

Functional disability among the patients with Frozen Shoulder



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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.

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Acronyms

SCMST: Saic college of medical science and technology

FS: Frozen shoulder

BMI: Body mass index

ROM: Range of motion

ADL: Activity of daily life

SPADI: Shoulder pain and disability index

SPSS: Statistical package for social science

TENS: Transcutaneous electrical nerve stimulation

PEMF: Pulsed electromagnetic field therapy

LLLT: Low level laser therapy

ICF: International classification of functioning

WHO: World health organization

QoL: Quality of life

DM: Dibeteic melitus

SDQ: Shoulder disability questionnaire

SD: Standard deviation

χ^2 = Chi – square

P = P value

Df = Degree of freedom

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Abstract

Purpose: The purpose of the study was to assess level of functional disability among patients with frozen shoulder. **Objectives:** To explore the functional disabilities due to frozen shoulder by using shoulder pain and disability index (SPADI). To assess the severity of pain by using shoulder pain and disability index (SPADI). To explore the socio demographic characteristics of frozen shoulder patient.

Methodology: Cross sectional type of descriptive study design was selected. Total 73 Frozen shoulder patients were participate by purposive sampling from different Hospitals and Chambers in Dhaka City. Data was collected by the self-developed and Structural Questionnaire. Descriptive statistics using SPSS software version-25 were used for data analysis and the results were pie chart, bar chart and table.

Results: The study revealed that, 4.1% participants has Mild functional disability, 42.5% participants had Moderate functional disability and 53.4% participants had severe functional disability. This study found that according to SPADI Scale Mean was 52.53 and Standard Deviation was 17.277 in pain score group, Mean was 53.4452 and Standard Deviation was 20.29908 in disability group and also Mean was 81.00 and Standard Deviation was 27.870 total SPADI score group. The result found that more than half of the participants has severe functional disability among the patients with Frozen shoulder.

Conclusion: Frozen shoulder is a very common condition with a prevalence of 2%-5% in general population. Frozen shoulder is a disabling disease and recovering is a long term process. The study showed that highest number of participants moderate and severe functional disability in (44-62) years age group.

Key words: *Frozen shoulder, Functional Disability, Shoulder pain and Disability Index.*

1.1 Background:

Significant limb dysfunction and a decline in quality of life are outcomes of frozen shoulder. What predicts the level of discomfort and disability as well as the quality of life in patients with frozen shoulder remains unclear. In these patients, comorbidities are linked to greater disability and lower quality of life, but not to pain intensity (Bagheri et al., 2016).

Codman initially used the phrase "frozen shoulder" in 1934. He described a painful shoulder disease with a slow onset that was accompanied by stiffness and trouble sleeping on the affected side. Codman also noted the disease's characteristically pronounced decrease in forward elevation and external rotation (Dias et al., 2005).

Numerous people have painful shoulder diseases that appear "stiff" by limiting active mobility, either because of pain inhibition (antalgic shoulder) or muscle weakness (such as a torn rotator cuff or deltoid paresis). The painful selective restriction of some active and passive shoulder movements, in contrast, is a defining hallmark of patients with frozen shoulder, even when radiographs are normal (Robinson et al., 2012).

Frozen shoulder, also known as idiopathic adhesive capsulitis, is a disease with an unknown etiology that restricts both active and passive shoulder motion significantly. It develops without any recognized intrinsic shoulder disorders. Although it is commonly believed that adhesive capsulitis is a self-limiting illness that can be managed with physical therapy, the most effective treatment has been the focus of much research. Many various treatments have been suggested, and numerous studies have shown positive outcomes. Benign neglect, chiropractic manipulation, oral corticosteroids, corticosteroid injections, physical therapy exercises and modalities, brisement, manipulation under anesthesia, and arthroscopic and open releases of the contracture have all been used as forms of treatment. The surgical treatment of persistent shoulder discomfort has received more attention in recent research (Griggs et al., 2000).

One of the most frequent yet difficult clinical disorders that orthopedic surgeons encounter is frozen shoulder (FS). It is a condition that causes pain and a substantial reduction in the glenohumeral joint's active and passive range of motion (ROM). The research to date suggests that FS can be broken down into three phases: freezing (slowly developing shoulder discomfort with progressive loss of motion), frozen (gradual pain relief, plateauing stiffness, and equal active and passive ROM), and thawing (gradual improvement of motion and resolution of symptoms) (Cho et al., 2019).

Adhesive capsulitis, another name for frozen shoulder, is a common glenohumeral joint disorder characterized by escalating joint capsule inflammation and ensuing shoulder stiffness. In the past, shoulder discomfort and stiffness have been incorrectly diagnosed as having a frozen shoulder (Nagy et al., 2013).

Orthopedic surgeons, rheumatologists, and physiatrists are just a few of the medical specialists who can treat frozen shoulder, a frequent ailment that affects the shoulder. It's also one of the least understood shoulder disorders, though (Joseph D.Zuckerman and Andrew Rokito., 2011).

The term "disability" covers a wide range of conditions. The terms illness, impairment, limitation, and handicap are closely related to the idea of disability. Physical, emotional, and mental performance are the three components of functional impairment. Physical performance relates to the body's sensory and motor function, and is evaluated through activities like walking, crouching, and running (Rodrigues et al., 2009).

Perspectives that see the mind, body, and society as distinct domains of human existence predominate in theoretical claims and disputes about the nature of disability. Impairment theory, in particular, frequently focuses on the contrast between medical and social definitions of disability. The latter describes disability as a social construction through which society oppresses disabled individuals. The former defines disability as a biological source of impairment that, in turn, results in disability (Rob Imrie, 2004).

Functional capacity is the possibility and capacity to go about one's everyday business in a manner that is normal or accepted. Maintaining functional ability is a crucial sign of health in older people, and losing this capacity increases morbidity and

mortality. Disability refers to the negative aspects of the interaction between the individual and the environment, i.e., deficits, limitations in the activity and restrictions in his/her social participation. When environmental adaption or the use of technical aids cannot make up for a disability and a third party's assistance is required to do daily activities, we define this as dependence (Calenti et al., 2010).

Along with morbidity and mortality rates, the degree of disability is a crucial measure of the illness burden. Physical dependence and functional decline are common characteristics of old age. Age-related disabilities are a typical occurrence that impair functionality and compromise the capacity to perform daily activities (ADL). In addition to making it harder to carry out daily tasks, vision impairment is linked to a much higher incidence of falls, social isolation, and dependency. Hearing loss makes it difficult to converse and hear, which has an impact on sociability (Vaish et al., 2019).

1.2 Justification of this study:

Frozen Shoulder is a well-defined condition with its phases of severe pain, increasing stiffness and the gradual recovery of full movement of the shoulder. Approximately 2-3% of adults aged between 40 and 70 years develop shoulder capsulitis with a greater occurrence in women. Despite many studies, the frozen shoulder phenomenon is nowadays still regarded as an enigma. The disorder has a mysterious and intriguing appeal, with an apparently spontaneous onset and resolution, inflicting a great deal of suffering on patients over a prolonged period of time. No other joint seems to become affected in a similar way.

Frozen Shoulder is one of the most common musculoskeletal disorders which affect the quality of life of an individual. Many patients attend to receive treatment of frozen shoulder but treatment is not always successful and not makes them satisfied because of their limitation in functional activity at office and household activities. So my concentration was evaluated the functional disability among the patients with frozen shoulder. After completion my study physiotherapist would get an idea about the functional disability among the patients with frozen shoulder.

This idea helped us to design a treatment plan according to patients requirement. Also we could provided better treatment and advice for the patient. So this study was explore how much functional disability limited for patient with frozen shoulder. Also it was gived details information about frozen shoulder. As a health care professional, it improved our knowledge about frozen shoulder patient and make the profession strongest and this study would be used as preventative measure for altering functional disability patients with frozen shoulder. So there was no substitute for conducting research as a professional to further our field.

1.3 Research Question:

What are the functional disabilities among the patients with frozen shoulder?

1.4 Objectives of the study:

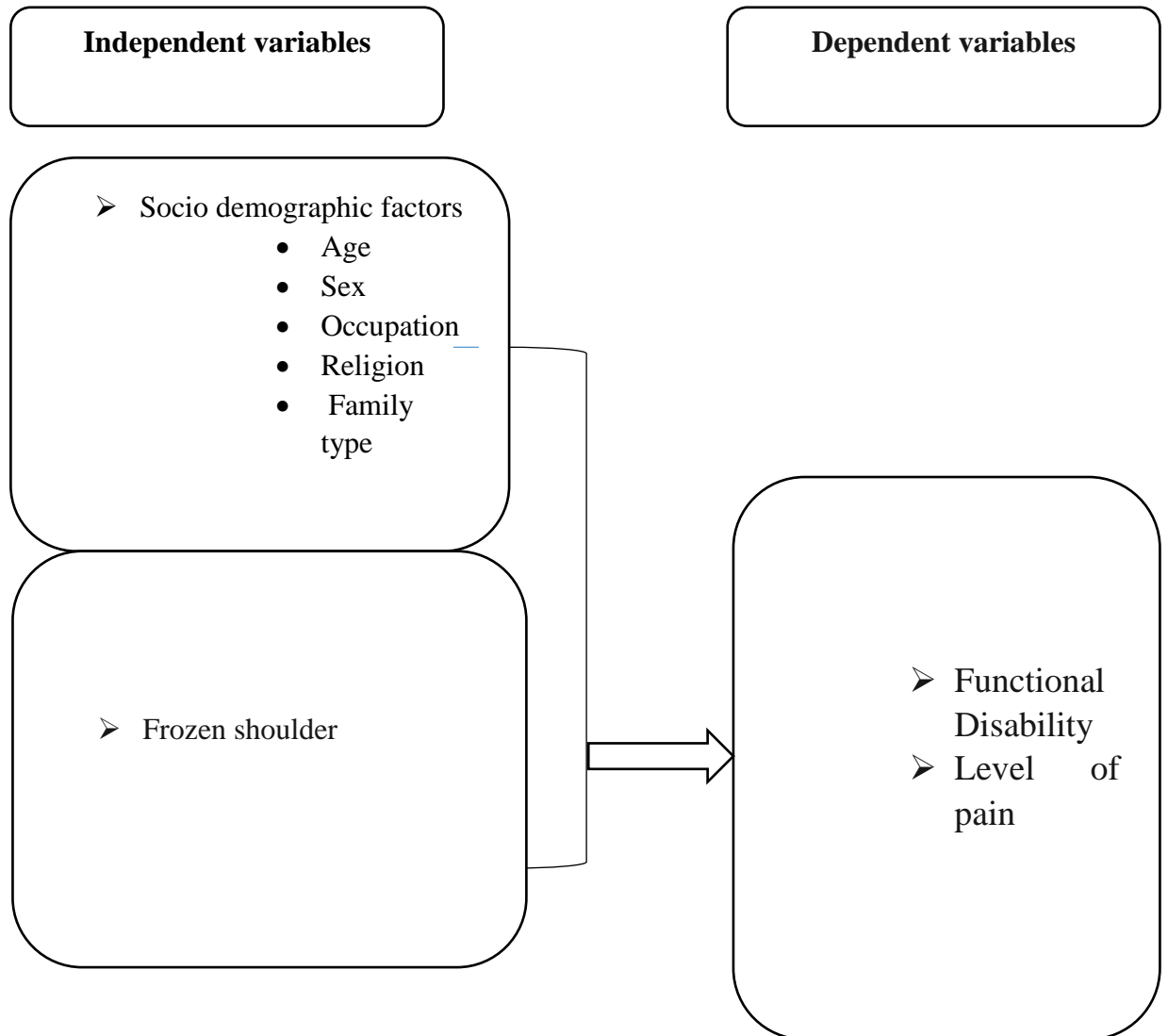
1. General objective:

To assess the level of functional disability among the patients with frozen shoulder attending different hospitals in Dhaka city.

2. Specific objectives:

1. To explore the functional disabilities of the patients due to frozen shoulder by using shoulder pain and disability index (SPADI) attending different hospitals in Dhaka city.
2. To assess the severity of pain by using shoulder pain and disability index (SPADI).
3. To determine the socio demographic characteristics of patients with frozen shoulder

1.5 List of variables of the study:



1.6 Operational definitions of the variables:

Frozen Shoulder: shoulder joint is impacted by the condition known as frozen shoulder. Typically, it causes pain and stiffness that start out gradually, get worse, and then go away. It can take a year to three years to complete.

The ball and socket joint in shoulder is made up of three bones. collarbone, shoulder blade, and upper arm (humerus) make up this group (clavicle). shoulder joint is surrounded by tissue that maintains everything in place. It is known as the shoulder capsule.

When a shoulder is frozen, the capsule grows extremely thick and rigid, making movement difficult. Less synovial fluid, a substance that keeps the joint lubricated, forms bands of scar tissue. Further preventing motion are these things.

Functional Disability: Functional Disability is defined as a deficit or set of deficits in one's ability to carry out essential daily activities and/or instrumental daily activities of a magnitude that, by itself or in combination with certain health conditions, creates a need for the level of long-term support services (LTSS) typically offered in an institutional setting.

Socio-demographic: Socio-demographics are merely a populations characteristics. In general , socio-demographic factors like age, gender, ethnicity, level of education, income, clientele, years of experience, location, etc. are questioned in all kinds of surveys.

Shoulder pain and Disability Index: The Shoulder Pain and Disability Index (SPADI) is a self-administered questionnaire that consists of two dimensions, one for pain and the other for functional activities. The pain dimension consists of five questions regarding the severity of an individual's pain. Functional activities are assessed with eight questions designed to measure the degree of difficulty an individual has with various activities of daily living that require upper-extremity use. The SPADI takes 5 to 10 minutes for a patient to complete and is the only reliable and valid region-specific measure for the shoulder.

The scapula is the main bone component of the shoulder and serves as the focal point for all muscle activity. The articular surface of the glenohumeral joint, or the glenoid cavity, is located at the lateral aspect of the scapula. The glenoid labrum, shoulder joint capsule, supporting ligaments, and the rotator cuff muscles' myotendinous attachments encircle and support the glenoid cavity on all sides. The stability of the shoulder joint is greatly enhanced by the shoulder muscles. The rotator cuff muscles are the main muscle group that stabilizes the shoulder joint. The supraspinatus, infraspinatus, teres minor, and subscapularis are the four muscles that make up the rotator cuff. The deltoids, trapezius, pectoralis minor, and serratus anterior are other muscles that make up the shoulder girdle (McCausland, 2018).

In 1872, Duplay described a "periarthrititis scapulohumeral," which was the earliest description of a frozen shoulder ever recorded (Chokkalingam et al., 2017).

Although Codman first used the term "frozen shoulder" in 1934, he described the common symptoms of the condition, including a slow onset of pain felt near the deltoid muscle insertion, an inability to sleep on the affected side, and restrictions in active and passive elevation and external rotation, all while maintaining a normal radiological appearance (Tsvieli et al., 2017).

Since Neviasser's initial description of frozen shoulder in 1945, "adhesive capsulitis" has been used as a synonym . Although this name is widely used, it is somewhat misleading because frozen shoulder is more commonly related with synovitis and capsular contracture than it is with capsular adhesion (Cao et al., 2022).

In the absence of a recognized intrinsic shoulder disorder, frozen shoulder, also known as adhesive capsulitis, is described as "a condition of unclear etiology, characterized by substantial limitation of both active and passive shoulder motion" (Zuckenman and Rokito., 2011).

Recent research has shown that frozen shoulder patients had altered expression of immune cells, inflammatory mediators, and fibrosis-related cytokines. Shoulder capsule biopsies from patients with frozen shoulder have revealed chronic inflammatory cells, such as mast cells, T and B cells, and macrophages, while the

diseased capsule displayed dysregulated cytokines, such as IL-1, IL-6, and TNF-, which are known to drive inflammatory/matrix interactions , including fibroblast activation and dysregulated collagen synthesis. Additionally, we have demonstrated the role of the cytokine interleukin 33 (IL-33) as an alarmin in early tendinopathy. This cytokine, which is released by resident tenocytes, has the capacity to modulate inflammatory/matrix crosstalk and is therefore probably crucial for maintaining a balance between tissue repair and degeneration. Later, we found elevated levels of the alarmins IL33 (Akbar et al., 2019).

Patients with frozen shoulder commonly report a gradual loss of passive and active external rotation of the shoulder, insidious shoulder stiffness, and significant discomfort that typically gets worse at night (Brue et al., 2007).

Although idiopathic frozen shoulder has been extensively reported over the past 30 years , the results of nonoperative treatment are debatable. Due to a dearth of research, the normal course of a frozen shoulder is unclear . "Even the most chronic cases heal with or without treatment in around two years," said Codman 77 years ago (Vastamaki et al., 2011).

The prevalence of FS ranges between 3 and 5% and is up to 30% in diabetic individuals, with a tendency toward more severe symptoms and treatment resistance . It typically affects people in their middle years, slightly more frequently affects women than men, and can occur bilaterally . Frozen shoulder can develop as a result of trauma and is linked to Peyronie's disease, Dupuytren's contracture, and other connective tissue diseases. Diabetes is a predictor for this postoperative complication, which has been observed in up to 11% of patients undergoing arthroscopy (Whelton and Peach., 2017).

2-5% of the general population suffer from frozen shoulder (FS), a common shoulder illness that causes a progressive loss of shoulder motion . The stages of FS represent the progression of the condition from capsular inflammation and fibrosis to spontaneous clearance of this fibrosis. However, there is ongoing debate over the etiology, pathophysiology, natural course, and most effective treatment of FS (Cho et al., 2018).

Although studies have suggested that up to 5.3% of the population may be affected by frozen shoulder , exact prevalence and incidence rates are yet unknown .

The illness is accompanied by (often severe) pain, lack of sleep, anxiety, and incapacity, all of which can be extremely disruptive and affect almost every part of daily life . The average length of the disease is 30.1 months (with a range of 1 to 3.5 years), but it could last significantly longer. As a result, there may be a significant burden on people and health care facilities (Ryan et al., 2016).

Trauma/surgery , hormonal conditions like diabetes, ACTH deficiency, and thyroid disease , cardiac conditions , neurologic conditions like Parkinson's and stroke ,neurosurgery , malignancies , hyperlipidemia , and some drugs like metalloproteinase inhibitors, protease inhibitors, antiretrovirals, influenza and pneumococcal vaccine, and fluoroquinolones. Patients who suffer from frozen shoulder frequently have a typical history, clinical presentation, and recovery. The illness is thought to be self-limiting, lasting 18 to 24 months with no long-term aftereffects. Many patients describe ongoing discomfort and persistent motion restriction, even though the majority of patients exhibit complete remission of the condition. Although several authors have attempted to describe the normal progression of the frozen shoulder, there is still debate about it (Jain et al., 2014).

In comparison to the general population, diabetes patients have been shown to have a higher prevalence of frozen shoulder and a worse response to treatment¹. Regarding the impact of glycemic management on the prevalence of frozen shoulder in diabetes patients, there is disagreement. It has been hypothesized that surgical results for diabetes people with idiopathic frozen shoulder are worse than for non-diabetic patients with the condition. If it is possible to lower the chance of developing frozen shoulder by identifying the relevant causes, this information would help with preventative care counseling and enhance medical care. Researchers have hypothesized that diabetic individuals with suboptimal glycemic control, as determined by the glycosylated hemoglobin A1c (HbA1c) level, can be identified as having a higher risk of developing shoulder pain, stiffness, and disability (Yian et al., 2012).

Once all other potential causes of shoulder pain have been ruled out, the diagnosis of frozen shoulder is made based on the clinical history and examination . In the general population, the prevalence of frozen shoulder is 3-5% , while in diabetics, it can reach 20%. Early research revealed that it is a self-limiting illness

lasting for an average of two to three years , but more recent research has found that up to 40% of patients continue to experience symptoms and movement restrictions after three years, with 15% developing a lifelong impairment. Frozen shoulder has been treated in many different ways, including with analgesics, rest, physiotherapy, manipulation under anesthesia, corticosteroid injections, oral steroids, arthrographic distension of the capsule, and arthroscopic or open surgical release. Patients who do not improve after trying early conservative methods are typically treated with arthrographic distension, intra-articular corticosteroid injections, or manipulation under anesthesia (Clement et al., 2013).

The three stages of FS are often as follows: (1) extreme pain, (2) progressive range of motion (ROM) restrictions along with pain, and (3) pain relief and ROM recovery. It becomes challenging to carry out daily tasks because to the disease's increasingly worsening discomfort and reduced range of motion (ROM). The non-dominant shoulder is more prone to develop FS4; its frequency is higher among office workers than laborers and higher among females than males. Before, it was believed that FS would naturally recover one to two years after incidence. However, a variety of therapeutic approaches have been suggested as it became clear that the handicap does not improve with sufficient care. It's still debatable which surgical or medicinal approach is best for FS patients' ROM recovery. Though physiotherapy is widely used as a type of FS treatment, it has been shown to enhance all facets of shoulder range of motion (with the exception of external and internal rotation) (Moon et al., 2015).

Shoulder pain and stiffness are frequently brought on by frozen shoulder. The early phases of the pain and stiffness, which can continue up to two or three years before fading away, can be very uncomfortable. By introducing more energy (electrical, sound, light, or thermal) into the body, electrotherapy modalities, often referred to as electrophysical agents, are forms of physical therapy that attempt to improve function and relieve discomfort. Examples include therapeutic ultrasound, pulsed electromagnetic field therapy, low-level laser therapy (LLLT), interferential current, and transcutaneous electrical nerve stimulation (TENS) (PEMF). Physiotherapists, chiropractors, and osteopaths are just a few of the clinicians who offer electrotherapy methods. In actual fact, patients with frozen shoulder in physical therapy rarely receive a single electrotherapy modality in isolation from other aspects of their care (for example manual therapy, exercise) (Page et al., 2014).

Various physical therapy techniques and exercise regimens, such as heat therapy, Transcutaneous electrical nerve stimulation (TENS), ultrasound, acupuncture, and laser therapy, are all considered to be conservative treatments (Light Amplification by Stimulated Emission of Radiations). Active and passive range of motion (ROM) exercises, stretching routines led by a physiotherapist, self-stretches, manipulation and mobilization techniques, strengthening routines, patient education, and home workouts are all included in exercise programs. The way MET is used is distinctive since the client puts out the initial effort while the practitioner supports the procedure. The procedures utilized with this method can be applied to any joints with restricted Range of Motion (ROM) that were found during the passive assessment. This method is mostly used to normalize joint range rather than increase flexibility (Contractor et al., 2016).

Significant limb dysfunction and a decline in quality of life are outcomes of frozen shoulder. What predicts the level of discomfort and disability as well as the quality of life in patients with frozen shoulder remains unclear. In these patients, comorbidities are linked to greater disability and lower quality of life, but not to more severe pain. Pain, disability, and quality of life, as well as a patient's characteristics and objectives, can all be impacted by psychiatric disorders (Bagheri et al., 2016).

Physical ailment and functional impairment are frequent in later age and can cause loss of autonomy, loneliness, pain, an increased strain on social networks, and the onset of depression (Fassberg et al., 2015).

Finding the causes of incident functional disability is a crucial objective for civilizations dealing with rapid population aging, such as Japan. One element that may help reduce the incidence of functional disability is social connections, according to research . On the other hand, metaanalysis has demonstrated that a bad social environment increases the risk of mortality. Social relationships include linkages within social networks, the sharing of social support, and social engagement, which is the ability to join civic organizations regardless of employment or family circumstances. One of the main recommendations of "Active Aging," the policy framework developed by the World Health Organization, is to encourage social involvement (Kanamori et al., 2014).

The International Classification of Functioning, Disability, and Health (ICF) has established itself as the industry standard for the description and evaluation of health, where functioning can be viewed as the operationalization of health and as the result of the interaction between an individual's health condition and contextual factors. It is tough to apply the ICF in routine clinical practice because it has more than 1400 categories. The World Health Organization (WHO) and the ICF Research Branch developed a scientific method for creating core sets of ICF categories for particular objectives to overcome this issue and promote its wider deployment in varied settings (Selb et al., 2014).

In the United States, the prevalence of diabetes among working-age adults significantly rose from 1994 to 2002. People with diabetes have a higher risk of functional disability, miss more days of work due to health reasons, make less money at work, and may face hiring discrimination. Data from a national survey show that 25% of American adults with diabetes were out of work for six months in 1987 because of illness or disability. Since 1984, the number of working-age persons with personal care disabilities has grown (Korff et al., 2005).

Prevention of incident functional impairment can be achieved through exercise. Special exercises that are a part of training programs have been shown to improve cognitive performance, avoid falls, and maintain physical function—all of which are related to functional disability. As correlations between walking and physical activity, which includes exercise, and a reduction in functional handicap have been demonstrated, such specialized exercise training programs may not even be necessary (Kanamori et al., 2012).

Based on the Codman criteria, the diagnosis of frozen shoulder is essentially clinical. In the 40 to 60 age range, it affects more women (2: 1) but without preference for side or dominance. It may manifest either initially or subsequent to other conditions including diabetes and hypothyroidism. There are three separate stages: hyperalgesia, freezing, and defreezing. However, it can take two to seven years to resolve. This condition compromises the quality of life (QoL) of patients by presenting a chronic course and cumbersome treatment, affecting both shoulder function for daily living tasks, such as washing their back, making the bed, and

pulling the automobile seat belt with the afflicted limb (Marcos Rassi Fernandes., 2015).

One of the most common complaints among the several musculoskeletal conditions brought on by DM is shoulder pain. The fundamental reason for the humerus head adhering to the glenohumeral cavity, which is caused by DM, adhesion to the joint capsule, is unknown. It has been suggested that arthrofibrosis may develop as a result of hyperglycemia by accelerating glycation and causing uneven collagen deposition in the connective tissues around the joints. One or both shoulders may have pain and restricted joint mobility due to DM. It lowers quality of life and makes patients more likely to experience difficulty doing daily tasks (Farooq et al., 2021).

According to earlier estimates from our center, 27% of diabetes patients currently experience shoulder discomfort, and 44% of patients experienced shoulder pain in the six months prior. One particular pathology, adhesive capsulitis or frozen shoulder, is thought to affect 11–30% of people with diabetes and 0–10% of people without the disease. The highest prevalence was seen in studies employing patient populations drawn from older, more seriously ill patients. Diabetes is more common than it is among controls among individuals with shoulder problems. With 4150% of patients continuing reporting shoulder problems 1-3 years later, shoulder ailments are frequently chronic in nature (Laslett et al., 2007).

Millions of people swim for enjoyment and exercise every year. Competitive swimmers may train five to seven days a week, perhaps twice daily. According to statistics, shoulder pain affects them 40% to 91% of the time. Shoulder pain might be so bad that it causes functional limitations and makes it impossible to continue participating. Biceps or rotator cuff lesions, impingement syndrome, and glenohumeral laxity are among the conditions that have been believed to contribute to shoulder pain in swimmers. Age-related increases in rotator cuff lesions are common, and impingement is thought to have multiple causes. It could be brought on by the shoulder muscles' weakening or decreased strength, a lack of scapular stability, bad posture, decreased flexibility, or bony changes (Tate et al., 2012).

A self-administered questionnaire called the Shoulder Pain and Disability Index (SPADI) has two dimensions: one measures pain, and the other measures functional activities. The pain dimension consists of five questions on how much pain

a person is experiencing. Eight questions are used in the functional activities assessment to gauge how difficult it is for a person to perform various daily tasks that call for the use of the upper extremities. The only valid and accurate region-specific assessment for the shoulder, the SPADI takes a patient 5 to 10 minutes to complete (Roach KE et al., 1991).

Functional impairment is a common complaint among people with shoulder pain. Usually, the goal of treating shoulder pain is to lessen discomfort and improve functional limitations. A tool (such as a questionnaire) for the evaluation of functional impairments should therefore be included in outcome measurements. Self-administered questionnaires for shoulder pain and impairment are available in many formats. The Shoulder Disability Questionnaire (SDQ) and the Shoulder Pain and Disability Index (SPADI) received the highest rankings from patients as the most pertinent questionnaires. The SPADI required the least amount of time to complete, however both the SDQ and the SPADI seem convenient and simple. English is the language in which the SPADI was first created. It demonstrated outstanding dependability and responsiveness after being translated and validated in a number of languages (Graaf et al., 2014).

When patients in a primary care setting seek physical therapy treatment for shoulder discomfort, it's critical to evaluate the SPADI-responsiveness D's and interpretability. According to the literature, interpretability is the degree to which one can give a qualitative interpretation to an instrument's quantitative results or score fluctuations (Graaf et al., 2017).

3.1 Study design:

It was a cross sectional type of descriptive study.

3.2 Study place:

Data were collected from the patients with frozen shoulder at National Institute of Traumatology and Orthopaedic Rehabilitation, Unique pain and Paralysis center, Amena physiotherapy center, Olives physiotherapy center, CRS physiotherapy center, Nasir health care and physiotherapy center, Uttara physiotherapy center, Abedin physiotherapy center.

3.3 Study period:

The duration of the study was 12 months July 2022 to June 2023.

3.4 Study population:

Patients with frozen shoulder attending different hospitals constituted the study population for the present study.

3.5 Sample size:

Sample size for the present study has been calculated by the following statistical formula.

We know that;

$$n = \frac{z^2 pq}{d^2}$$

Here,

n= Required sample size.

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

P =0.05 (P= prevalence taken 5%) (Sarasua et al., 2013)

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

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

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

$$= \frac{3.84 \times 0.05 \times 0.95}{0.0025}$$

$$= \frac{0.1824}{0.0025}$$

$$= 73$$

So, sample size 73.

3.6 Sampling technique:

Purposive sampling technique was applied for this study.

3.7 Eligibility criteria

3.7.1 Inclusion criteria:

- 3 Medically diagnosis frozen shoulder by Doctors/Physiotherapist.
- 4 Patients with unilateral or bilateral Frozen shoulder.
- 5 Age: 18-80 years.
- 6 Frozen shoulder duration: more than 6 months.
- 7 Gender: Both male and female.
- 8 Mentally stable.

3.7.2 Exclusion criteria:

- Post shoulder dislocation complication.
- Post fracture frozen shoulder.
- Arthritis of shoulder joint.
- Hypermobility on shoulder joint.
- Ligament injuries in shoulder joint.
- Metabolic bone disease.
- who was not interested.

3.8 Method of data collection:

Data were collected by face to face interview from the participants.

3.9 Instrument and Tools of data collection:

- Questionnaire
- Shoulder pain and disability index/scale
- Weight machine
- Measurement tape

3.10 Procedure of data collection:

For data collection the researcher himself identified the hospitals in Dhaka city where patients with frozen shoulder attending for treatment. The aims and objectives of the study were explained to the patients in details. Those who agreed included in the study. Obtaining informed written consent, the researcher started interview with the individual participants. A structured questionnaire was used to collect information on socio demographic characteristics. Shoulder pain and disability index was used to assess the level of disability and severity pain of the patients with frozen shoulder.

3.11 Data management:

At end of the day after interview of the respondents, the questionnaire and shoulder pain and disability index were checked for any error or inconsistency. Necessary corrections were made accordingly.

3.12 Data analysis:

Responses in the questionnaire were coded and enter into the computer. Data were analyzed by using SPSS (Statistical package for social science) (25version). For descriptive analysis percentages, mean, standard deviation were calculated. In case of inferential statistical test Chi square test was done. The association between independent and dependent variable was examined.

3.13 Result:

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

3.14 Ethical consideration:

The investigator obtained written permission from ethical review board (SCMST). Ethical review board informed by written document about aims and objectives of the study and that the patients of the study would not be harmed or the clients name, address and personal information would be kept confidential by the investigator and the dates would not be shared with others.

3.15 Rigor:

Researcher always tried not to influence the process by his own value and biases. No leading question was asked or no important question is avoided. The participant's information was coded accurately and checked by the research supervisor to eliminate any possible errors. The entire information was handled with confidentiality. In the result section researcher was not influenced about outcome by showing any personal interpretation during conducting the study. Every section of the study was checked by the research supervisor.

The purpose of the study was to assess level of functional disability among the patients with frozen shoulder. Data were numerically coded and analyzed by using a SPSS 25.0 version software program and the result captured in Microsoft Excel and calculated as percentages and presented by using graphs and in tables.

4.1 Socio-demographic information:

Table no -1: Frequency distribution of the participants by age.

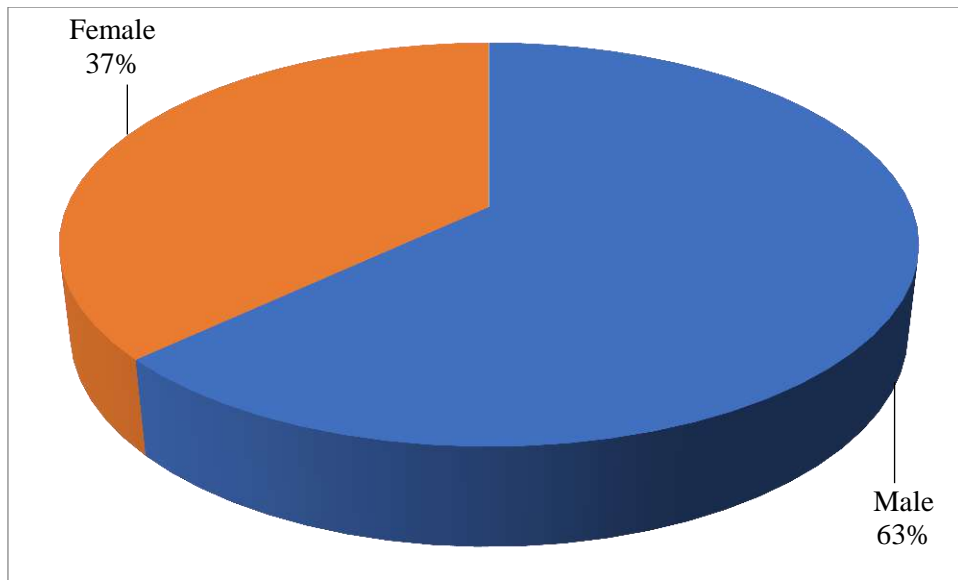
| Age group in years | Frequency | |
|--------------------|-----------|--------|
| | N | % |
| 25 - 43 | 26 | 35.6 |
| 44 - 62 | 36 | 49.3 |
| 63 - 80 | 11 | 15.1 |
| Total | 73 | 100.00 |

Mean = 49.45

Standard Deviation = 12.60

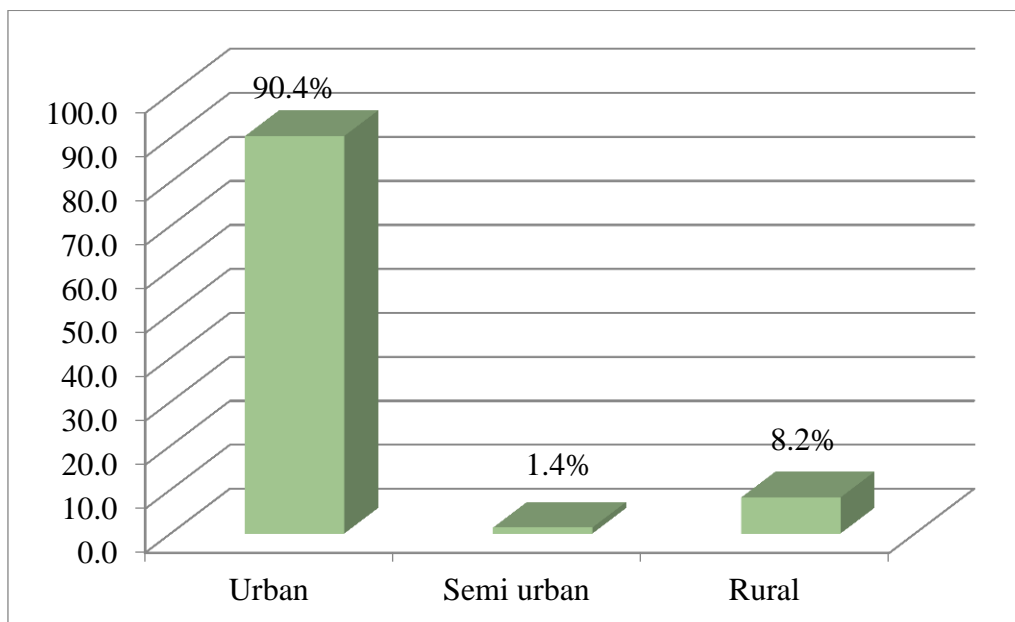
Regarding frequency distribution of the participants by age, it was found that out of 73 participants, 36 (49.9%) participants belonged to the age group of 44 - 62 years. It was also found that 26 (35.6%) participants were in the age group of 25 -43 years. The mean age of the patients was 49.45 years and standard deviation was 12.60 respectively (Table no. 1).

Figure no. 1. Gender of the participants



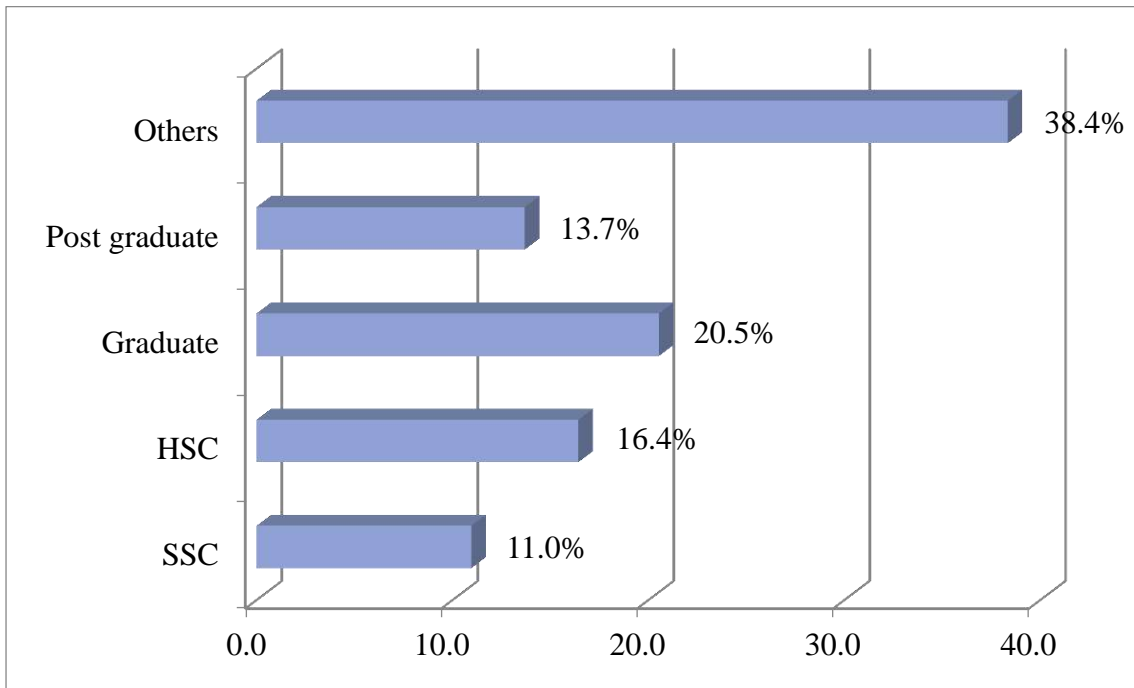
The study showed that 46 (63%) participants were male and 27 (37%) were female (Figure no. 1).

Figure no. 2. Living area of the participants



The Result showed that 66 (90.4%) participants were living in urban area, 6 (8.2%) were living in rural area and 1 (1.4%) were living in semi - urban area (Figure no.2).

Figure no. 3. Education level of the participants



About the participants education level, they had others the numbers were 28 (34.4%) followed by those who had graduate 15 (20.5%), higher school certificate 12 (16.4%), post graduate 10 (13.7%), and secondary school certificate were 8 (11%) (Figure no.3).

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

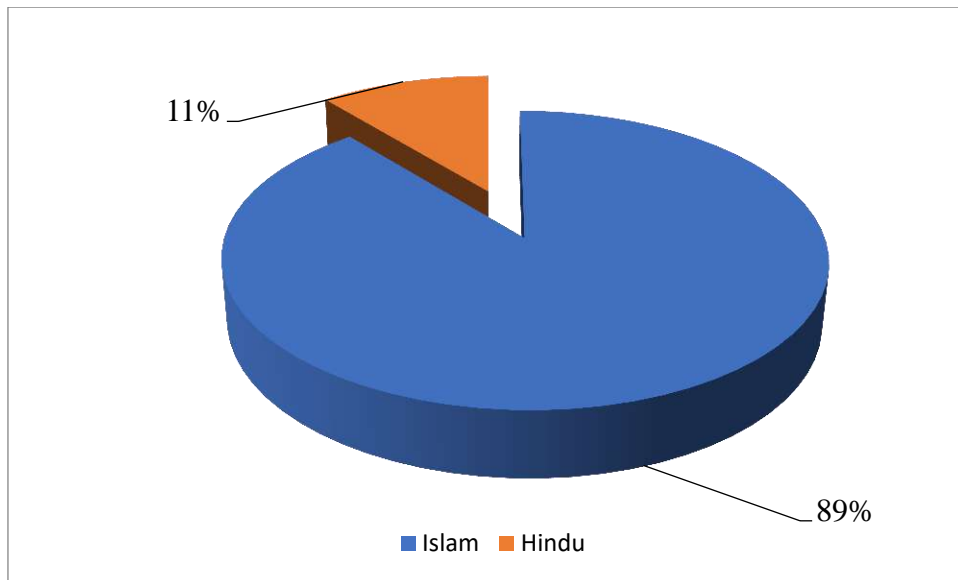
| BMI group | Frequency | |
|---------------------------|-----------|--------|
| | N | % |
| 0 - 18.499 (Under weight) | 4 | 5.5 |
| 18.5 - 24.99 (Normal) | 46 | 63.0 |
| 25 - 29.999 (Over weight) | 21 | 28.8 |
| 30 – 35 (Obese) | 2 | 2.7 |
| Total | 73 | 100.00 |

Mean = 23.7397

Standard Deviation = 3.00826

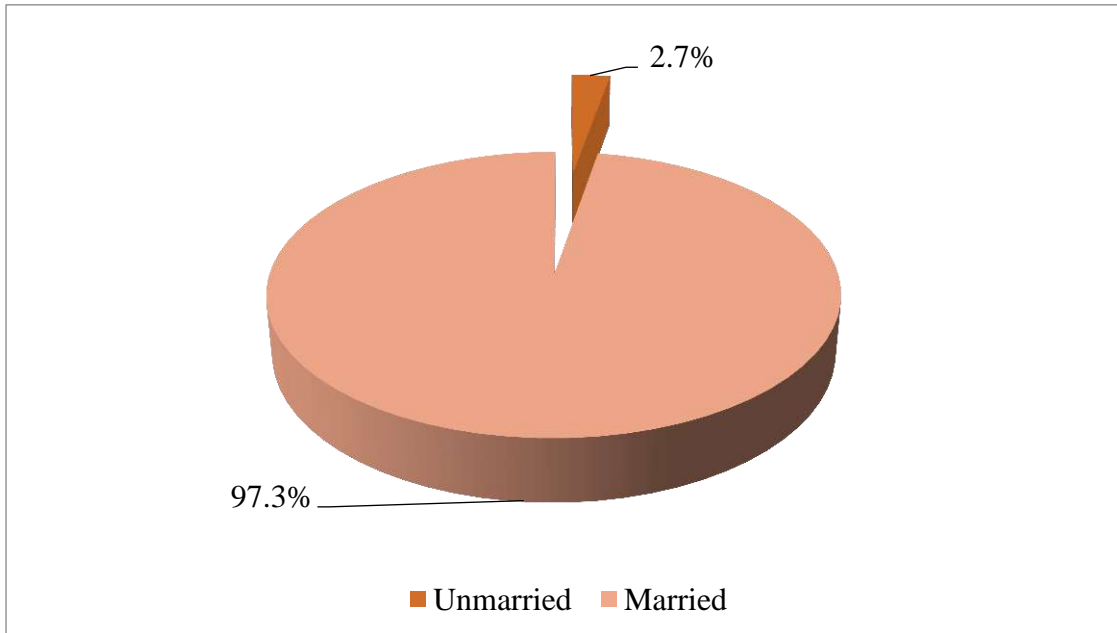
This study showed that 46% (63%) participants were (18.5-24.99) Normal BMI group, 21 (28.8%) participants were (25-29.999) Over weight BMI group, 4 (5.5%) participants were (0-18.499) Under weight BMI group 2 (2.7%) participants were (30-35) Obese BMI group. Mean of the participants was 23.7397 and Standard deviation of the participants was 3.00826 correspondingly (Table no.2).

Figure no.4. Religion of the participants



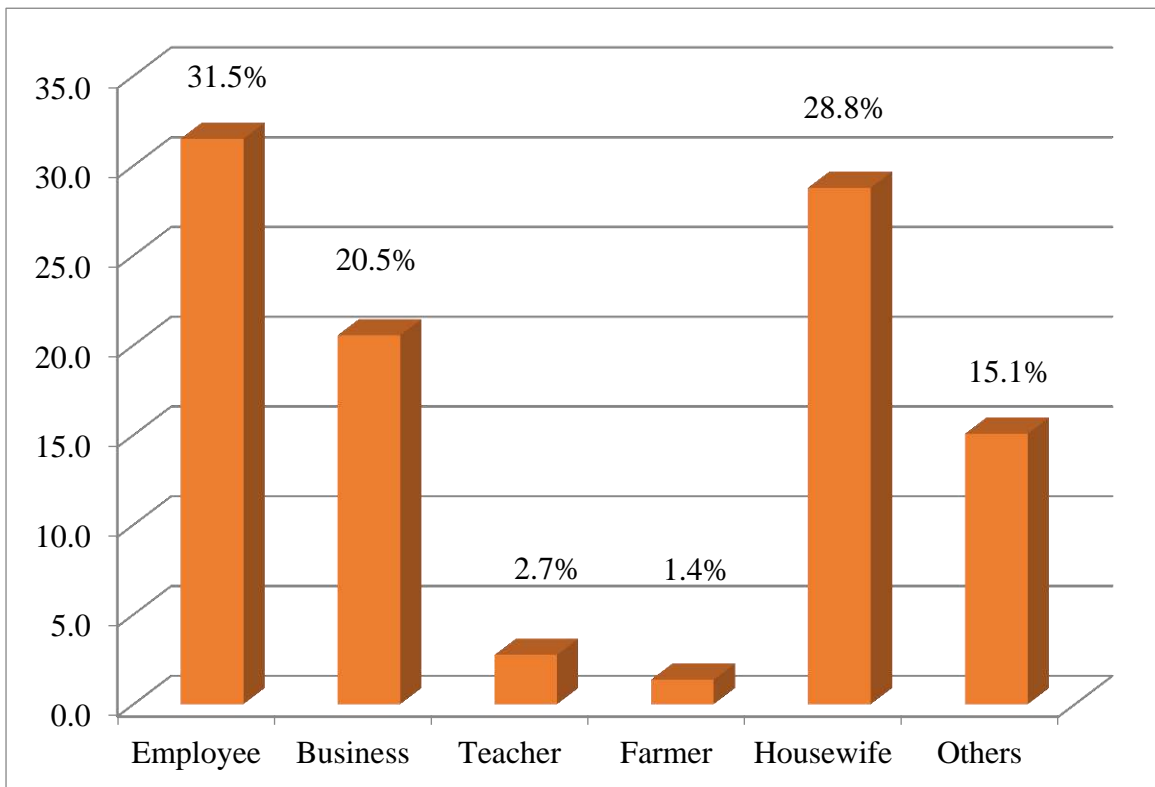
This study revealed that, 65 (89%) participants were Islam and 8 (11%) participants were Hindu.

Figure no. 5. Marital status of the participants



This study conducted that, 71 (97.3%) participants were married and 2 (2.7%) participants were unmarried (Figure no. 5).

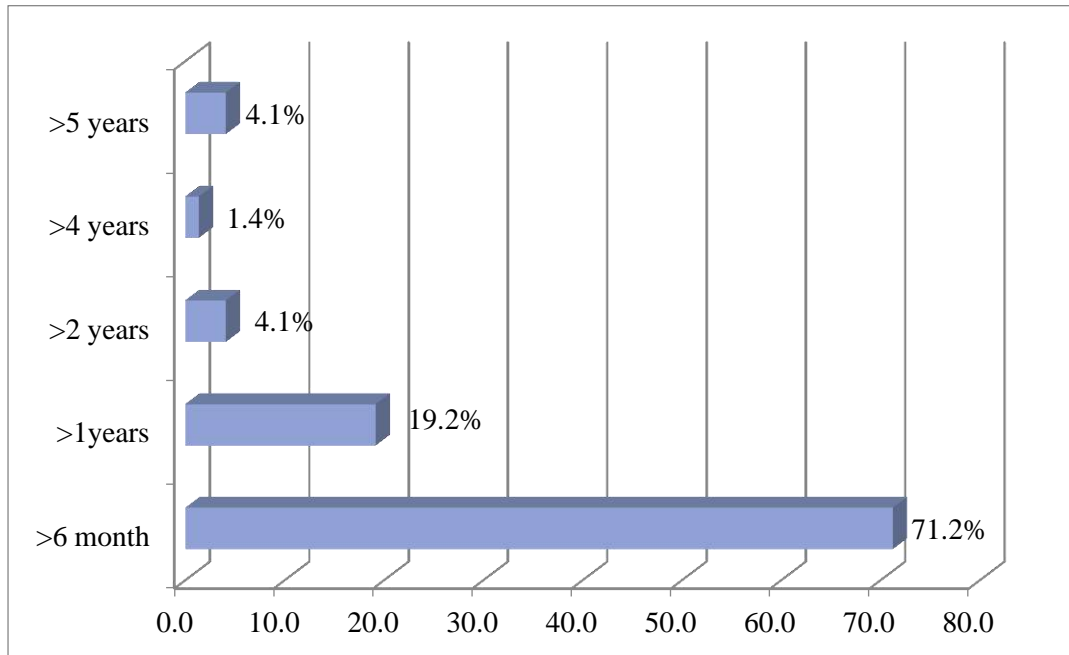
Figure no. 6. Occupation of the participants



Result showed that occupation of the participants among them 23 (31.5%) were employee, 21 (28.8%) were housewife, 15 (20.5%) was businessman, , 11 (15.1%) were in others, 2 (2.7%) were teacher, 1 (1.4%) were farmer (Figure no.6).

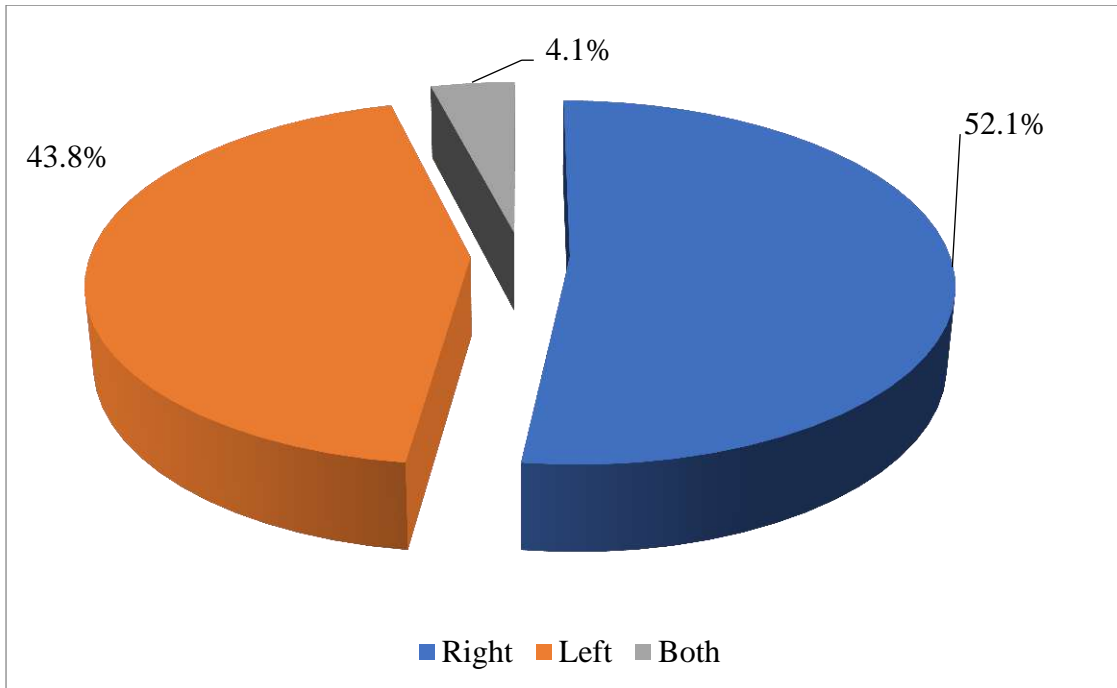
4.2 Health related information:

Figure no. 7. Problem start of the participants



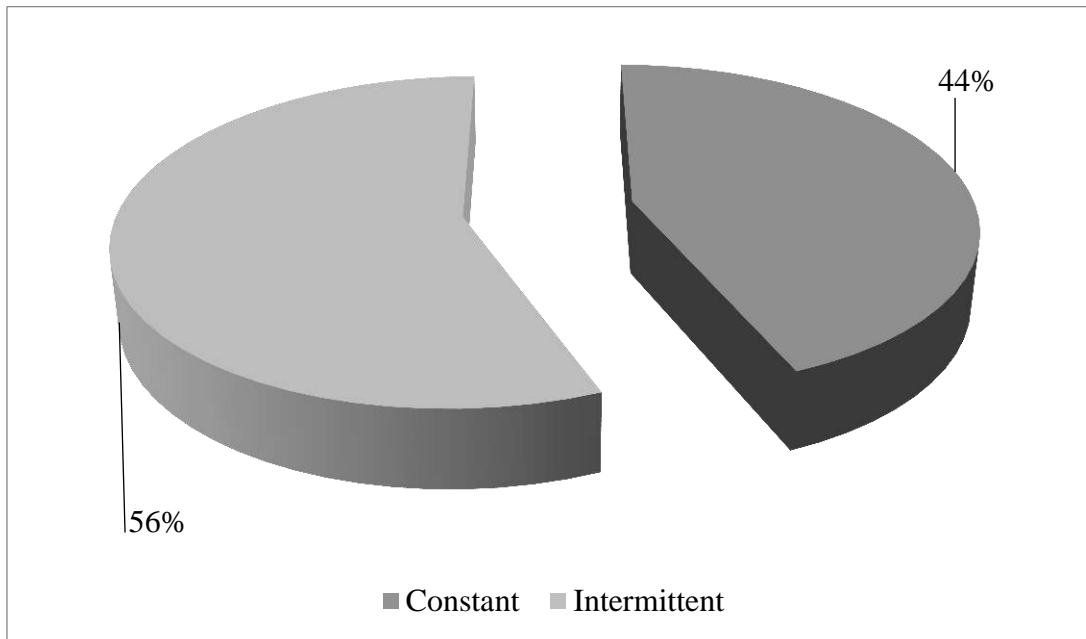
It was revealed that problem starts of the participants were more than 6 months were 52 (71.2%), more than 1 years were 14 (19.2%), more than 2 years were 3 (4.1%), more than 5 years were 3 (4.1%) and more than 4 years were 1 (1.4%) (Figure no.7).

Figure no. 8. Affected side of the participants



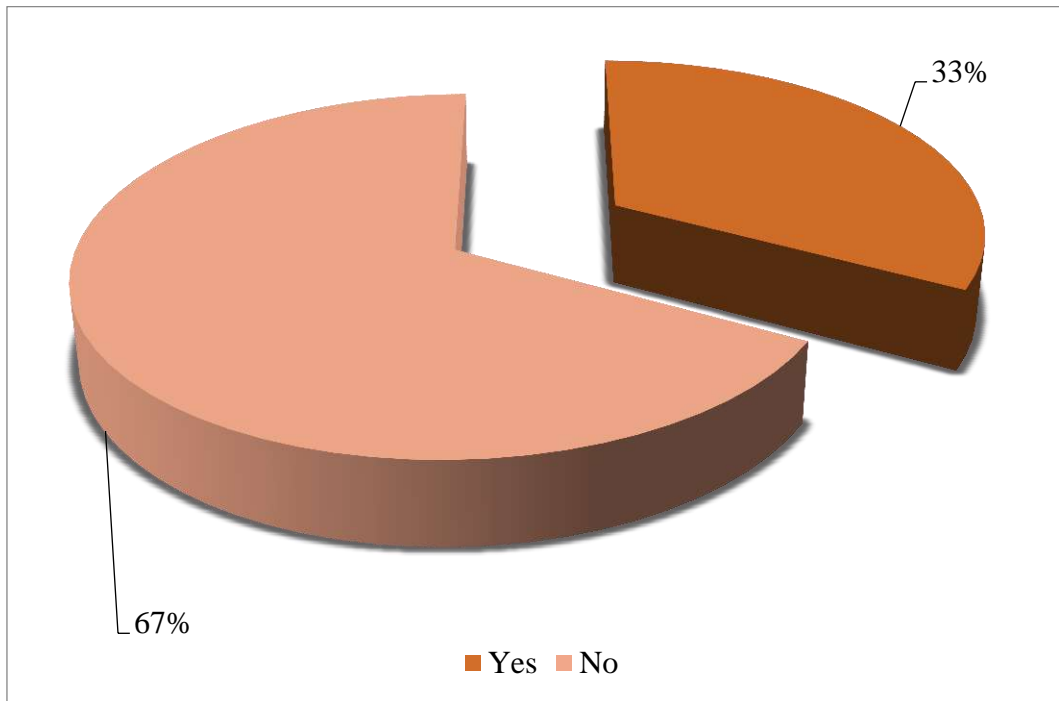
This study showed that 38 (52.1%) participants were right side affected, 32 (43.8%) participants were left side affected and 3 (4.1%) participants were both side affected (Figure no. 8).

Figure no. 9. Behavior of pain of the participants



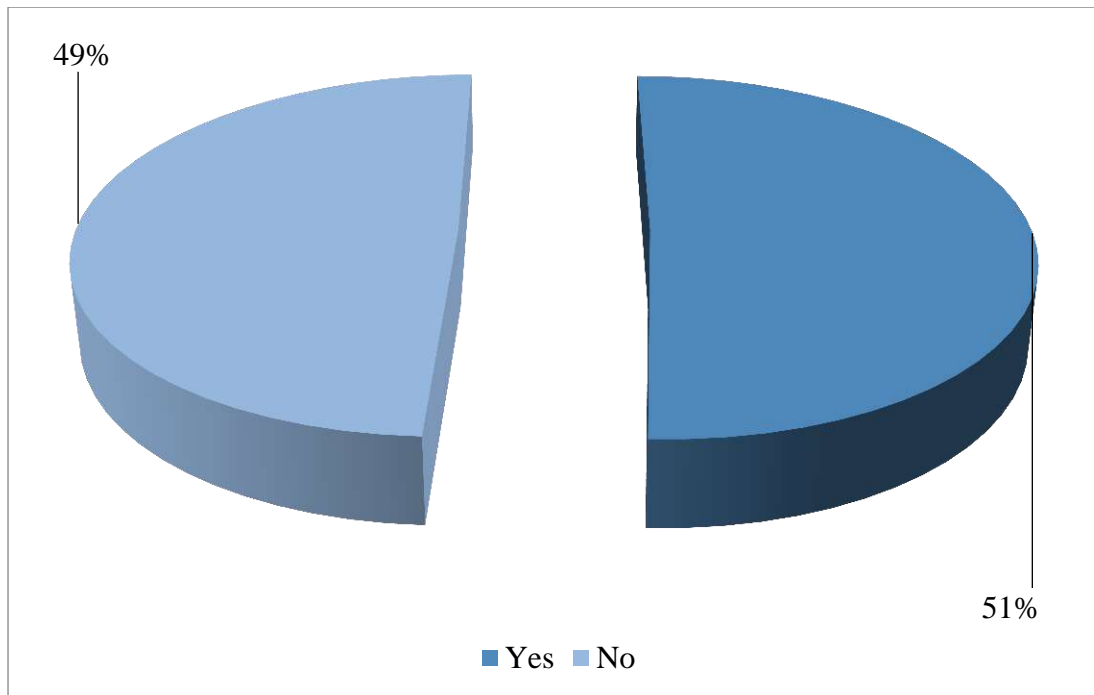
This study conducted that 41 (56%) participants were constant pain and 32 (44%) participants were intermittent pain (Figure no. 9).

Figure no. 10. Pain referred below elbow of the participants



Result showed that the participants among 49 (67%) were pain not referred below elbow and 24 (33%) were pain referred below elbow (Figure no. 10).

Figure no. 11. Sleep on the affected side of the participants



Result showed that among the participants 37 (51%) were sleep in the affected side and 36 (49%) were not sleep in the affected side (Figure no. 11).

4.3 Shoulder pain and disability index (SPADI) score:

Table no. 3. SPADI score of the participants

| SPADI score group | Mean & \pm Standard Deviation |
|-------------------|---------------------------------|
| Pain score | 52.53 & \pm 17.277 |
| Disability score | 53.4452 & \pm 20.29908 |
| Total SPADI score | 81.00 & \pm 27.870 |

The study showed that the participants mean was 52.53 and standard deviation was 17.277 in SPADI (shoulder pain and disability index) pain score group, mean was 53.4452 and standard deviation 20.29908 in SPADI (shoulder pain and disability index) disability score group and mean was 81.00 and standard deviation was 27.870 in Total SPADI (shoulder pain and disability index) score group (Table no. 3).

Table no. 4. Frequency distribution of functional disability by using SPADI (shoulder pain and disability index)

| Disability Level | SPADI score | Frequency | |
|------------------|-------------|-----------|--------|
| | | N | % |
| Mild | 0-39 | 3 | 4.1 |
| Moderate | 40-78 | 31 | 42.5 |
| Severe | 79-130 | 39 | 53.4 |
| Total | | 73 | 100.00 |

The result showed that, 39 (53.4%) participants has severe functional disability, 31 (42.5%) participants has moderate functional disability and 3 (4.1%) participants has mild functional disability. The result found that more than half of the participants has severe functional disability among the patients with Frozen shoulder (Table no. 4).

Table no. 5. Frequency distribution of the participants by affected side and behavior of pain

| Affected side | Behavior of pain | | Total | |
|---------------|------------------|--------------|-------|--------|
| | Constant | Intermittent | N | % |
| Right | 19 (59.37%) | 19 (46.3%) | 38 | 52.1 |
| Left | 11 (34.38%) | 21 (51.22%) | 32 | 43.8 |
| Both | 2 (6.25%) | 1 (2.44%) | 3 | 4.1 |
| Total | 32 | 41 | 73 | 100.00 |

$$P = 0.303, \quad \chi^2 = 2.385, \quad df = 2$$

About frequency distribution of the participants by affected side and behavior of pain, it was found that 38 (52.1%) participants were affected in right side, among them 19 (59.37%) had constant pain and 19 (46.3%) had intermittent pain, 32 (43.8%) participants were affected in left side in which 11 (34.38%) had constant pain and 21 (51.22%) had intermittent pain, 3 (4.1%) participants were affected in both side in which 2 (6.25%) had constant pain and 1 (2.44%) had intermittent pain. There was no significant association between affected side and behavior of pain of the participants ($\chi^2 = 2.385, p = 0.303, df=2$) [Table.no 5].

Table no. 6. Frequency distribution of the participants by pain referred and sleep in affected side

| Pain referred | Sleep in affected side | | Total | |
|---------------|------------------------|-------------|-------|--------|
| | Yes | No | N | % |
| Yes | 10 (27.02%) | 14 (38.89%) | 24 | 32.9 |
| No | 27 (72.97%) | 22 (61.11%) | 49 | 67.1 |
| Total | 37 | 36 | 73 | 100.00 |

$$P = 0.281, \quad \chi^2 = 1.163, \quad df = 1$$

About Frequency distribution of the participants by pain referred and sleep in affected side t, it was found that 49 (67.1%) participants pain did not referred, among them 27 (72.97%) was sleep in affected side and 22 (61.11%) was not sleep in the affected side, 24 (32.9%) participants pain referred in which 14 (38.89%) was not sleep in the affected side and 10 (27.02%) was sleep in the affected side. There was no significant association between affected side and behavior of pain of the participants ($\chi^2 = 1.163$, $p = 0.281$, $df=1$) [Table.no 6].

Table no. 7. Frequency distribution of the participants by age and level of functional disability

| Age group by years | Disability group | | | Total | |
|-----------------------|------------------|-----------------------|----------------------|-------|--------|
| | Mild (0 – 39) | Moderate (40 – 78) | Severe (79 – 130) | N | % |
| 25 – 43 | 2 (66.67%) | 8 (25.8%) | 16 (41.02%) | 26 | 35.62 |
| 44 – 62 | 0 (0%) | 19 (61.2%) | 17 (43.59%) | 36 | 49.31 |
| 63 - 80 | 1 (33.33%) | 4 (13%) | 6 (15.39%) | 11 | 15.07 |
| Total | 3 | 31 | 39 | 73 | 100.00 |

$$P = 0.251, \quad \chi^2 = 5.373, \quad df = 4$$

This result demonstrated that, 26 (35.62%) participants were (25 – 43) years age group among them 16 (41.02%) was severe functional disability, 8 (25.8%) was moderate functional disability and 2 (66.67%) was mild functional disability, 36 (49.31%) participants were (44 – 62) years age group among them 17 (43.59%) was severe functional disability, 19 (61.2%) was moderate functional disability, 11 (15.07%) participants were (63 – 80) years age group among them 6 (15.39%) was severe functional disability, 4 (13%) was moderate functional disability and 1 (33.33%) was mild functional disability. There was no significant association between age and level of functional disability of the participants ($\chi^2 = 5.373, p = 0.251, df = 4$) [Table.no 7].

The purpose of this study was to assess level of functional disability among patients with frozen shoulder. The study was based on information acquired from frozen shoulder patients who visited different hospitals and chambers in Dhaka city for medical attention. On 73 participants who reported having frozen shoulders, this prospective poll was conducted.

In this study we Regarding frequency distribution of the participants by age, it was found that out of 73 participants, 36 (49.9%) participants belonged to the age group of 44 - 62 years. It was also found that 26 (35.6%) participants were in the age group of 25 -43 years. The mean age of the patients was 49.45 years and standard deviation was 12.60 respectively.

Another study showed that The mean age (\pm SD) of subjects was 45.9 (\pm 15.9) years (Fasika et al., 2013).

The study showed that 46 (63%) participants were male and 27 (37%) were female.

A different study revealed that 163 (54.2%) subjects were female and 138 (45.8%) subjects were male (Fasika et al., 2013).

This study conducted showed that 66 (90.4%) participants were living in urban area, 6 (8.2%) were living in rural area and 1 (1.4%) were living in semi - urban area.

Yet another study revealed that 202 (66.9%) were living in urban area, 99(32.8%) were living in rural area (Fasika et al., 2013).

About the participants education level of this study, they had others the numbers were 28 (34.4%) followed by those who had graduate 15 (20.5%), higher school certificate 12 (16.4%), post graduate 10 (13.7%), and secondary school certificate were 8 (11%).

A similar explored that total 360 number of participants Education level was 194 (53.8%) Illiterate, 58 (16.1%) were Primary School level, 38 (10.6%) were Middle School level, 38 (10.6%) were High School level, 24 (6.7%) were Diploma level and 8 (2.2%) were Graduate/Post graduate (Vaish et al., 2020).

This study showed that 46 (63%) participants were (18.5-24.99) Normal BMI group, 21 (28.8%) participants were (25-29.999) Over weight BMI group, 4 (5.5%) participants were (0-18.499) Under weight BMI group 2 (2.7%) participants were (30-35) Obese BMI group. Mean of the participants was 23.7397 and Standard deviation of the participants was 3.00826 correspondingly.

According to a different study showed that BMI Mean & \pm Standard deviation of the participants was 28.0 & \pm 4.9 (Green et al., 2021).

This study revealed that, 65 (89%) participants were Islam and 8 (11%) participants were Hindu.

Another study discovered that 349 (96.9%) were Hindu, 9 (2.5%) were Muslim, 1 (0.3%) were Sikh and 0.3% (1) were Christian (Vaish et al., 2020).

This study conducted that, 71 (97.3%) participants were married and 2 (2.7%) participants were unmarried.

Yet another study revealed that 241 (66.9%) were married, 114 (31.7%) were widowed and 5 (1.4%) were divorced/separated (Vaish et al., 2020).

Result showed that occupation of the participants among them 23 (31.5%) were employee, 21 (28.8%) were housewife, 15 (20.5%) was businessman, , 11 (15.1%) were in others, 2 (2.7%) were teacher, 1 (1.4%) were farmer.

According to a different study the participants number of student were 24 (8%), employee were 57 (18.9%), trader were 32 (10.3%), farmer were 62 (20.6%), housewife were 95 (31.6%), retired were 18 (6%), daily laborer were 9 (3.0%), jobless were 5 (1.7%) (Fasika et al., 2013).

It was revealed that problem starts of the participants were more than 6 months were 52 (71.2%), less than 12 months were 14 (19.2%), less than 2 years were 3 (4.1%), more than 5 years were 3 (4.1%) and less than 4 years were 1 (1.4%).

Another survey found that The duration of symptoms in the reviewed studies ranged from 6 weeks to 10.2 months, placing almost of the subjects in Stages 1, 2 and 3 of frozen shoulder (Tarang K. Jain and Neena K. Sharma., 2014).

This study showed that 38 (52.1%) participants were right side affected, 32 (43.8%) participants were left side affected and 3 (4.1%) participants were both side affected.

Another research revealed that total 51 participants were The left shoulder was affected in 31 cases and the right in 22 (Clement et al., 2013).

This study conducted that 41 (56%) participants were constant pain and 32 (44%) participants were intermittent pain.

In this study result that showed that the participants among 49 (67%) were pain not referred below elbow and 24 (33%) were pain referred below elbow.

Result showed that among the participants 37 (51%) were sleep in the affected side and 36 (49%) were not sleep in the affected side.

The study showed that the participants mean was 52.53 and standard deviation was 17.277 in SPADI (shoulder pain and disability index) pain score group, mean was 53.4452 and standard deviation 20.29908 in SPADI (shoulder pain and disability index) disability score group and mean was 81.00 and standard deviation was 27.870 in Total SPADI (shoulder pain and disability index) score group.

According similar study reported that a significant difference was found in the SPADI mean scores between female and male patients (female patients = 43.42 & ± 22.80 , male patients = 35.31 & ± 22.91 , $p = 0.002$). The results showed that female is at more risk for developing SPFD (Farooq et al., 2021).

The result showed that, 39 (53.4%) participants has severe functional disability, 31 (42.5%) participants has moderate functional disability and 3 (4.1%) participants has mild functional disability. The result found that more than half of the participants has severe functional disability among the patients with Frozen shoulder.

About frequency distribution of the participants by affected side and behavior of pain, it was found that 38 (52.1%) participants were affected in right side, among them 19 (59.37%) had constant pain and 19 (46.3%) had intermittent pain, 32 (43.8%) participants were affected in left side in which 11 (34.38%) had constant pain and 21 (51.22%) had intermittent pain, 3 (4.1%) participants were affected in both side in which 2 (6.25%) had constant pain and 1 (2.44%) had intermittent pain. There was

significant association between affected side and behavior of pain of the participants ($\chi^2 = 2.385, p = 0.303, df=2$).

About Frequency distribution of the participants by pain referred and sleep in affected side, it was found that 49 (67.1%) participants pain did not referred, among them 27 (72.97%) was sleep in affected side and 22 (61.11%) was not sleep in the affected side, 24 (32.9%) participants pain referred in which 14 (38.89%) was not sleep in the affected side and 10 (27.02%) was sleep in the affected side. There was significant association between affected side and behavior of pain of the participants ($\chi^2 = 1.163, p = 0.281, df=1$).

About Frequency distribution of the participants by age and level of functional disability, This result demonstrated that, 26 (35.62%) participants were (25 – 43) years age group among them 16 (41.02%) was severe functional disability, 8 (25.8%) was moderate functional disability and 2 (66.67%) was mild functional disability, 36 (49.31%) participants were (44 – 62) years age group among them 17 (43.59%) was severe functional disability, 19 (61.2%) was moderate functional disability, 11 (15.07%) participants were (63 – 80) years age group among them 6 (15.39%) was severe functional disability, 4 (13%) was moderate functional disability and 1 (33.33%) was mild functional disability. There was no significant association between age and level of functional disability of the participants ($\chi^2 = 5.373, p = 0.251, df=4$).

There were some situational limitation and barriers while considering the study.

Those are as follows:

- Few amount of literatures are found about this study, so researcher had to use own idea.
- 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.
- Time and resources were limited which have a great deal of impact on the study and affect the result of the study.
- The researcher was a 4th year B.Sc. in physiotherapy student so she had limited experience with techniques and strategies in terms of the practical aspects of research. As it was the first the research so might be there were some mistakes.

6.1 Conclusion

Adhesive capsulitis, another name for frozen shoulder, is a painful and stiff shoulder ailment. It might appear after a relatively mild shoulder trauma or injury, although it typically appears for no apparent reason. Other medical conditions like diabetes and thyroid disease have also been connected to adhesive capsulitis. The stiffness and soreness from this illness might make it difficult to conduct regular duties. According to the literature, the illness mainly affects individuals between the ages of 40 and 65 and affects between 2% and 5% of the general population as well as up to 20% of diabetic patients.

This study's findings support the notion that men with frozen shoulders are more severely afflicted than women. Employees were more impacted than those in any other occupation by frozen shoulder, which was made worse by overhead and repetitive motion. The primary cause of physical function impairment and physical duty limitation was frozen shoulder.

This study revealed that patients with frozen shoulder were seen at several hospitals and clinics in Dhaka City. The result showed that, 39 (53.4%) participants has severe functional disability, 31 (42.5%) participants has moderate functional disability and 3 (4.1%) participants has mild functional disability. The result found that more than half of the participants has severe functional disability among the patients with Frozen shoulder.

6.2 Recommendation:

The following suggestions are made to specific authorities and personnel:

- The government should take step to develop Hospitals to get proper treatment of the Frozen shoulder patients.
- The quality of life of patients with frozen shoulder should be significantly improved through ongoing and frequent research in this field.
 - Recommendations for other researcher as follows:
 - Increasing the number of the participants and conduct the research in different places.
 - Other important aspects including range of motion, muscle weakness, parasthesia and numbness, functional activity of the Shoulder joint etc. should further are included in such type of research.

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Appendix - A

Institutional Review Board (IRB) Permission Letter



SAIC COLLEGE OF MEDICAL SCIENCE AND TECHNOLOGY

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

Ref:

Date :

Ref.No: SCMST/PT/ERB-2017-18/1-2023/54

3rd January'2023

To

Md. Jamal Hossan

4th Professional B.Sc. in Physiotherapy

Saic College of Medical Science and Technology (SCMST)

Mirpur-14, Dhaka-1216.


Sub: Permission to collect data

Dear Hossan,

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 "Identify the functional disability among frozen shoulder patients" and for successful completion of this study you can start data collection from now.

Wishing you all the best.

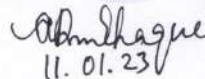
Thanking You,


11.01.23

Head of ERB

Ethical Review Board

Saic College of Medical Science and Technology


11.01.23

Principal

Saic College of Medical Science and Technology

Mirpur-14, Dhaka-1216


Approved
11.01.23
Asst. Prof. Dr. Md. Faruk Hossain
MSc, Physio (D) CMU, PGDIP, South (UK)
Manual Therapy (John Peah), India
New Physiotherapy Dept. CIPB-Mirpur (D)

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

Appendix - B

Permission letter for data collection



SAIC COLLEGE OF MEDICAL SCIENCE AND TECHNOLOGY

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

Ref.No: SCMST/PT/ERB-2017-18/1-2023/54

Date :

3rd January'2023

To

1. The Director, National Institute of Traumatology and Orthopedic Rehabilitation, Sher-E-Bangla Nagar, Dhaka-1207.
2. The chairman, Unique Pain & Paralysis Centre, Mirpur -11, Dhaka-1216.
3. The Incharge, Saic Physiotherapy & Rehabilitation Services, Mirpur-14,Dhaka-1216.

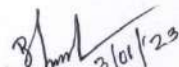
Sub: Permission to collect data

Dear Sir/Madam

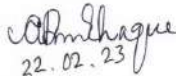
Ethical review board (ERB) of SCMST pleased to inform you that Md. Jamal Hossan of final year B.Sc. in Physiotherapy student from Saic College of Medical Science and Technology doing a thesis entitle of "Identify the functional disability among frozen shoulder patients" which has been reviewed by ERB of SCMST and we are giving permission to his to conduct this study. So he wants to take data from your department.

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

Thanking You,


Head of ERB

Ethical Review Board
Saic College of Medical Science and Technology


22.02.23
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

Appendix - B

Permission letter for data collection



SAIC COLLEGE OF MEDICAL SCIENCE AND TECHNOLOGY

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

Ref: Ref.No: SCMST/PT/ERB-2017-18/P-2023/54

Date: নিউটন, শেরে-বাংলা নগর, ঢাকা

3rd January'2023

ডায়েরী নং- 2066

To

তারিখ: 29/02/2026

1. The Director, National Institute of Traumatology and Orthopedic Rehabilitation, Sher-E-Bangla Nagar, Dhaka-1207.
2. The chairman, Unique Pain & Paralysis Centre, Mirpur -11, Dhaka-1216.
3. The Incharge, Saic Physiotherapy & Rehabilitation Services, Mirpur-14, Dhaka-1216.

পরিচালক

মুখ্য-পরিচালক

উপ-পরিচালক

সহ-পরিচালক

প্রশাসনিক কর্মকর্তা

প্রধান সহকারী


Sub: Permission to collect data

Dear Sir/Madam

Ethical review board (ERB) of SCMST pleased to inform you that Md. Jamal Hossan of final year B.Sc. in Physiotherapy student from Saic College of Medical Science and Technology doing a thesis entitle of "Identify the functional disability among frozen shoulder patients" which has been reviewed by ERB of SCMST and we are giving permission to his to conduct this study. So he wants to take data from your department.

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

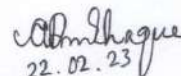
Thanking You,


3/01/23

Head of ERB

Ethical Review Board

Saic College of Medical Science and Technology


22.02.23

Principal

Saic College of Medical Science and Technology

Mirpur-14, Dhaka-1216

Address: Saic Tower, M-1/6, Mirpur-14, Dhaka-1206 Mobile: 01936005804

Appendix - C

Consent form (English)

Responded ID NO:

| | | |
|--|--|--|
| | | |
|--|--|--|

Dear participant,

I am Md. Jamal Hossan , student of B.Sc. in physiotherapy program in the Department of physiotherapy, Saic college of Medical Science and Technology (SCMST) which is affiliated Dhaka university. I am conducting the study entitled “Functional disability among the patients with Frozen Shoulder” as a part of my thesis work for the partial fulfillment of B.Sc. in physiotherapy degree. There are the lists of question you need to fill-up which is include socio- demographic, information related, disease related and treatment related questions. For spending your time to participate in this self –administered interview which will take around 7-10 minutes. There is list of questionnaires and you need to fill up each answer. The information gained from this questionnaire will be used to academic purposes and will be kept confidential. Your participation in this study is totally voluntarily and you have the right to withdraw from the interview without any clarification at any moment. You can ask any question to the researcher regarding the study to meet up your quarry. Looking confidential. Your participation in this study is totally voluntarily and have the right to withdraw from the interview without any clarification at any moment. You can ask any question to the researcher regarding the study to meet up your quarry. Looking forward your kind cooperation.

Declaration of the participant

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

Responded name:

Witness name:

Mobile number:

Signature and date:

মৌখিক সম্মতি ফর্ম

(অনুগ্রহ করে অংশগ্রহনকারী পড়ুন)

প্রিয় অংশগ্রহনকারী,

আসসালামুআলাইকুম, আমার নাম মোঃ জামাল হোসেন। আমি সাইক কলেজ অব মেডিকেল সায়েন্স অ্যান্ড টেকনোলজিতে অধ্যয়ন করছি, বিএসসি ইন ফিজিওথেরাপি ডিগ্রিতে শেষ বর্ষের ছাত্র।

“ ফ্লোজেন শোল্ডার রোগীদের মধ্যে কার্যকরী অক্ষমতা ” একটি পর্যবেক্ষণ মূলক গবেষণা শিরোনামে ঢাকা বিশ্ববিদ্যালয়ের মেডিসিন অনুষদের অধীনে সাইক কলেজ টেকনোলজি থেকে আমি আমার অধ্যয়ন সংক্রান্ত কিছু তথ্য জানতে চাই। এটি করতে প্রায় ৭-১০ মিনিট সময় লাগবে। সম্পূর্ণ তথ্য সংগ্রহ করতে আমাকে আপনার সাথে কথা বলতে হবে। একটি প্রশ্নপত্রের ফর্ম আছে যা আপনাকে পূরণ করতে হবে। এই প্রশ্নবলী থেকে প্রাপ্ত তথ্য একাডেমিক উদ্দেশ্যে ব্যবহার করা হবে এবং গোপন রাখা হবে। এই অধ্যয়নে আপনার অংশগ্রহণ সম্পূর্ণ স্বেচ্ছায় এবং যেকোন মূহুর্তে কোনো ব্যাখ্যা ছাড়াই আপনার সাক্ষাৎকার রয়েছে। আপনি আপনার ফর্ম পূরণের জন্য গবেষণার বিষয়ে গবেষককে যেকোনো প্রশ্ন করতে পারেন। আপনার সদয় সহযোগিতা কামনা করছি।

অংশগ্রহনকারীর ঘোষণা

আমাকে এই জরিপে অংশগ্রহনের জন্য আমন্ত্রন জানানো হয়েছে। পূর্বোক্ত তথ্য আমাকে পড়ানো হয়েছে। এবং আমার সম্মতির জন্য উত্তর দেওয়া হয়েছে। আমি লক্ষ্য করেছি যে এই গবেষণার আমার অংশগ্রহন সম্পূর্ণরূপে স্বেচ্ছাসেবী এবং আমার যেকোনো সাক্ষাৎকার প্রত্যাহার করার অধিকার রয়েছে। আমি এই গবেষণায় অংশগ্রহনকারী হতে স্বেচ্ছায় আমার সম্মতি দিচ্ছি।

অংশগ্রহনকারীর নামঃ

স্বাক্ষীর স্বাক্ষরঃ

অংশগ্রহনকারীর স্বাক্ষর ও তারিখঃ

মোবাইল নাম্বারঃ

| |
|--------------------------------|
| Appendix - D |
| Questionnaire (English) |

Functional disability among the patients with Frozen Shoulder

Code no:

| | | |
|--|--|--|
| | | |
|--|--|--|

Participant Name:

Address:

Date:

Mobile No:

Section1: Socio demographic information (kindly enter the number in the blank space).

| Q.N | Question | Answer |
|-----|---|--------|
| 1 | What is your age? (Years). | |
| 2 | What is your gender? 1. 1.Male 2. 2.Female 3. 3.Others | |
| 3 | Where do you live? 1. 1.Urban 2. 2.Semi urban 3. 3.Rural | |
| 4 | What is your educational qualification? 1. 1.SSC 2. 2.HSC 3. 3.Undergraduate 4. 4.Graduate 5. 5.Post graduate 6. 6.Others | |

| | | |
|---|--|--|
| 5 | 1. BMI- 2. 1.Height of the participate (feet) 3. 2.Weight of the participate (kg) | |
| 6 | What is your religion? 1. 1.Islam 2. 2.Hindu 3. 3.Buddhist 4. 4.Christian | |
| 7 | Marital status 1. 1.Married 2. 2.Unmarried 3. 3.Others | |
| 8 | What is your occupation? 1.Employee 2.Business 3.Teacher 4.Farmer 5.Housewife 6.Others | |

Section-2: Frozen shoulder related information

| Q.N | Question | Answer |
|-----|--|--|
| 1 | When did your problem start? | 1.>6 months 2.>1 years 3.> 2 years 4.>3 years 5.>4 years 6.>5 years |
| 2 | In which side? 1.Right 2.Left 3.Both | |
| 3 | Is your pain constant or intermittent? 1.Constant 2.Intermittent | |
| 4 | Is your pain referred below elbow or not? 1.Yes 2.No | |
| 5 | Can you sleep on affected side? 1.Yes 2.No | |

Section-3: Shoulder Pain and Disability Index

Please place a mark on the line that best represents your experience during the last week attributable to your shoulder problem.

PAIN SCALE-

How severe is your pain?

Circle the number that best describes your pain where: 0 = no pain and 10 = the worst pain imaginable.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|----|
| At its worst? | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| When lying on the involved side? | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Reaching for something on a high shelf? | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Touching the back of your neck? | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Pushing with the involved arm? | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

DISABILITY SCALE-

How much difficulty do you have?

Circle the number that best describes your experience where: 0 = no difficulty and 10 = so difficult it requires help.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|----|
| Washing your hair? | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Washing your back? | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Putting on an undershirt or jumper? | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Putting on a shirt that buttons down the front? | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Putting on your pants | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Placing an object on a high shelf? | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Carrying a heavy object of 10 pounds (4.5 KG) | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Removing something from your back pocket | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

প্রশ্নপত্র (বাংলা)

ফ্রোজেন শোল্ডার রোগীদের মধ্যে কার্যকরী অক্ষমতা।

তারিখ:

কোড নং:

অংশগ্রহনকারীর নাম:

ঠিকানা:

মোবাইল নম্বর:

বিভাগ ১: সামাজিক জনসংখ্যা সংক্রান্ত তথ্য (দয়া করে খালি জায়গায় নম্বরটি লিখুন)

| সিরিয়াল নাম্বার | প্রশ্ন | উত্তর |
|------------------|---|-------|
| ১ | আপনার বয়স কত? | |
| ২ | আপনার লিঙ্গ কি? ১. পুরুষ ২. মহিলা ৩. অন্যান্য | |
| ৩ | আপনি কোথায় থাকেন? ১. শহর ২. উপ-শহর ৩. গ্রাম | |
| ৪ | আপনার শিক্ষাগত যোগ্যতা কি? ১. এস.এস.সি ২. এইচ.এস.সি ৩. স্নাতক ৪. স্নাতকোত্তর ৫. অন্যান্য | |
| ৫ | বিএমআই ১. অংশগ্রহনকারীর উচ্চতা (ফুট) ২. অংশগ্রহনকারীর ওজন (কেজি) | |
| ৬ | আপনার ধর্ম কি? ১. ইসলাম ২. হিন্দু ৩. বৌদ্ধ ৪. খ্রিস্টান | |

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| ৭ | আপনার বৈবাহিক অবস্থা কি? ১. অবিবাহিত ২. বিবাহিত ৩. অন্যান্য | |
| ৮ | আপনার পেশা কি? ১. চাকুরীজীবী ২. স্ববসা ৩. শিক্ষক ১. ৪. কৃষক ৫. গৃহিণী ৬. অন্যান্য | |

বিভাগ ২: ফ্লোজেন শোল্ডার সম্পর্কিত তথ্য

| সিরিয়াল নম্বর | প্রশ্ন | উত্তর |
|----------------|---|--|
| ১ | আপনার সমস্যা কখন শুরু হয়েছিল? | ১। >৬ মাস ২। >১ বছর ৩। >২ বছর ৪। >৩ বছর ৫। >৪ বছর ৬। >৫ বছর |
| ২ | কোন দিকে? ১. ডান ২. বাম ৩. উভয় | |
| ৩ | আপনার ব্যথা কি একটানা অথবা মাঝে মাঝে হয় ? ১. একটানা ২. মাঝে মাঝে | |
| ৪ | আপনার ব্যথা কি কনুইয়ের নিচে ছড়িয়ে যায়? ১. হ্যা ২. না | |
| ৫ | আপনি কি আক্রান্ত পাশে ঘুমান? ১. হ্যা ২. না | |

বিভাগ ৩: কাঁধের ব্যাথা এবং অক্ষমতা সূচক

(অনুগ্রহ করে প্রশ্নগুলো মনোযোগ দিয়ে পড়ুন এবং যে নম্বরটি আপনার অবস্থাকে সবচেয়ে ভালোভাবে বিশ্লেষণ করে তাতে গোল দাগ দিন)।

ব্যাথা স্কেলঃ

আপনার ব্যাথা কতটা তীব্র?

আপনার ব্যাথার সবচেয়ে ভালো বর্ণনা দেয় এমন সংখ্যাটিকে গোল করুন যেখানে: ০= ব্যাথা নেই এবং ১০= অকল্পনীয় ব্যাথা।

| | | | | | | | | | | | |
|--|---|---|---|---|---|---|---|---|---|---|----|
| এটা কি চরম ব্যাথা ? | ০ | ১ | ২ | ৩ | ৪ | ৫ | ৬ | ৭ | ৮ | ৯ | ১০ |
| ব্যাথার দিকে শোয়ার সময় ? | ০ | ১ | ২ | ৩ | ৪ | ৫ | ৬ | ৭ | ৮ | ৯ | ১০ |
| উঁচু তাক পর্যন্ত হাত নিতে ? | ০ | ১ | ২ | ৩ | ৪ | ৫ | ৬ | ৭ | ৮ | ৯ | ১০ |
| ঘাড়ের পিছনে হাত নিতে ? | ০ | ১ | ২ | ৩ | ৪ | ৫ | ৬ | ৭ | ৮ | ৯ | ১০ |
| যে হাতে ব্যাথা সে হাত দিয়ে কিছু ধাক্কা দিতে ? | ০ | ১ | ২ | ৩ | ৪ | ৫ | ৬ | ৭ | ৮ | ৯ | ১০ |

অক্ষমতা স্কেলঃ

আপনার অসুবিধা কত?

আপনার অভিজ্ঞতাকে সবচেয়ে ভালোভাবে বর্ণনা করে এমন নম্বরটিকে বৃত্ত করুন যেখানে: ০= কোন কষ্ট হয় না এবং ১০= এতই কষ্টকর যে অন্যের সাহায্যের প্রয়োজন।

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|----|
| চুল ধোয়ার সময় ? | ০ | ১ | ২ | ৩ | ৪ | ৫ | ৬ | ৭ | ৮ | ৯ | ১০ |
| পিঠ পরিষ্কার করার সময় ? | ০ | ১ | ২ | ৩ | ৪ | ৫ | ৬ | ৭ | ৮ | ৯ | ১০ |
| গেঞ্জি/সেমিজ বা শীতের কাপড় পড়ার সময় ? | ০ | ১ | ২ | ৩ | ৪ | ৫ | ৬ | ৭ | ৮ | ৯ | ১০ |
| জামা পড়ে সামনের বোতাম লাগানোর সময় ? | ০ | ১ | ২ | ৩ | ৪ | ৫ | ৬ | ৭ | ৮ | ৯ | ১০ |
| প্যান্ট/পায়জামা পরার সময় ? | ০ | ১ | ২ | ৩ | ৪ | ৫ | ৬ | ৭ | ৮ | ৯ | ১০ |
| উঁচু তাকে কিছু রাখার সময় ? | ০ | ১ | ২ | ৩ | ৪ | ৫ | ৬ | ৭ | ৮ | ৯ | ১০ |
| ১০ পাউন্ড (৪.৫ কেজি) ওজনের কিছু বহন করার সময় ? | ০ | ১ | ২ | ৩ | ৪ | ৫ | ৬ | ৭ | ৮ | ৯ | ১০ |
| পিছনের পকেটে হাত দেওয়ার সময় ? | ০ | ১ | ২ | ৩ | ৪ | ৫ | ৬ | ৭ | ৮ | ৯ | ১০ |

Appendix: E

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 | | | | | | | | | | | | |