The study involved 54 drummers, with the examination of pain experienced during daily activities. The results revealed that an average proportion of 60-70% of drummers have Musculoskeletal Problem

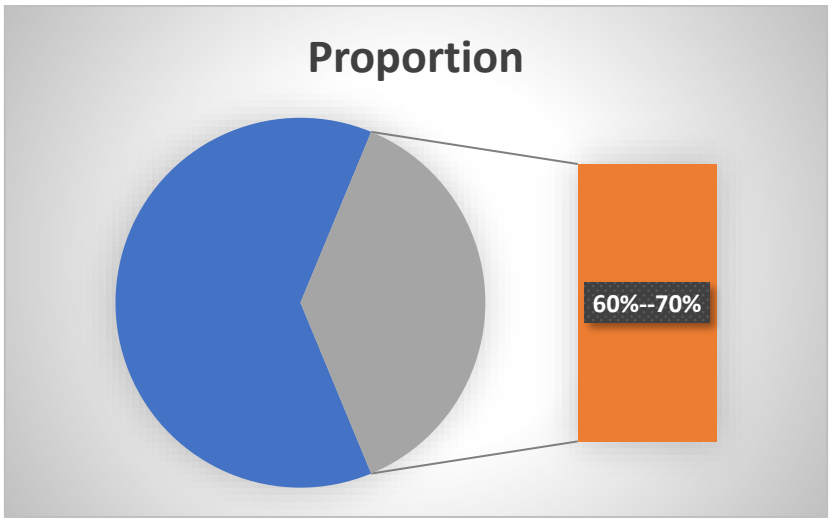


Figure: Proportion of Musculoskeletal Problem

4.2.2. Pain in daily Activates -

The study involved 54 drummers, with the examination of pain experienced during daily activities. The results revealed that 48.1% (n=26) of participants reported experiencing pain, while 51.9% (n=28) indicated that they did not encounter pain during their daily activities. These findings suggest that a significant proportion of male drummer's grapple with pain during their routine tasks, underscoring the potential impact of drumming-related activities on their overall well-being.

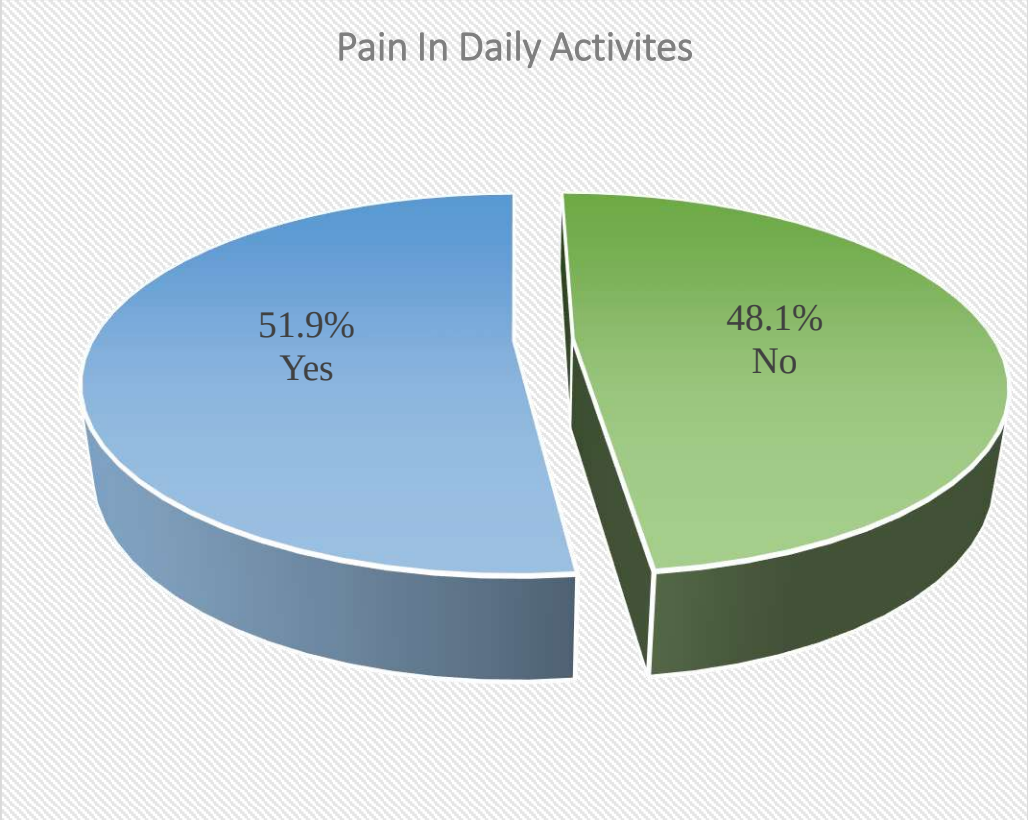


Figure: Pain in daily activities of the participants-

4.2.3. Musculoskeletal Pain in Different Body Parts of the Participants-

The study assessed the incidence of pain experienced in various body parts among 54 participants. The findings revealed that 7.4% (n=4) reported pain in the neck, 50% (n=27) in the shoulder, 13% (n=7) in the elbow, and 81.5% (n=44) in the wrist. Moreover, 16.7% (n=3) indicated pain in the hip, 22.2% (n=12) in the knee, 51.9% (n=28) in the ankle, and 53.7% (n=29) in the back. These results highlight the substantial prevalence of pain in the wrist, back, and ankle among the male participants, suggesting potential areas of concern in the context of drumming-related activities.

Table No: 4. Frequency distribution of the participants by pain in different body parts.

Pain in Different Body Parts	Frequency	
	n	%
Neck	4	7.4
Shoulder	27	50
Elbow	7	13
Wrist	44	81.5
Hip	3	16.7
Knee	12	22.2
Ankle	28	51.9
Back	29	53.7

4.2.4. Weakness of the participants after playing the drum.

The study examined the prevalence of weakness experienced after playing the drums among 54 participants. The results highlighted that 40.7% (n=22) reported weakness in the upper right limb, 35.2% (n=19) in the upper left limb, 24.1% (n=13) in the lower right limb, and 20.4% (n=11) in the lower left limb. Additionally, 64.8% (n=35) reported experiencing weakness in the back, while 1.9% (n=1) attributed weakness to other unspecified regions. These findings underscore the significant prevalence of weakness, particularly in the upper limbs and back, among drummers after their performance.

Table No:5. Frequency distribution of the participants by weakness after playing drum

Weakness after playing drum	Frequency	
	n	%
Upper right limb	22	40.7
Upper left limb	19	35.2
Lower right limb	13	24.1
Lower left limb	11	20.4
Back	35	64.8
Others	1	1.9

4.2.5. Weakness of the participants before playing the drum.

The study documented the occurrence of weakness before playing the drums among 54 participants. 6 participants responded “YES”. The results indicated that 3.7% (n=2) experienced weakness in the upper right limb, 1.9% (n=1) in the upper left limb, 3.7% (n=2) in the lower right limb, and 3.7% (n=2) in the lower left limb. Additionally, 11.1% (n=6) reported weakness in the back, while 1.9% (n=1) attributed weakness to other unspecified regions. These findings suggest that weakness before drumming was reported in various body regions, emphasizing the potential impact of this phenomenon on drummers.

Table No: 6. Frequency distribution of the participants by weakness before playing Drum

Weakness before playing drum	Frequency	
	n	%
Upper right limb	2	3.7
Upper left limb	1	1.9
Lower right limb	2	3.7
Lower left limb	2	3.7
Back	6	11.1
Others	1	1.9

4.2.6. Movement difficulties of the participants when playing drums.

In the study involving 54 drummers, the researchers examined the prevalence of movement difficulties encountered during drumming. The findings revealed that 22.2% (n=12) of participants experienced difficulties in the neck, 38.9% (n=21) in the shoulder, 3.7% (n=2) in the elbow, 53.7% (n=29) in the wrist, 1.9% (n=1) in the hip, 14.8% (n=8) in the knee, 46.3% (n=25) in the ankle, and 25.9% (n=14) in the back. These results underscore the significant prevalence of movement difficulties, particularly in the wrist, shoulder, and ankle regions among male drummers.

Table No: 7. Frequency distribution of the participants by Movement difficulties when drumming

Movement difficulties when drumming	Frequency	
	n	%
Neck	12	22.2
Shoulder	21	38.9
Elbow	2	3.7
Wrist	29	53.7
Hip	1	1.9
Knee	8	14.8
Ankle	25	46.3
Back	14	25.9

4.3. Variation of Pain & Treatments

4.3.1. Paresthesia of the participants-

In this study, 21 participants responded (n=21) with the occurrence of paresthesia noted across various body regions. The findings indicated that 24.1% (n=13) of participants experienced paresthesia in the upper limbs, 18.5% (n=10) in the lower limbs, 11.1% (n=6) in the back, and 3.7% (n=2) in the neck. These results suggest that paresthesia is commonly reported in the upper and lower limbs, with relatively fewer cases documented in the back and neck regions among the male drumming population

Table No: 8. Frequency distribution of the participants by paresthesia in different body parts

Paresthesia	Frequency	
	n	%
Upper limb	13	24.1
Lower limb	10	18.5
Back	6	11.1
Neck	2	3.7

4.3.2. Nature of pain of the participants-

In the study, 54 male drummers participated, with the pain nature distributed among them as follows: 14.8% (n=8) reported experiencing dull pain, 42.6% (n=23) reported sharp pain, 31.5% (n=17) reported burning pain, and 11.1% (n=6) reported shooting pain. The results suggest that a significant proportion of male drummers encounter sharp and burning pain, while a smaller proportion experience dull and shooting pain.

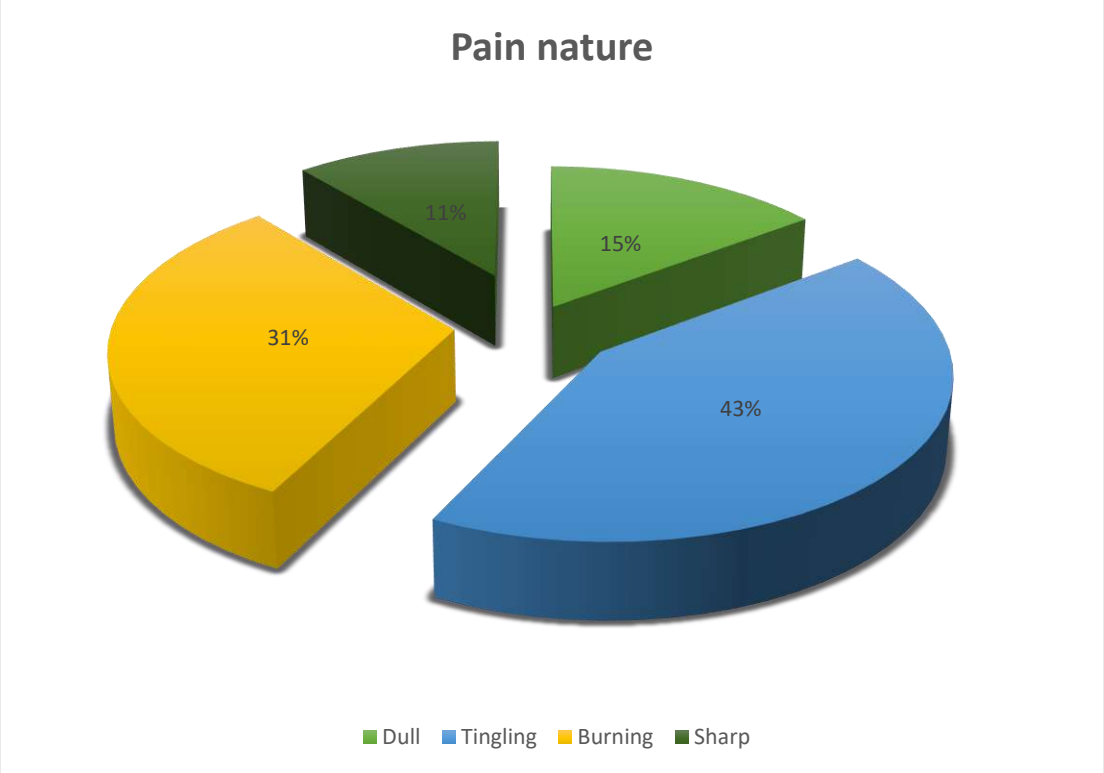
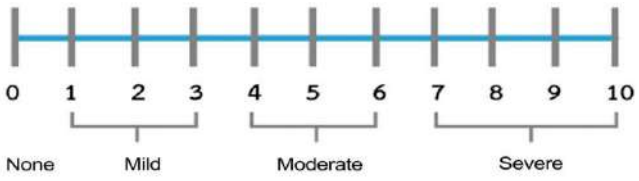


Figure: Nature of pain of the participants

4.3.3 Severity of pain of the participants-



The study utilized the Numeric Pain Rating Scale to assess the severity of pain, with the following distribution observed among the participants: 1.9% (n=1) reported no pain (0 on the scale), 14.6% (n=8) experienced mild pain (within the range of 1-3 on the scale), 72.3% (n=39) indicated moderate pain (falling between 4-6 on the scale), and 11.2% (n=6) reported severe pain (ranging from 7-10 on the scale). These findings emphasize that a significant majority of participants experienced moderate pain levels, while a smaller proportion reported mild or severe pain

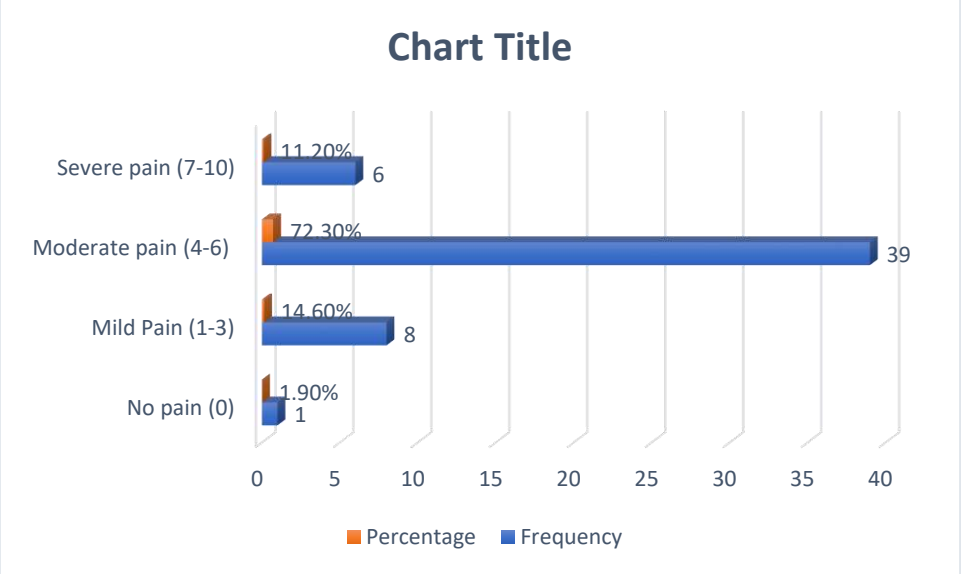


Figure: Severity of pain of the participants

4.3.4. Previous Injury of the Participants

In this study, 54 male drummers participated (n=54). Here 18 (33.3%) participants are previously injured while 36 (66.7%) are not.

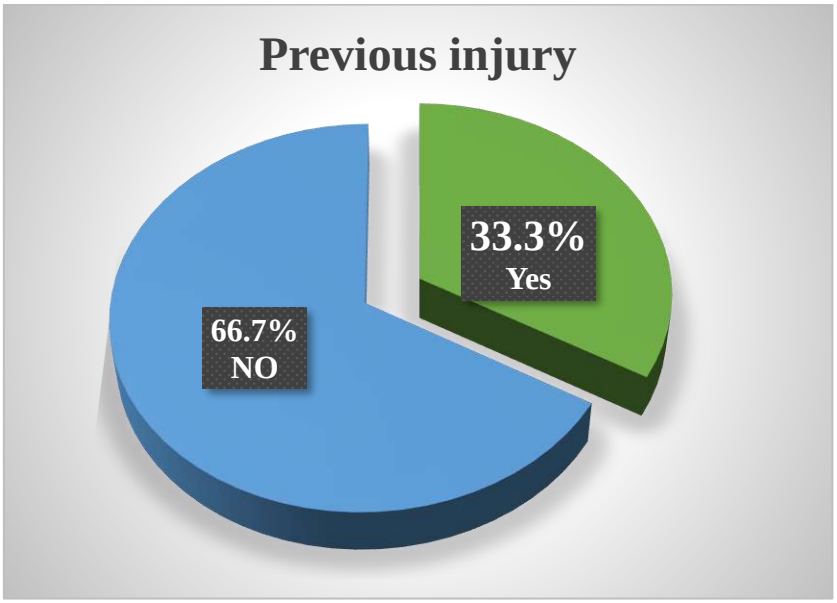


Figure: Previous Injury of the participants

4.3.5. Practice exercise regularly

In this study, 54 male drummers participated (n=54). Here 30 (55.6%) participate in doing exercise regularly, while 24 (44.4%) don't practice exercise.

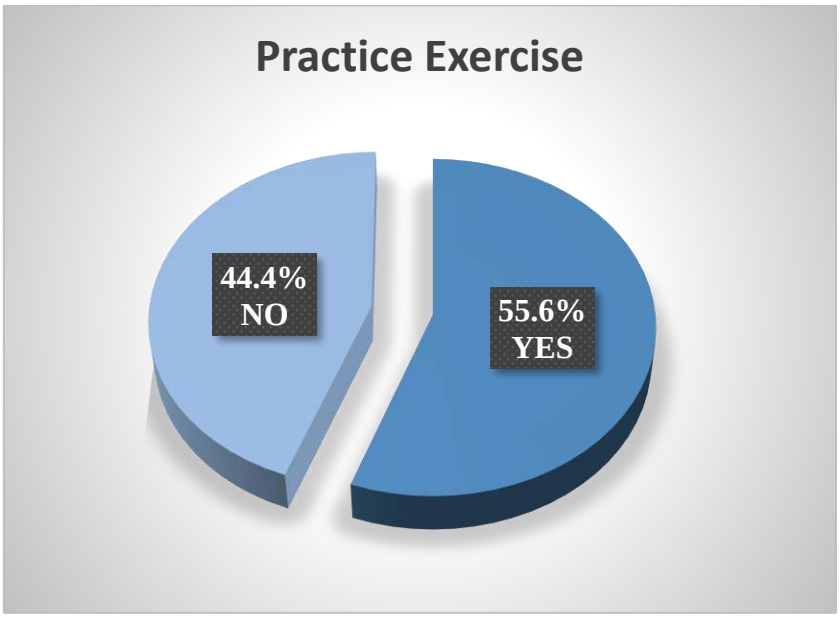


Figure: Practice exercise regularly

4.3.6. Treatments

In this study, only 8 participants responded that they were taking treatment. 4 (7.4%) participate in taking medications. 3 (5.6%) participate taking physiotherapy. 1 (1.9%) participate taking others treatment

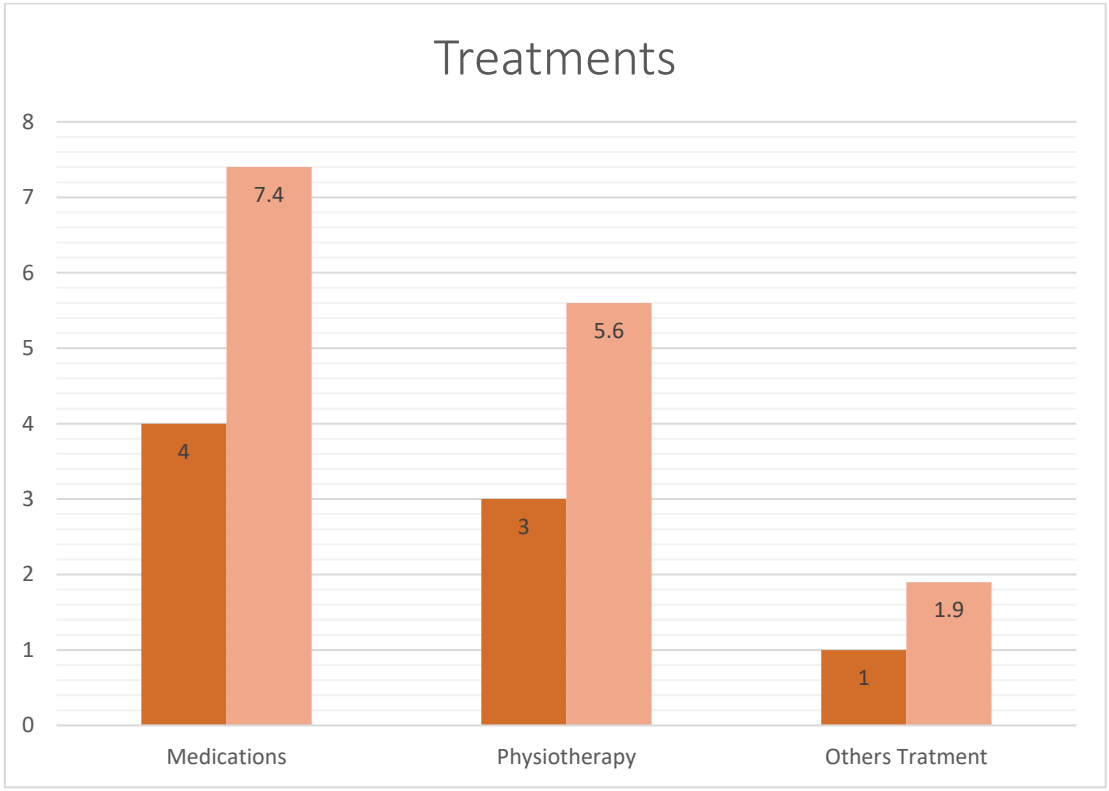


Figure: Taking Treatments by participants

4.4 Level of Expertise-

4.4.1 Duration of playing drum.

The study comprised 54 male drummers, categorized into three distinct groups based on their years of playing drums. The first group included 37% (n=20) of drummers with an average of 4-5 years of experience. The second group comprised 40.7% (n=22) of drummers who had been playing drums for over 5 years and had achieved a high level of expertise. The third group consisted of 22.2% (n=12) of drummers who had played drums for 1-3 years, representing the newcomer drummers.

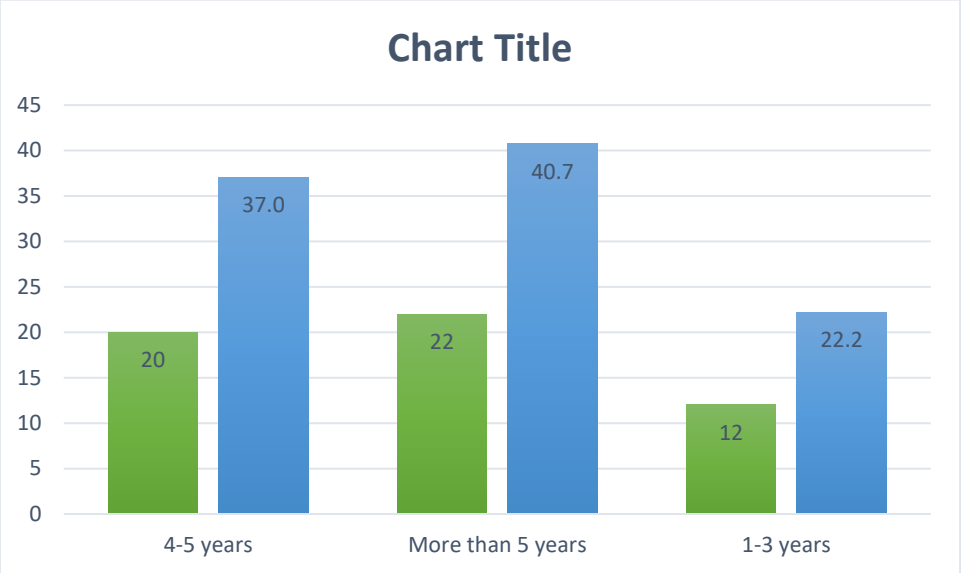


Figure: Year of playing Drum of the participants

4.4.2 Duration of Practice-

The study included 54 male drummers, divided into three groups based on their practicing periods. The first group consisted of drummers who practiced for an average of 3 hours, accounting for 25.9% (n=14) of the participants. The second group comprised drummers who practiced for more than 3 hours, representing 42.6% (n=23) of the participants. The third group encompassed drummers who practiced for less than 3 hours, making up 31.5% (n=17) of the participants. By examining the distribution of practicing periods among the participants, the study sought to evaluate the potential implications of different durations of practice sessions on the experiences and skill development of the male drummers involved.

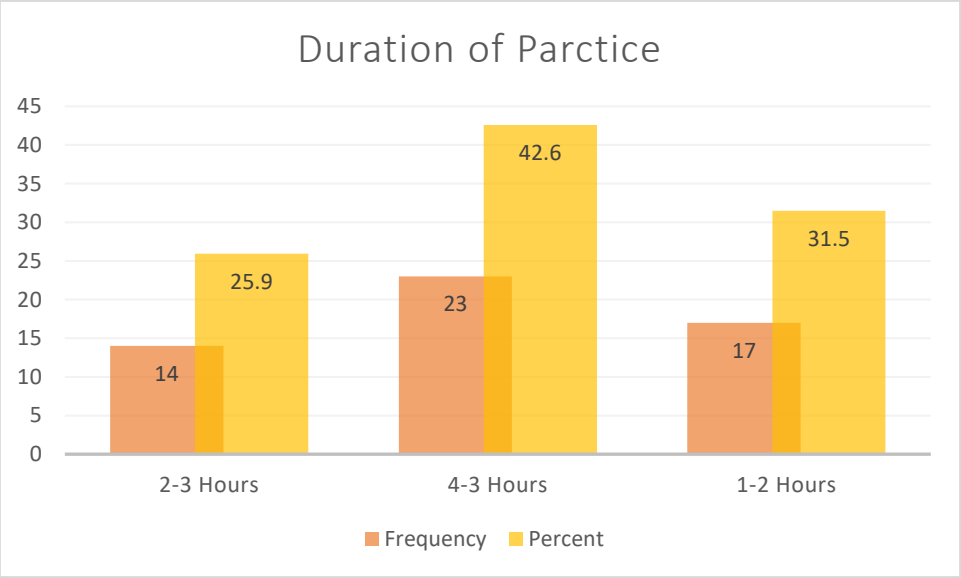


Figure: Practicing Time of the Participants

4.4.3 Date of practice per week-

The study incorporated 54 male drummers, examining the frequency of their practice sessions. The results revealed that 5.6% (n=3) practiced on 2 days, while 14.8% (n=8) practiced on 3 days, and 22.2% (n=12) practiced on 4 days. Additionally, 46.3% (n=25) of the participants practiced on 5 days, while 5.6% (n=3) practiced on 6 days and another 5.6% (n=3) practiced on 7 days. These findings underscore the diverse practice regimens among the male drummers, emphasizing the varied engagement levels and commitment to practice within the context of the study.

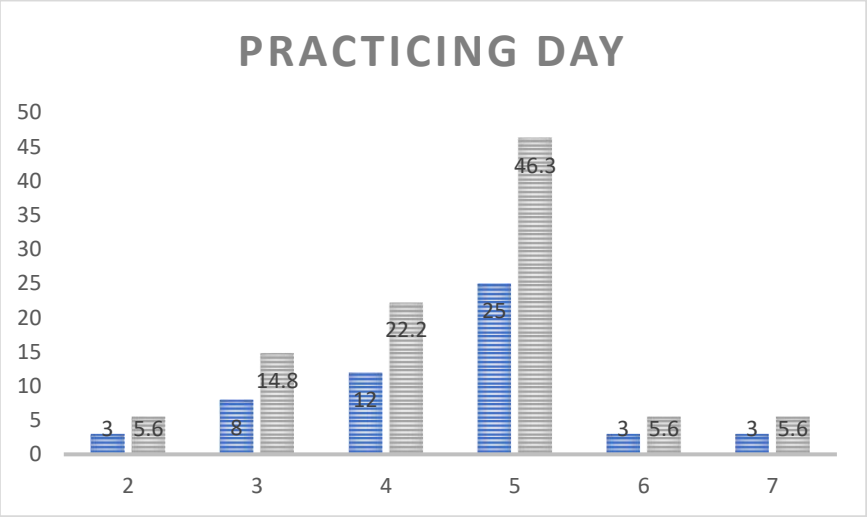


Figure: Practicing Day of the participants

4.4.4. Performing Time of the Participants-

The study involved 54 male drummers, segmented into three distinct groups based on their performing periods. The first group comprised drummers who performed for an average of 41-60 minutes, constituting 81.5% (n=44) of the participants. The second group consisted of drummers who performed for more than 60-80 minutes, representing 11.1% (n=6) of the participants. The third group encompassed drummers who performed for less than 30-40 minutes, accounting for 7.4% (n=4) of the participants. By examining the distribution of performing periods among the participants, the study sought to assess the potential impact of varying durations of drumming activities on the male drummers' experiences and well-being.

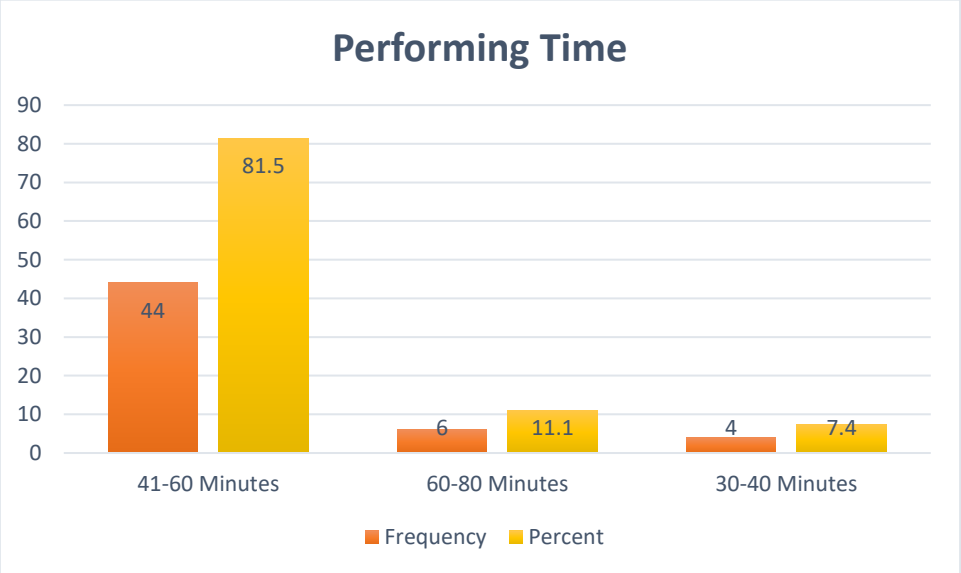


Figure: Performing Time of the participants

4.4.5. Weekly Performing Day of the Participants-

The study involved 54 male drummers, examining their frequency of performances. The results revealed that 51.9% (n=28) of the participants performed on one day, 33.3% (n=18) performed on two days, 9.3% (n=5) performed on three days, and 5.6% (n=3) performed on four days. These findings emphasize the varying degrees of engagement and activity levels among the male drummers, highlighting the diverse performance schedules within the context of the study.

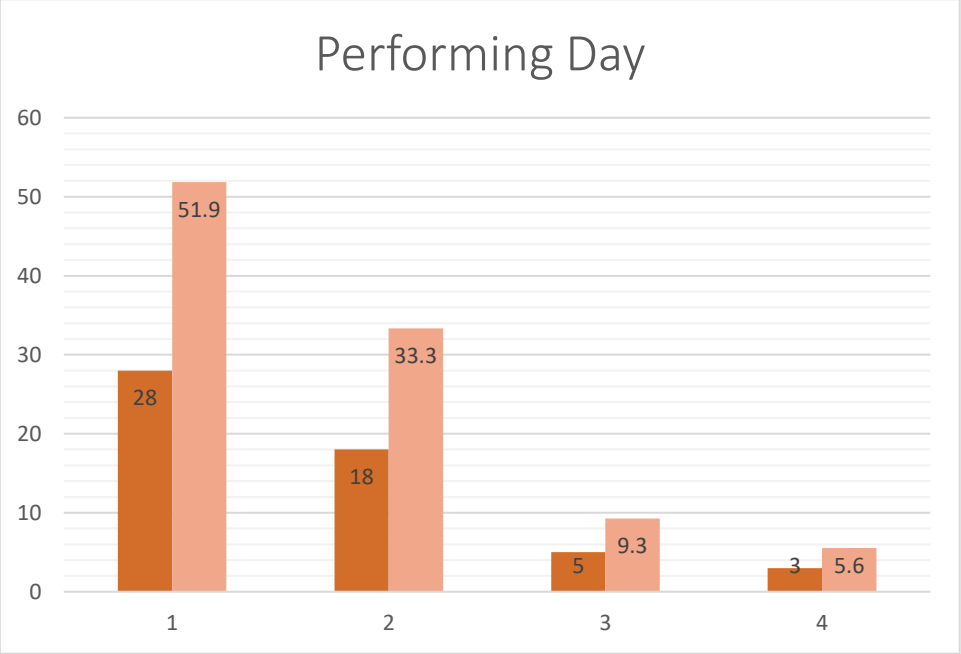


Figure: Performing Day of the Participants

4.4.6. Type of Drummer-

The study included 54 male drummers, investigating their involvement in bands. The results revealed that 72.2% (n=39) of the participants were actively performing in bands, while 27.8% (n=15) were not engaged in band performances. These findings suggest that a significant majority of the male drummers in the study were actively involved in band performances, underscoring the importance of considering the dynamics of group performances and collaborations within the context of drumming activities.).

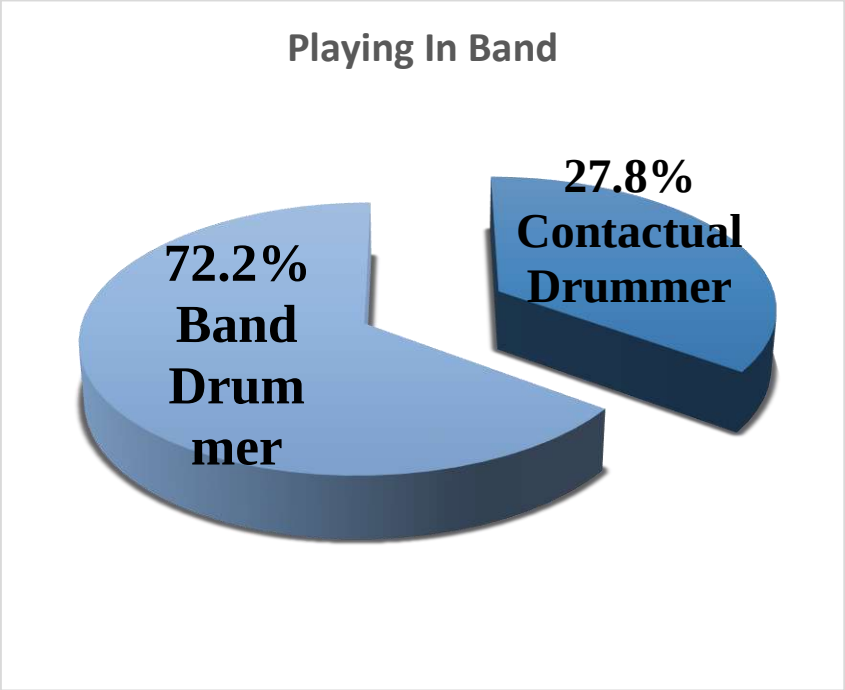


Figure: Type of drummers

4.4.7. Genres of playing drum of the participants-

The study encompassed 54 drummers, exploring the distribution of genres in which they were involved. The results indicated that 42.6% (n=23) of the participants were engaged in rock drumming, 5.6% (n=3) in jazz drumming, and 3.7% (n=2) in pop drumming. Moreover, 24.1% (n=13) of the participants were involved in metal drumming, while an additional 24.1% (n=13) were associated with other unspecified genres. These findings underscore the diverse musical preferences and engagements of male drummers, emphasizing the varied musical landscape within the drumming community.

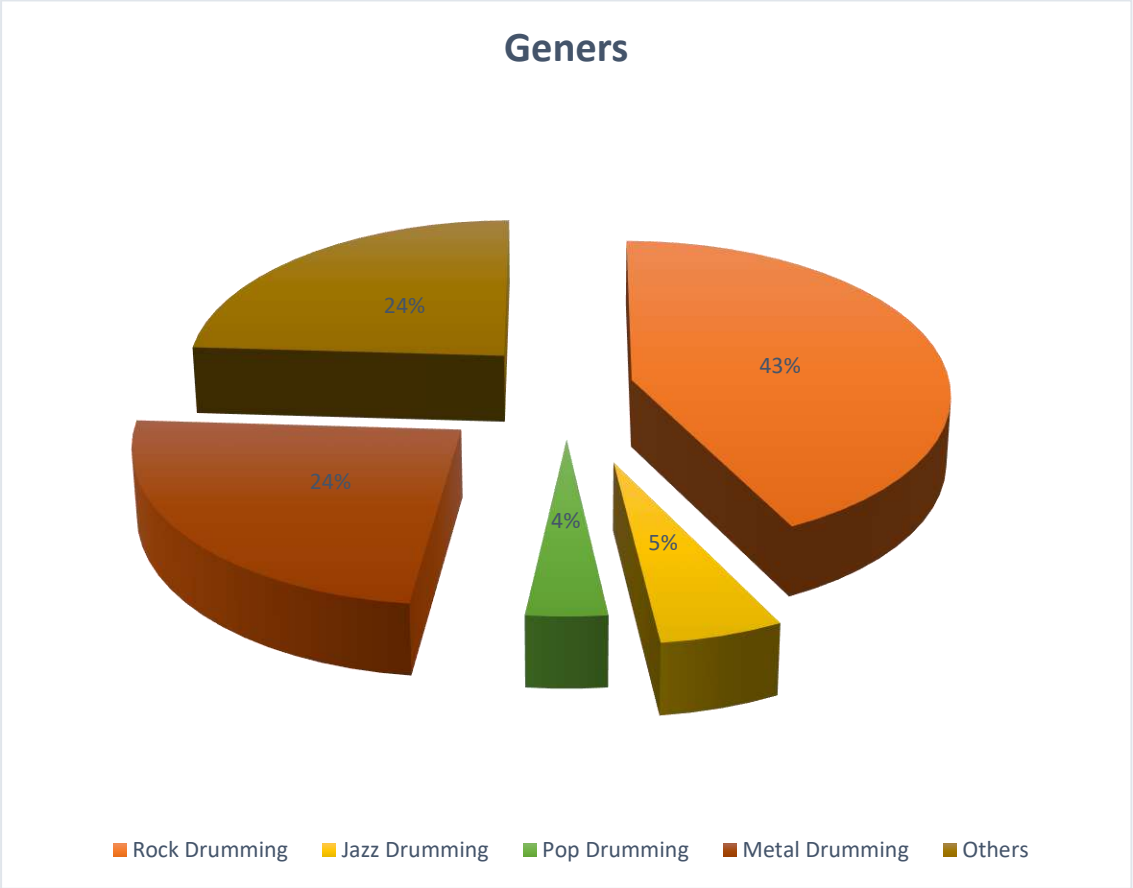


Figure: Genres of playing drum of the participants-

4.4.8. Daily sitting time of the participants-

The study incorporated 54 male drummers, investigating the duration of time spent sitting during their activities. The findings indicated that 20.4% (n=11) of participants reported sitting for 4-5 hours, 57.4% (n=31) for more than 5-6 hours, and 22.2% (n=12) for less than 1-3 hours. These results highlight the substantial proportion of male drummers spending extended periods sitting, potentially pointing to the importance of considering the impact of prolonged sitting on their health and well-being.

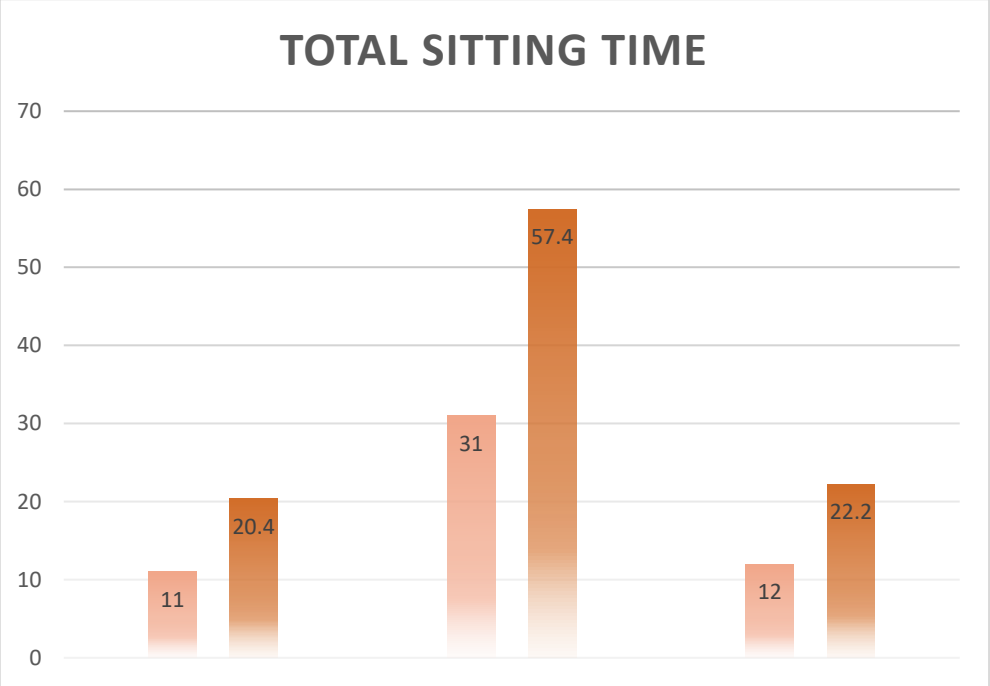


Figure: Sitting time of the participants-

4.5 Association

4.5.1. Association between the age of the participants and the severity of pain

The research involved 54 male drummers in three age groups: 20-25, 26-30, and 31-35, checking how their age relates to the pain they feel by using the NPRS pain scale from 0 to 10. No severe pain (7-10 on the scale) was reported in the youngest group. They felt mostly mild pain in 1 case and moderate pain in 28 cases. The middle group had no severe pain too. They felt more moderate pain in 10 cases and some mild pain in 5 cases. The oldest group showed the same trend with no severe pain, mostly moderate pain in 3 cases, some mild pain in 1 case, and little to no absence of pain.

This table shows that the Pearson Chi-Square value is 36.48 and the P value is .002. which is < 0.005. So, the association between age and the severity of pain is significantly associated.

Table No: 9. Frequency distribution of the participants by the severity of pain and the age group

Association between the age group of the participants and the severity of pain		Severity of Pain				Total	Chi value	P value
		No Pain [0]	Mild Pain [1-3]	Moderate Pain [4-6]	Severe Pain [7-10]			
Age Group	20-25	0	1	28	2	31	36.48	0.002
	26-30	0	5	10	1	16		
	31-35	1	3	1	2	7		
	Total	1	9	39	5	54		

4.5.2. Association between the age of the participants and the nature of pain

The study enlisted 54 drummers (n=54) categorized into three age groups 20-25, 26-30, and 31-35. The drummers were also asked to characterize their pain as Dull, Tingling, Burning, or Sharp.

In the younger group (20-25), they felt pain 31 times. Most often, they described it as dull in 2 cases, tingling in 13 cases, burning in 15 cases, and occasionally sharp in 1 case.

For the middle group (26-30), they had 16 instances of pain. They felt dull in 2 cases, tingling in 9 cases, burning in 1 case, and a bit sharper pain in 4 cases compared to the younger group.

The oldest group (31-35) had 7 instances of pain. They mostly felt dull pain in 4 cases and had just a few experiences of tingling in 1 case, burning in 1 case, and sharp pain in 1 case.

This table shows that the Pearson Chi-Square value is 23.29 and the P value is .001. which is < 0.005. So, the association between age and the nature of pain is significantly associated.

Table No: 10. Frequency distribution of the participants by the nature of pain and the age group

Association between the age of the participants and the nature of pain		Nature of pain				Total	Chi value	P value
		Dull	Tingling	Burning	Sharp			
Age Group	20-25	2	13	15	1	31	23.29	0.001
	26-30	2	9	1	4	16		
	31-35	4	1	1	1	7		
	Total	8	23	17	6	54		

4.5.3. Accession between years of playing drums and the Severity of Pain

The research comprised 54 drummers, with each participant falling into one of three groups based on their years of playing drums. The first group included 12 novice drummers who had been playing for 1-3 years. The second group consisted of 20 drummers with an average of 4-5 years of experience. The third group involved 22 experienced drummers who had been playing for more than 5 years and had achieved a level of mastery in drumming. The severity of pain was evaluated using the NPRS scale.

This table shows that the Pearson Chi-Square value is 38.93 and the P value is .001. which is < 0.005. So, the association between the level of expertise and the severity of pain is significantly associated.

Table No: 11. Frequency distribution of the participants by the severity of pain and the years of drumming.

Accession between years of playing drums and the Severity of Pain		Severity of Pain				Total	Chi value	P value
		No Pain [0]	Mild Pain [1-3]	Moderate Pain [4-6]	Severe Pain [7-10]			
Year of playing Drum	1-3 years	0	4	5	3	12	36.48	0.002
	4-5 years	0	1	19	0	20		
	More than 5 years	1	3	15	3	22		
	Total	1	8	39	6	54		

4.5.4. Accession between regularly practiced exercise and the severity of pain.

The study involved 54 male drummers, categorized into two groups based on their exercise habits. Specifically, 30 drummers regularly practiced exercise, and 24 did not. The severity of pain was assessed using the NPRS scale.

For people who regularly exercised, most felt mild pain in 13 cases, followed by moderate in 11 cases, and some experienced severe pain in 6 cases. None of them reported feeling any pain, and nobody felt severe pain.

For those who didn't exercise regularly, the most common pain was mild in 8 cases, followed by moderate pain in 15 cases. Only one person felt no pain, and none experienced severe pain

This table shows that the Pearson Chi-Square value is 11.11 and the P value is .195. which is >0.005. So, the accession between regularly practiced exercise and the severity of pain is not significantly associated.

Table No: 12. Frequency distribution of the participants by the severity of pain and the regularly practiced exercise.

Accession between regularly practiced exercise and the severity of pain		Severity of Pain				Total	Chi value	P value
		No Pain [0]	Mild Pain [1-3]	Moderate Pain [4-6]	Severe Pain [7-10]			
Practice Exercise	Yes	0	13	11	6	30	11.11	0.195
	No	1	8	15	0	24		
	Total	1	21	26	6	54		

4.5.5. Accession between the time of practicing & the severity of pain.

In this particular study, 54 drummers were categorized into three groups based on their practice duration. The first group included 14 drummers with an average practice duration of 3 hours. The second group consisted of 23 drummers who practiced for more than 3 hours, while the third group encompassed 17 drummers who practiced for less than 3 hours. The severity of pain was assessed using the NPRS scale.

People practicing for 1-2 hours felt different types of pain. Eight people felt mild pain, seven felt moderate pain, and three felt severe pain. None of them felt any pain.

Those practicing for 2-3 hours didn't feel severe pain. Four people had mild pain, and nine had moderate pain. None reported any pain.

People practicing for 4-3 hours had a similar pattern. One person felt mild pain, eight felt moderate pain, and no one felt severe or no pain.

This table shows that the Pearson Chi-Square value is 19.81 and the P value is 0.229. which is >0.005. So, the accession between the time of practicing & the severity of pain is not significantly associated.

Table No: 13. Frequency distribution of the participants by the severity of pain and the practicing times.

Accession between the time of practicing & the severity of pain.		Severity of Pain				Total	Chi value	P value
		No Pain [0]	Mild Pain [1-3]	Moderate Pain [4-6]	Severe Pain [7-10]			
Practicing Time	2-3 Hours	0	4	9	0	13	19.81	0.229
	4-3 Hours	1	8	14	0	23		
	1-2 Hours	0	8	7	3	18		
	Total	1	20	30	3	54		

4.5.6. Accession between the performing day & the severity of Pain.

The study enlisted 54 male drummers, classified into different groups based on the frequency of their performances. Specifically, 28 drummers performed once a week, 18 drummers performed twice a week, 5 drummers performed three times a week, and 3 drummers performed four times a week. The severity of pain was assessed using the NPRS scale.

Performing for a day resulted in various pain levels: mild pain twice, moderate pain in 17 cases, and severe pain in nine cases. Two days of performance showed a similar pattern but less frequently: 15 cases of moderate pain, three of mild pain, and none of severe pain. Three days of performance had less pain: four cases in moderate and one case in mild pain. For four days of performance, there were few instances: one of moderate pain and two of severe pain,

This table shows that the Pearson Chi-Square value is 33.76 and the P value is 0.089. which is >0.005. So, the accession between the performing day & the severity of Pain is not significantly associated.

Table No: 14. Frequency distribution of the participants by the severity of pain and the performed time.

Accession between the performing day & the severity of Pain.		Severity of Pain				Total	Chi value	P value
		No Pain [0]	Mild Pain [1-3]	Moderate Pain [4-6]	Severe Pain [7-10]			
Performing Day	1 Day	0	2	17	9	28	33.76	0.089
	2 Days	0	0	15	3	18		
	3 Days	1	0	4	0	5		
	4 Days	0	0	1	2	3		
	Total	1	2	37	14	54		

4.5.7. Accession between the marital status & the severity of Pain.

The study enlisted 54 male drummers, where 15 were married, and 39 were unmarried. The severity of pain was assessed using the NPRS scale.

Married individuals shared different levels of pain experiences. They had one case of mild pain, four cases of moderate pain, seven cases of severe pain, and none reported having no pain.

Unmarried individuals had varied experiences with pain. They reported five instances of mild pain, 32 instances of moderate pain, two instances of severe pain, and none reported having no pain.

This table shows that the Pearson Chi-Square value is 15.94 and the P value is .004. which is < 0.005. So, the association between age and the severity of pain is significantly associated.

Table No: 15. Frequency distribution of the participants by the severity of pain and the marital status.

Accession between the marital status & the severity of Pain.		Severity of Pain				Total	Chi value	P value
		No Pain [0]	Mild Pain [1-3]	Moderate Pain [4-6]	Severe Pain [7-10]			
Marital status	Married	1	4	7	3	15	15.94	0.004
	Unmarried	0	5	32	2	39		
	Total	1	9	39	5	54		

CHAPTER – V DISCUSSION

There are four types of basic musical instruments 1. String 2. Wind 3. Keys & 4. Percussion. Drumming is one of the segments of percussion. Drumming is challenging as it requires coordinating hands and feet simultaneously. Mastery often takes years due to this complex coordination, making it one of the toughest instruments to learn. As this is an observational study the reason for the study is to find the common musculoskeletal problems of the male drummers & also try to find out their pain area, nature of Pain, and severity of pain. One of the studies shows that Injuries stemming from overuse may arise from undue strain placed on the musculoskeletal tissue, particularly during the initial stages when drummers engage in repetitive or demanding activities, exceeding their physical capacity too quickly (Vedpathak et al., 2017).

This study involved 54 male drummers, categorized into three age groups. Among them, the first group comprised 57.4% of drummers aged between 18 to 24, the second group included 29.6% of drummers aged between 25 to 29, and the third group encompassed 13% of drummers aged between 30 to 35. However, it is important to note that no female drummers were interviewed because in Dhaka city there are few female drummers. The drummers are categorized into three distinct groups based on their years of playing drums. The first group included 37% of drummers with an average of 5 years of experience. The second group comprised 40.7% of drummers who had been playing drums for over 5 years and had achieved a high level of expertise. The third group comprised 22.2% of drummers who had played drums for less than 5 years, representing the newcomer drummers.

The majority of the drummers is students. A very important fact is that most Bangladeshi drummers have a side profession as banker teacher etc. Another positive side of this study has led us to the conclusion that a bigger fraction of these drummers is properly educated. According to the study, it was surprising to know that 33.3% of the drummers in Bangladesh are Christian keeping in mind that Bangladesh is a country with the majority of Muslims. It was found that the Christian drummers regularly played drums in the church choir.

From this found that 72.2% of drummers play in different bands, and 27.8% are contractual drummers. They play drums in shows and restaurants. These contractual drummers play about 3-4 days a week. On the other hand, professional band drummers play an average of 1 day a week sometimes this comes down to 2 times a month. Each

drummer plays different genres of music. The time they use to practice varies according to their age. New drummers take more time to practice. Then there are the expert drummers who hardly spend time practicing. Analyzing age, practice time, time spent on performing, and many other discussions it can be hypothesized that drummer's musculoskeletal problems and the severity of their pain depend on several factors according to the analysis it can also be found that 81.5% of drummers experience wrist pain which is the most. There are other pains such as 51% ankle pain and 50% shoulder pain. If we difference between the pain; Wrist 81.5% > Back 53.7% > Ankle 51.9% > Shoulder 50% > Knee 22.2% > Hip 16.7% > Elbow 13% > and Neck 7.4%. Another survey in India also shows that the middle back > Calves > Lower back > Elbows and arms > Upper back > Knee > Neck, Wrist, Forearm, Hand, and Heel (Vedpathak et al., 2017).

51.9% of drummers have informed us about how the pain from drumming affected their daily activities. Moreover, it was found that 53.7% of drummers experience wrist pain and 25.9% of drummers experience back pain when they play drums. After drumming 64.8% of drummers experience back pain, and different points of the upper and lower limbs are in pain. When these values are arranged in order; Back 64.8% > Upper right limb 40.7% > Upper left limb 35.2% > Lower right limb 24.1% > Lower left limb 20.4%.

11.1% of the drummers have complained about experiencing back pain before playing drums, due to this reason drummers have faced several complications among which some had experienced paresthesia. 24% upper limb, 18.5 % lower limb, and 11.1% of back paresthesia are experienced by drummers. We can divide these pains by their nature of pain. Dull pain 31.5%, Burning pain 14.8%, Sharp pain 11.1%. and the most common is tingling pain 42.6%. The degree of pain or complication can be measured using the NPRS scale. From the NPRS scale, it can be detected that 72% of drummers experience moderate pain, which is 4-6 in the NPRS scale. According to the data, the relation between the severity of pain, the age group, and the year of drumming has concluded that for drummers who have been playing drums for several years the degree of pain they experience is comparatively low, and the P value for this 2 association is ($p= 0.002$) and ($p= 0.001$) which is significant because it's less than 0.05.

The P (p=0.001) value of the nature of pain for the age groups is also significant. This investigation has also shown that drummers who are regularly exercising or doing yoga, these drummers experience less pain. This association has a P value of (0.195).

Moreover, it can be observed that drummers who practice & sit for a longer duration and perform as well the severity of their pain is much more. The P value of these 2 associations is (p=0.229) and (p=0.089). It can also be observed that the severity of pain experienced by married drummers is comparatively lower than non-married drummers. The P value of this association is (p=0.004) which is significant. Besides drummers that play the rock genre experience more pain.

Among this problem (33.3%) of drummers had previous injuries which increases the severity of their pain. Another study shows that the excessive use of certain practices can be attributed to three key factors. Firstly, the genetic component is immutable and therefore unalterable. Secondly, the issue of overuse is often exacerbated by the drummer's faulty technique. Finally, the controllable element of practice intensity multiplied by the duration of practice appears to be the most crucial factor among the three. (Vedpathak & Haral, 2017)

There are very few drummers who go through treatment for their pain. Drummers face a heightened susceptibility to musculoskeletal issues, leading to discomfort and potential injury resulting from the repetitive nature of their movements. While many drummers acknowledge the significance of warm-up and cool-down exercises, only a minority consistently adhere to these routines.

CHAPTER – VI CONCLUSION AND RECOMMENDATION

6.1 Conclusion

In conclusion, this observational study sheds light on the prevalent musculoskeletal problems experienced by male drummers, emphasizing the challenges inherent in mastering this complex instrument. The findings underscore the high prevalence of wrist, back, ankle, and shoulder pain among drummers, with wrist pain being the most common complaint. Notably, drummers who have been playing for several years tend to experience lower degrees of pain, highlighting the potential benefits of prolonged experience in mitigating musculoskeletal strain.

The study reveals that factors such as regular exercise or yoga practice contribute to reducing pain, indicating the potential role of physical fitness in alleviating discomfort. Additionally, the study suggests that married drummers tend to experience less severe pain compared to their unmarried counterparts. The genre of music also appears to influence the severity of pain, with drummers in the rock genre reporting higher levels of discomfort.

Furthermore, the study emphasizes the importance of proper warm-up and cool-down exercises, yet it is noted that only a minority of drummers consistently follow these routines. Previous injuries among a significant proportion of drummers further contribute to the heightened severity of their pain, underscoring the importance of preventive measures and proper technique.

Education on proper technique, regular exercise, and the implementation of preventive measures are crucial steps in reducing the incidence and severity of musculoskeletal problems among drummers.

While the study has provided valuable insights into the musculoskeletal challenges faced by drummers, it calls for further research and intervention strategies to address these issues comprehensively.

6.2 Recommendation

The purpose of the study was to estimate the musculoskeletal problem among the drummers in Dhaka city. In this study researcher only took the drummers from Dhaka city to show the ratio of musculoskeletal problems among the drummers. However, due to time limitations, the investigator was not able to gather a huge number of participants and this result cannot be generalized all over Bangladesh. There is no list of Bangladeshi drummers, So I am trying to make a list of this. Also, there are a few numbers of drummers available in Dhaka city. So, it is very difficult to collect data & information about them. Sometimes I spent a whole day collecting one data.

So, for further study, it is strongly recommended to increase the sample size to generalize the result to all of the drummers in Bangladesh. This study can be considered as a groundwork for the physiotherapy service provision for drummers with symptoms they usually suffer. Proper physiotherapy can reduce symptoms and prevent post-complications. There are few studies on drummers. These cannot cover all aspects of the vast area. Therefore, it is recommended that the next generation of physiotherapy members continue to study this area as well as different areas such as common musculoskeletal problems, and the effectiveness of physiotherapy and should take the necessary steps.

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Appendix - 1

মৌখিক সম্মতিপত্র

উত্তর দাতার পরিচিতি নম্বর | | | |

প্রিয় অংশগ্রহণকারী,

আমি পারিজাত কর্মকার অন্তর, সাইক কলেজ অব মেডিকেল সায়েন্স অ্যান্ড টেকনোলজি (এস,সি,এম,এস,টি)-এর বি.এস.সি.ইন ফিজিওথেরাপি বিভাগের শেষ বর্ষের ছাত্র । আমার বি.এস.সি.ইন ফিজিওথেরাপি ডিগ্রি সম্পন্ন করতে গবেষণার অংশ হিসাবে **''বাংলাদেশী ড্রামাদের সম্ভাব্য জয়েন্টের সমস্যা সমূহ নিয়ে বিশেষ বিশ্লেষণ''** শিরোনামের একটি গবেষণার কাজ করছি । এখানে আপনার সামাজিক – জনতাত্বীক তথ্য এবং জয়েন্ট সম্পর্কিত স্বাস্থ্য সমস্যা সম্পর্কে কিছু প্রশ্ন দেয়া আছে যা আপনাকে পূরণ করতে হবে ।আপনার নিজের দেয়া সাক্ষাৎকার দিতে ১৫-২০ মিনিট সময় লাগবে । এখানে প্রশ্নাবলীর একটি তালিকা দেয়া আছে এবং আপনাকে প্রত্যেকটি প্রশ্নের উত্তর দিতে হবে । এই গবেষণায় প্রাপ্ত তথ্য শুধুমাত্র শিক্ষা ক্ষেত্রে ব্যবহার করা হবে এবং অংশগ্রহণকারীর ব্যক্তিগত তথ্য সম্পূর্ণ গোপণীয়তার মধ্যে থাকবে , অন্য কোথাও প্রকাশ করা হবে না । গবেষণা চলাকালীন সময়ে অংশগ্রহণকারী কোনোরকম দ্বিধা বা ঝুঁকি ছাড়াই যেকোনো সময় এটাকে বাদ দিতে পারবেন । আপনার একান্ত সহযোগীতা কামনা করছি ।

অংশগ্রহণকারীর ঘোষণা

আমাকে এই গবেষণার জন্য আমন্ত্রন জানানো হয়েছে ।আমাকে সম্পূর্ণ প্রশ্নগুলো পড়ে বুঝানো হয়েছে এবং আমি কোন দ্বিধা ছাড়াই উত্তর দিয়েছি ।আমি লক্ষ্য করেছি, এই গবেষণায় আমার অংশগ্রহণ সেচ্ছায় এবং কোনোরকম ঝুঁকি ছাড়াই, আমি যে কোন সময় এটাকে বাদ দিতে পারব । আমি এই গবেষণায় অংশগ্রহণে সম্পূর্ণ সম্মতি জ্ঞাপন করছি ।

অংশগ্রহণকারীর নামঃ.....
ঠিকানাঃ.....
ফোন নাম্বারঃ.....
স্বাক্ষর এবংতারিখঃ..... আঙুলের ছাপ:.....
সাক্ষীরস্বাক্ষর.....

Appendix – 2

Consent Form (English)

Respondent ID no | | | |

Dear participant,

I am Parijat Karmaker Antor student of the Bachelor of Physiotherapy program in the Department of Physiotherapy Saic College of Medical Science and Technology (SCMST) affiliated with the UNIVERSITY OF DHAKA conducting the study entitled **"MUSCULOSKELETAL PROBLEMS AMONG THE DRUMMERS IN DHAKA CITY"** as a part of my thesis work for the partial fulfillment of Bachelor degree. There is a list of questions you need to fill up which include socio-demographic & and joint problems among drummers for spending your time to participate in this self -self-self-administered interview which will take around 10-15 minutes. There is a list of questionnaires and you need to fill up each answer. The information gained from this questionnaire will be used for academic purposes and will be kept confidential. Your participation in this study is voluntary 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 to your kind cooperation.

Declaration of the participant

I have been answered in this survey. The foregoing information has been read to me and that has been answered to my satisfaction. I have noticed that my 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 a participant in this study.

Name of Respondent:…….

Address:…….

Contact number:……

Signeture & Date…… Fingerprint: …….

Witness signature: ……

Appendix - 3

QUESTIONNAIRE (English)

Section 01: Socio-Demographic Related Question:

Serial No	Questions	Answers	Response
1	What is your age?		
2	What's about your settlement?	1.Urban 2.Semi-urban 3.Rural	
3	What kind of family do you live in?	1.Nuclear 2.Extended	
4	What is your educational qualification?	1.PSC 2.JSC 3.SSC 4.HSC 5.Graduate 6.Post graduate 7 Illiterate. 8.Others	
5	What is your occupation?	1.Teachers 2.Banker 3.Businessman 4.Doctor 5.Player 6.Student 7.Others	
6	What is your marital status?	1.Married 2.Unmarried 3.Others	
7	What is your religion?	1.Muslim 2.Hindu 3.Christian 4.Buddhist	
8	How much is your family/your monthly income?		

Section: 02: JOINT problem related information:

Serial No	Questions	Answers	Response
9	How many years have you been playing Drums?	1. 5 years 2. > 5 years 3. <5 years	
10	How long have you been practicing drumming?	1. 3 hours 2. >3hours 3. <3 hours	
11	How many days a week you practice playing drum?	**1. 2. 3. 4. 5. 6. 7.**	
12	How long have you been performed drumming?	1. 1hours 2. >1hours 3. <1hours	
13	How many days a week you performed playing drum?	**1. 2. 3. 4. 5. 6. 7.**	
14	Do you play drums in any musical band?	1.Yes 2.No	
15	In which genres do you play drums?	1. Rock Drumming 2. Jazz Drumming 3. Pop Drumming 4. Metal Drumming	
16	Do you have felt pain in any part of your body?	1.Yes 2.No	
17	If yes, please specify which part do you have felt pain in your body?	1. Neck 2. Shoulder 3. Elbow 4. Wrist 5. Hip 6. Knee 7. Ankle 8. Back 9. Thoracic 10. Others	
18	Do you feel any pain during daily activities?	1.Yes 2.No	

19	Did you feel any weakness in your body after playing drum?	1.Yes 2.No	
20	If yes, please specify:	1. Upper right limb 2. Upper left limb 3. Lower right limb 4. Lower left limb 5. Back 6. Others	
21	Did you feel any weakness in your body before playing drum?	1.Yes 2.No	
22	If yes, please specify:	1. Upper right limb 2. Upper left limb 3. Lower right limb 4. Lower left limb 5. Back	
23	Do you feel movement difficulties when you playing drum?	1.Yes 2.No	
24	If yes, please specify which body parts movement difficulty do you feel when you playing drum?	1. Neck 2. Shoulder 3. Elbow 4. Wrist 5. Hip 6. Knee 7. Ankle 8. Back 9. Thoracic 10. Others	
25	How long do you sit all day to play the drums?	1. 5 years 2. > 5 years 3. <5 years	
26	Do you have paresthesia?	1.Yes 2.No	
27	If yes, please specify which area of paresthesia do you have?	1. Upper limb 2. Lower limb 3. Back 4. Neck 5. Other side	

28	Nature of your pain?	1.Dull 2.Sharp 3.Burning 4.Shooting	
29	Severity of pain? (According to NPRS scale): 0=No Pain 1-3=Mild Pain 4-6=Moderate Pain 7-10=Sever pain Ref: McCaffery , M., Beebe, A., et al. (1989). Pain: Clinical manual for nursingpractice, Mosby St. Louis, MO		
30	Do you have any previous injury or problems?	1.Yes 2.No	
31	Do you practice exercise regularly?	1.Yes 2.No	
32	Do you take any medical treatment?	1.Yes 2.No	
33	If yeas, what kind of treatment?	1. Medications 2. Physiotherapy 3. Others	

Appendix - 4

প্রশ্নাবলী (বাংলা)

১ম ভাগঃ সামাজিক ও জনতাত্ত্বিক বিষয়ক প্রশ্নাবলী

ক্রমিক নং	প্রশ্নাবলী	উত্তর	ফলাফল
১	আপনার বয়স কত?		
২	আপনার বসবাস স্থান কোথায়?	১) শহর ২) মফস্বল ৩) গ্রাম	
৩	আপনি কোন ধরণের পরিবারে বসতি করেন ?	১) একক পরিবার ২) যৌথ পরিবার	
৪	আপনার শিক্ষাগত যোগ্যতা ?	১) পি.এস. সি ২) জে. এস. সি ৩) এস. এস. সি. ৪) এইচ. এস. সি. ৫) স্নাতক ৬) স্নাতকোত্তর ৭)নিরক্ষর ৮) অন্যান্য	
৫	আপনার পেশা কী?	১) শিক্ষক/ শিক্ষিকা ২) ব্যাংকার ৩) ব্যবসায়ী ৪) চিকিৎসক ৫) খেলোয়ার ৬) ছাত্র/ ছাত্রী ৭) অন্যান্য	
৬	আপনার বৈবাহিক অবস্থা?	১) বিবাহিত ২) অবিবাহিত	
৭	আপনার ধর্ম কী?	১) ইসলাম ২) হিন্দু ৩) খ্রিষ্টান ৪) বৌদ্ধ	

৮	আপনার / আপনার পরিবারের মাসিক আয় কত?		

২য় ভাগঃ জয়েন্টের সমস্যা সম্পর্কিত তথ্য সমূহ

ক্রমিক নং	প্রশ্নাবলী	উত্তর	ফলাফল
৯	আপনি কত বছর যাবৎ ড্রাম বাজাচ্ছেন	১. ৫বছর ২. > ৫বছর ৩. < ৫বছর	
১০	আপনি কত সময় যাবৎ ড্রাম অনুশীলন করেন?	১. ৩ ঘন্টা ২. > ৩ ঘন্টা ৩. < ৩ ঘন্টা	
১১	আপনি সপ্তাহে কয় দিন ড্রাম অনুশীলন করেন?	১ .২. ৩. ৪. ৫. ৬. ৭.	
১২	আপনি কোন অনুষ্ঠানে কতক্ষন ড্রাম বাজান?	১. ১ঘন্টা ২.> ১ঘন্টা ৩. < ১ঘন্টা	
১৩	আপনি সপ্তাহে কয়দিন কোনো অনুষ্ঠানে ড্রাম বাজান?	১ .২. ৩. ৪. ৫. ৬. ৭.	
১৪	আপনি কোনো ব্যান্ডের জন্য ড্রাম বাজান ?	১. হ্যাঁ ২. না	
১৫	আপনি কোন ধরনের গানে ড্রাম বাজান?	১. রক ড্রামিং ২. যাজ ড্রামিং ৩. পপ ড্রামিং ৪. মেটাল ড্রামিং ৫. অন্যান্য	
১৬	আপনার শরীরে কী কোন অংশে ব্যাথা হয় ?	১. হ্যাঁ ২. না	
১৭	যদি হ্যাঁ হয় তাহলে কোন অংশে ?	১. ঘাড় ২. কাধ ৩. কুনুই ৪.কব্জি ৫. কোমর	

		৬.হাটু ৭. পায়ের গড়ালি ৮. পিছনের দিকে ৯. বক্ষে ১০.অন্যান্য	
১৮	দৈন্যিক কার্যক্রমে আপনার কি ব্যাথা অনুভব হয়?	১. হ্যাঁ ২. না	
১৯	ড্রাম বাজানোর পরে আপনার কি দূর্বলতা অনুভব হয় ?	১. হ্যাঁ ২. না	
২০	যদি হ্যাঁ হয় তাহলে কোন অংশে ?	১.উপরের ডান দিকে ২. উপরের বাম দিকে ৩. নিচের ডান দিকে ৪. নিচের বাম দিকে ৫. পিছনের অংশে ৬. অন্যান্য	
২১	ড্রাম বাজানোর আগে আপনার কি দূর্বলতা অনুভব হয় ?	১. হ্যাঁ ২. না	
২২	যদি হ্যাঁ হয় তাহলে কোন অংশে ?	১.উপরের বাম দিকে ২. উপরের ডান দিকে ৩. নিচের বাম দিকে ৪. নিচের ডান দিকে ৫. পিছনের অংশে ৬. অন্যান্য	
২৩	যখন আপনি ড্রাম বাজান তখন কী শরীরের কোন অংশে ব্যাথা / সমস্যা হয় কি?	১. হ্যাঁ ২. না	
২৪	যদি হ্যাঁ হয় ,তাহলে ড্রাম বাজানোর সময় কোন অংশে তা অনুভব হয়?	১. ঘাড় ২. কাধ ৩. কুনুই ৪.কব্জি ৫. কোমর ৬.হাটু ৭. পায়ের গড়ালি ৮. পিছনের দিকে ৯. বক্ষে ১০.অন্যান্য	

২৫	ড্রাম বাজানোর জন্য দৈনিক কতক্ষণ সময় বসে থাকেন ?	১. ৫ঘন্টা ২. > ৫ঘন্টা ৩. < ৫ঘন্টা	
২৬	আপনার কি অবশতা আছে?	১. হ্যাঁ ২. না	
২৭	যদি হ্যাঁ হয় তাহলে কোন অংশে অবশতা আছে ?	১. উপরের অংশে ২. নীচের অংশে ৩. পিছনের অংশে ৪. ঘাড়ের অংশে ৫. অন্যান্য অংশে	
২৮	আপনার ব্যাথার ধরন ?	১.নিস্তেজ ২.তীক্ষ্ণ ৩.জ্বলন্ত ৪.তীব্র	
২৯	সংখ্যাসূচক ব্যথা পরিমানের মাপকাঠিতে ব্যাথার পরিমান (এন.পি.আর.এস.) ০= ব্যাথা নেই ১-৩= হালকা ব্যাথা ৪-৬= মধ্যপন্থি ব্যাথা ৭-১০= তীব্র ব্যাথা Ref: McCaffery , M., Beebe,A., et al. (1989).		
৩০	আপনার পূর্বের কোনো আঘাত/ ব্যাথা আছে	১. হ্যাঁ ২. না	
৩১	আপনি কি দৈনিক ব্যায়াম করেন ?	১. হ্যাঁ ২. না	
৩২	আপনি কোন চিকিৎসা গ্রহণ করেন ?	১. হ্যাঁ ২. না	
৩৩	যদি হ্যাঁ হয় তাহলে কোন ধরনের চিকিৎসা?	১. ঔষধ গ্রহন ২. ফিজিওথেরাপী ৩. অন্যান্য	

Appendix – 5

Permission Letter

SAIC COLLEGE OF MEDICAL SCIENCE AND TECHNOLOGY

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

Ref: ERB/SCMST/PT/4th 2016-17/015 Date: 28-02-2022

28th February' 2022

To

Parijat Karmaker Antor

4th Professional B.Sc. in Physiotherapy

Saic College of Medical Science and Technology (SCMST)

Mirpur-14, Dhaka-1216.

Sub: Permission to collect data

DearAntor,

Ethical review board (ERB) of SCMST pleased to inform you that your proposal has been reviewed by ERB of SCMST and we are giving permission you to conduct study entitle of "An analysis of the probable joint problem of the drummers in Bangladesh" 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

02.03.22
Principal
Saic College of Medical Science and Technology
Mirpur-14, Dhaka-1216

Principal (In charge)
SAIC College of Medical Science
and
Technology (SCMST)
Mirpur-14, Dhaka

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

Appendix – 6

Grand Chart

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

Appendix - 7

Map of Dhaka City