PERCEPTION TOWARDS MEDICATION AND PHYSIOTHERAPY TREATMENT AMONG ADHESIVE CAPSULITIS PATIENTS ATTENDED AT CRP

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Bangladesh

August’ 2016

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PERCEPTION TOWARDS MEDICATION AND PHYSIOTHERAPY TREATMENT AMONG ADHESIVE CAPSULITIS PATIENTS ATTENDED AT CRP

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DECLARATION

I declare that the work presented here is my own. All sources used have been cited appropriately. Any mistakes or inaccuracies are my own. I also declare that for any publication, presentation or dissemination of the study. I would be bound to take written consent from the department of Physiotherapy of Bangladesh Health Profession Institute (BHPI).

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Acknowledgement

First of all, I am grateful to the almighty Allah who gave me life and I am always trying to lead this life with honesty. At the same time my thanks with respect to my parents who always want to see me as successful person in the world. Then I gratefully acknowledge to my supervisors **Md. Shofiqul Islam**, Assistant Professor, Department of Physiotherapy, BHPI, CRP. I am thankful to **Mohammad Anwar Hossain**, Associate Professor & Head of the Department of Physiotherapy, CRP. I would like to express my gratitude to **Md. Obaidul Haque**, Associate Professor & Head of the Department of Physiotherapy, BHPI, CRP. I am grateful to **Mohammad Habibur Rahman**, Assistant Professor, Department of Physiotherapy, BHPI, CRP. I am also thankfull to **Ehsanur Rahman**, Assistant Professor, Department of Physiotherapy, BHPI, CRP. I want to express my gratitude to all the concerned authorities who allowed me to carry out this study.

I am thankfull to all the staff of BHPI Library for their cordial help to find out important books and journals. Above all I would like to give thanks to the participants of this study for their cooperation.

Finally I would like to express my gratitude to all who always are my well-wisher and besides me as a friend without any expectation.

Acronyms

AAROM	Active Asisted Range Of Motion
AC	Adhesive Capsulitis
AROM	Active Range Of Motion
BHPI	Bangladesh Health Professions Institute
BMRC	Bangladesh Medical Research Council
CRP	Centre for the Rehabilitation of the Paralysed
CHL	Choraco Humeral Ligament
CVA	Cerebro Vasculer Accident
IRB	Institutonal Review Board
LASER	Light Amplification by Stimulated Emission of Radiation
NSAIDs	Non Steroidal Anti-Inflammatory Drugs
PROM	Passive Range Of Motion
SWD	Short Wave Diathermy
TENS	Transcutaneous Electrical Nerve Stimulation
WHO	World Health Organization

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Abstract

Purpose: To find out patients perception towards medicine and receiving physiotherapy treatment for the adhesive capsulitis patients attended at CRP. *Objectives:* To identify the participants understanding about medication and physiotherapy treatment, to evaluate participants satisfaction to managing their problem with drugs an physiotherapy treatment, to discover how much patients are aware about side effect of medication, to find out the issue related to "perceived benefit" with physiotherapy management for Adhesive Capsulitis and to find out participants perception about comparative effectiveness of drug and physiotherapy treatment. *Methodology:* A qualitative study design was used to conduct the study. Thirteen subjects with Adhesive Capsulitis from musculoskeletal unit of Centre for the Rehabilitation of the paralysed (CRP) outpatient physiotherapy department were interviewed in this study. The samples were selected by convenience sampling method. The data were collected by using an open ended questionnaire form and coded by nine themes; finally the coded data are analyzed and presented qualitative analysis. *Result:* Following themes have been emerged on the basis of data analysis. These include, improvement is not sustainable with medicine for Adhesive Capsulitis, Analgesic produce side effect, Patient prefer multidimensional intervention, Home exercise is effective for adhesive capsulitis patient, Physiotherapy is not affordable treatment, Patient are quite satisfied with attitude of the physiotherapist, Physiotherapist provide much time to solve patients problem, Physical environment in physiotherapy department is user friendly, Physiotherapy is effective treatment.

Key words: Patient's perception, Medication, Physiotherapy, Adhesive Capsulitis.

CHAPTER-I INTRODUCTION

1.1 Background

Adhesive capsulitis is characterized by a painful, gradual loss of both active and passive glenohumeral movement of shoulder joint resulting from progressive fibrosis and ultimate contracture of the glenohumeral joint capsule (Neviaser & Hannafin, 2010). Adhesive capsulitis is a musculoskeletal condition that can produce disability. Adhesive capsulitis is diagnosed by physical characteristics including thickening of the synovial capsule, adhesions within the subacromial or subdeltoid bursa, adhesions to the biceps tendon and obliteration of the axillary fold secondary to adhesions (Manske & Prohaska, 2008).

Typically, the symptoms include increasing and severe pain around the shoulder with progressive loss of both active and passive movement of glenohumeral joints. In particular, external rotation of the shoulder joints becomes extremely restricted, with this limited of abduction and internal rotation also (Li et al., 2015). Shoulder pain can be arise by a number of different conditions. It can be caused by rotator cuff injury or adhesive capsulitis (also called frozen shoulder, stiff painful shoulder or periarthritis) (Buchbinder et al., 2006).

It is most commonly associated with the condition is diabetes mellitus, that is type 1 or type 2 diabetes mellitus, prevalence of adhesive capsulitis is increasing with a longer duration of diabetes. Adhesive capsulitis is more difficult to treat in diabetes mellitus patients. Less commonly associated conditions are included such as thyroid disease (both hyperthyroidism and hypothyroidism), hypoadrenalism, cardiac disease and stroke. There is also very strong association between rotator cuff pathology and adhesive capsulitis. Adhesive capsulitis are mainly two type. One is a primary (idiopathic) and secondary. Secondary adhesive capsulitis causes due to trauma or surgery (Harris et al., 2013). Idiopathic adhesive capsulitis of the shoulder is a painful disease, which can highly influence on the patients quality of life (Lorbach et al., 2010).

The underlying pathology is still uncertain genetic factors and an abnormal production of cytokines are described, its leading to hyper reactive fibrosis of the capsule and the rotator interval. The pathology can persist up to many year. Even if adhesive capsulitis is described as a self-limiting disorder, 10–20% of the patients are suffer from long term symptoms in pain and they have limited range of motion, frequently moderate symptoms which is also persist in the shoulder joint (Lorbacch et al., 2010).

Adhesive capsulitis (AC) is a self-limiting condition. Patients typically present with, a traumatic history of progressive painful restriction in range of movement of the gleno-humeral joint. They show a capsular pattern of restriction with external rotation being the most restricted followed by abduction in the plane of the scapula and then flexion. Aetiology of AC remains is not known, Some risk factors are involve with this condition. These includes previous trauma, increasing age, female gender, dyslipidaemia, hypertension, thyroid dysfunction and diabetes mellitus (DM). It have a variable duration but usually lasting between 1–3 years without intervention, and can affect on patients activities of daily living and reduce their quality of life. Resolution may range from complete to varying degrees of limitation in shoulder movement (Zreik et al., 2016).

Primary frozen shoulder generally pass through three clinical phases: (1) Painful phase, where there is a gradual onset of aching shoulder, usually worst at night and when lying on the affected side, and lasts for 2–9 months; (2) Stiffening or frozen phase, in which the pain level is often not altered and the patient experiences difficulty with simple activities of daily living. The stiffness gradually increase and may lead to muscle wasting due to disuse atrophy. This phase lasts for 4–12 months; and (3) Thawing phase, in these phase the patient experiences a gradual increase in the range of movement and improvement in pain, although it may reappear as the stiffness eases. This phase persist for 5–12 months (Wong & Tan., 2010).

In a prospective study of 41 patients followed up for upto 10 years, Reeves reported that approximately 40% of patients demonstrated a full recovery. However, more than 50% had some clinical limitation of movement, without restriction of function.

There further 7% had restriction of shoulder function. Similar results were reported by Shaffer et al, who studied 61 patients in a prospective longitudinal study, with a mean follow up time of 7 years. They reported 50% of patients complained of pain or stiffness, and 60% of patients had reduce range of motion on clinical review. There 11% of cases demonstrated a functional deficit (Zreik et al., 2016).

Zuckerman and Cuomo defined frozen shoulder or idiopathic adhesive capsulitis, as a condition of uncertain etiology characterized by substantial restriction of both active and passive shoulder motion that occurs in the absence of a known intrinsic shoulder disorder (Griggs et al., 2006).

Frozen shoulder is a condition in which shoulder becomes painful and stiff. It may occur due to minor injury to the shoulder but often develops without a known reason. Frozen shoulder can also be related with other health problems like as diabetes. For this condition, the pain and stiffness can decrease the ability to do perform everyday daily activities such as getting dressed, brushing hair or reaching into a cabinet.

The problem can persist for 1 to 2 years and the incidence occurs higher in females from males. Frozen shoulder patients usually experience an initial period pain at shoulder during rest, present severe pain during movement and have difficulty sleeping due to shoulder pain. This condition leads to a progressive loss of motion (freezing) and limit functional activity of the shoulder over several months (Kelley et al., 2013).

The incidence of adhesive capsulitis probably rised in the UK. The most reknowned clinical risk factor for AC is diabetes mellitus. People involved with diabetes mellitus have 5 times the risk of AC compared with those who are not affected from diabetes mellitus. The prevalence of diabetes mellitus in the UK has been reported to increase from 2.8% in 1996 to 4.3% in 2005, and the incidence from 2.71 per 1,000 person-years to 4.42 per 1,000 person-years over the same time periods. Therefore, the incidence of adhesive capsulitis may be subsequently increased (White et al., 2011).

The prevalence of shoulder pain has been informed between 2.4% to 26% in general population. Primary adhesive capsulitis is reported affected rate between 2% to 5.3% of the general population. The prevalence of secondary adhesive capsulitis related to diabetes mellitus and thyroid disease is reported to be between 4.3% and 38%. Idiopathic adhesive capsulitis to prevalence data and found a significantly higher prevalence of diabetes among both women (23.7% versus 4.7%) and men (38.0%

versus 6.5%) with adhesive capsulitis as compared to the age-matched population. A significantly higher prevalence of hypothyroidism among women (21.1% versus 7.9%) with idiopathic adhesive capsulitis was found compared to the age-matched regional population (Kelley, 2013).

The occurrence of one side frozen shoulder have the chance to develop of contralateral shoulder involvement by 5% to 34% and spontaniously bilateral shoulder involvement occurs often 14% of the time (Neviaser & Hannafi, 2009). Patients with diabetes mellitus and thyroid disease are at risk for suffer adhesive capsulitis, and adhesive capsulitis is more prevalent in individuals who are having 40 to 65 years of age, had a previous record of adhesive capsulitis in the opposite arm (Kelley, 2009).

The condition is widely reported as a disease of middle aged people and is pass through by three phases. The phase are painful phase, which can be persist between 3 to 8 months is followed by a phase of developing stiffness or adhesive phase, ‟typically exist for 4–6 months. Final resolution phase which is gradualy return of motion usually persist for 5–24 months (Shah & Lewis, 2007).

Gradually increasing of diseases, motion loss will be more increase. Highest 80 % of shoulder motion become reduce. In before it is noticed that a large loss of external rotation is a sign of frozen shoulder. Adhesive capsulitis lessely affects extension and horizontal adduction motion. In the time of external rotation restriction resolves after 45° up to 90° of abduction, motion loss was likely due to subscapularis restriction (Struyf & Meeus., 2014).

Many treatments are present to management of shoulder disorders; small number have been proven that are effective in randomized controlled trials. In the treatment mostly used non-steroidal anti inflammatory drugs, local anesthetic and corticosteroid injections into the glenohumeral joint, calcitonin and antidepressants, distension arthrography, closed manipulation, physical therapy modalities and stretching exercises can be listed among the most common non-surgical approaches to treatment in adhesive capsulitis. Physical therapy is often use as the first line of management for Frozen Shoulder (Griggs et al., 2006).

As physiotherapy Intervention the traditional principles of treatment of adhesive capsulitis are to relieve pain, maintain range of motion, and ultimately to restore function. The treatment of adhesive capsulitis by means of physiotherapy all along consists of different modalities (e.g., exercises, electrotherapy or massage) which may

be applied side by side. Relief of pain may be achieved by massage, deep heat, ice, ultrasound, TENS (transcutaneous electrical nerve stimulation), and LASER (light amplification by stimulated emission of radiations) as described in our standard text books and other literature concerning the treatment of adhesive capsulitis. However, they probably offer little benefit. Mostly these applications are adjunct to other treatment modalities like mobilization techniques or home exercise program.

Although adhesive capsulitis is generally considered to be a self-limiting condition that can be treated with physical therapy, to regain the normal extensibility of the shoulder capsule, passive stretching of the shoulder capsule in all planes of motion by means of mobilization techniques has been recommended. Grades I and II of Maitland mobilization techniques are primarily used for treating joints limited by pain. The oscillations may have an inhibitory effect on the perception of painful stimuli by repetitively stimulating mechanoreceptors that block nociceptive pathways at the spinal cord or brain stem levels. These non-stretch motions help move synovial fluid to improve nutrition to the cartilage whereas Grades III and IV are primarily used as stretching maneuvers. Appropriate selection of mobilization technique for treatment can only take place after a thorough assessment and examination (Arslan & Celiker, 2006).

1.2 Rationale

Adhesive capsulitis is a most common musculoskeletal problem in Bangladesh. It is also related to diabetes mellitus. The incidence of adhesive capsulitis is increasing in the people with diabetes affect likely 10%-36% at some stage in their life. The incidence of diabetes mellitus and the life expectancy of the diabetic patient have both increased, resulting in the increased prevalence and clinical musculoskeletal manifestation in diabetic subjects (Mohammad, 2010).

Overall, therapy is controversial and it depends on the condition of the disease. However, most systematic reviews shows that treatment of adhesive capsulitis should primarily be conservative, including physical therapy, patient education, intra-articular steroid injections, and nonsteroidal anti-inflammatory drugs (NSAIDs). A recent systematic literature showed that the majority of studies are prefer the role of physical therapy for reducing pain, functionality, and range of motion. They also advised that physical therapy may not change disease progression, particularly if the therapeutic regime is increase, potentially increase inflammation. Concerning physical therapy, the maximum recommends to use of manual mobilizations and stretching (supervised and home exercises) in all stages of AC and high grade mobilizations is use in case of last stages of AC (Struyf & Meeus, 2014).

Medication is mostly use form of treatment of shoulder pain prescribed by physician and local doctors and few time patients interested to take medication themselves. The most common treatment of adhesive capsulitis prescribed by physician including oral drugs that's are acetaminophen (e.g. Tylenol), non steroid anti inflammatory drugs (NSAIDs) (e.g. aspirin, ibuprofen), benzodiazepines (e.g. Valium, Librium), and opioids (e.g. codeine, oxycodone), physical therapies (e.g., bed rest, manipulation, stabilization, specific exercise that is extension, flexion, lateral shift, traction), surgical procedures, injected drugs (local, intramuscular, epidural, intradiscal), behavioral therapy and educational approaches. Have many harmful effects of oral drugs for adhesive capsulitis. Acetaminophen is the most common cause of acute liver failure, Severe gastrointestinal problem which are associated with nonsteroidal anti-inflammatory drug use and NSAIDs are the second most common cause of peptic ulcers which are associated with heart attacks and strokes in the elderly. The side effects of opioids are headache, nausea, somnolence, constipation, dry mouth and

dizziness. Drugs have short term benefit for shoulder pain and it has lots of adverse effect so patients did not getting better improvement through the use of medicine (Chou et al., 2007).

So most of the patients are deprived of getting proper treatment. Physiotherapy is very beneficial treatment and it can keep a great role in adhesive capsulitis.

Adhesive capsulitis of the shoulder or frozen shoulder is the most common and disabling of diabetes mellitus is associated with several musculoskeletal disorders. To minimize the occurrence of adhesive capsulitis in diabetic patients, it is important to build up awareness about of it. This study will help to identify the socio-demographic characteristics and clinical manifestation of adhesive capsulitis in Bangladesh.

Most common cause of adhesive capsulitis is the muscle wasting, immobility etc. Also the causes of activity limitation thus decrease the quality of life. If the characteristics of shoulder capsulitis is find out that means the vulnerable age group of shoulder capsulitis, the group of people are affected by frozen shoulder, predisposing factors of shoulder capsulitis, clinical representation of shoulder, as a physiotherapist it will help to diagnose shoulder capsulitis easily and it will give details information to the patient about shoulder capsulitis. After accomplishing the graduation course a physiotherapist can acknowledge the different characteristics and clinical manifestation of shoulder capsulitis in Bangladesh.

Physiotherapists should help to ensure the guidance of preventive measure of adhesive capsulitis and reading this study will help them. As a health professional research improves our knowledge and makes the profession strongest. So there is no alternative option to do research as a professional to develop the profession.

Research Question

What are the perceptions towards medicine and physiotherapy treatment among Adhesive capsulitis patients?

1.4 Objective

1.4.1 General Objective:

To find out patients perception towards medicine and receiving physiotherapy treatment for the Adhesive Capsulitis patients attended at CRP.

1.4.2 Specific Objective:

To identify the participants understanding about medication and physiotherapy treatment.

To evaluate participants.

Satisfaction to managing their problem with drugs and physiotherapy treatment.

To discover how much patients are aware about side effect of medication.

To identify participants perception about comparative effectiveness of drug and physiotherapy treatment.

1.5 Operational definition

Adhesive capsulitis is characterized by pain, stiffness, and limited function of the glenohumeral joint, which adversely affects the entire upper extremity.

Medication

Medication is the pain relief treatment option that has good evidence of short-term effectiveness for pain and these drugs has many adverse effect that is produce harmful effect in the body.

Physiotherapy

Physiotherapy is a health care profession that works with people to identify and maximize their ability to move and function. Functional movement is a key part of what it means to be healthy. This means that physiotherapy plays a key role in enabling people to improve their health, wellbeing and quality of life.

Perception

Perception is the ability to see, hear, or become aware of something through the senses or the way in which something is regarded, understood, or interpreted.

CHAPTER-II LITERATURE REVIEW

Frozen shoulder, also referred to as adhesive capsulitis, it is a common condition. Its affecting the glenohumeral joint and characterised by progressive inflammation of the joint capsule and subsequent stiffness of the shoulder.

The term ‘frozen shoulder’ was first used by Dr Codman in his book named “The Shoulder: Rupture of the Supraspinatus Tendon and other Lesser Lesions in or about the Subacromial Bursa” in which he described frozen shoulder. He first described the classic diagnostic criteria for the condition, which include: idiopathic aetiology, global restriction in the range of movement of the shoulder, severe restriction of external rotation also painful at the outset, normal plain X-ray findings (Nagy et al., 2013).

Frozen shoulder (FS) is a common disorder in general orthopaedic practice. Frozen shoulder has synonyms include peri arthrite scapulahumerale and adhesive capsulitis. In Japan, a term “goju-kata” (50-year-old-shoulder) has been used among the general public since the eighteenth century or before (Tamai et al., 2014).

The incidence of adhesive capsulitis about 2-5% in the general population otherwise in children and average between 40 and 70 years of age. People are in adhesive capsulitis women are more affected than man although genetic or racial predilection is negative. It is most common in persons with insulin dependent, non-insulin dependent diabetes and with prediabetes (glucose intolerance). Chance of developing of adhesive capsulitis gradually increases on the contralateral side in adhesive capsulitis patients (Ewald, 2011).

The aetiology of primary adhesive capsulitis is still unknown. It is frequently associated with other systemic conditions, most commonly diabetes mellitus. The condition has been reported in 10-36% of diabetics, who are approximately 2-4 times more likely to develop a frozen shoulder than members of the general population. Insulin-dependent diabetics are at the highest risk, and the condition is often particularly severe in these cases. In addition to diabetes, adhesive capsulitis is seen commonly in some disorder like thyroid disorders, Parkinson’s disease, and a range of

cardiac and synovitis pulmonary diseases are mainly. In case of surgical procedures, such as radical neck dissection, neurosurgery and cardiac surgery can also trigger frozen shoulder, particularly where patients are bedbound for prolonged duration (Nagy et al., 2013).

The literature mainly describes two types of AC, the idiopathic or primary form and the acquired or secondary form. Whereas no specific cause can be identified in the primary form of AC, several review articles describe possible associations in secondary AC to be of systemic, extrinsic, or intrinsic nature. Systemic causes include diabetes mellitus, thyroid dysfunction, and hypoadrenalism. Extrinsic associations include cardiopulmonary diseases, cervical spine pathology, stroke, Parkinson's disease, and humerus fractures. In addition, possible intrinsic factors are rotator cuff pathologies, biceps tendinitis, calcific tendinitis, and AC joint arthritis. Likewise, the presence of recent surgery, immobilization, trauma, and even Dupuytren disease has also been associated with the development of secondary AC (Struyf et al., 2014)**.**

Idiopathic adhesive capsulitis is a painful, stiff shoulder of unknown etiology that is also referred to as a frozen shoulder, it has a prevalence of 2% in the general population. In idiopathic adhesive capsulitis, the joint capsule is thick and contracted and the collagen is packed more densely. There is decrease in intra-articular volume and also capsular compliance that’s why glenohumeral motion is limited in all planes. Idiopathic adhesive capsulitis, passing through phases of pain, stiffness, resolution, and typically leading to a functional recovery after two to three years. Although there is a functional recovery, Shaffer et al. showed that up to 50% of patients continued to have mild pain or stiffness seven years after the initial symptoms as a deficit in shoulder range of motion compared with the contralateral shoulder (Lievre., et al 2012).

Female patients are mostly affected, typically in the 5th to 7th decades of life. The condition affects both sides equally and frequently, rarely affects bilaterally in a simultaneous fashion. Sequential bilateral occurrence may be found in up to 50% of patients (Nagy et al, 2013).

Treatment of idiopathic adhesive capsulitis is controversial. Nonoperative interventions that have been described include benign neglect, physical therapy, intra-articular steroid injections, and nonsteroidal anti-inflammatory drugs. The criteria for a diagnosis of idiopathic adhesive capsulitis were a painful stiff shoulder for at least four weeks; restriction of passive external rotation of at least 50% compared with the contralateral shoulder; difficulty using the affected arm, with restriction of movement and loss of function; and pain at night causing a sleep disturbance and inability to lie on the affected side.re few studies that have evaluated the long-term outcomes of any treatment (Lievre., et al 2012).

Frozen shoulder is a painful, stiff condition which often responds to intra-articular steroids. Macroscopically the capsular tissue become thickened, inflammed and congested to see. These clinical and macroscopic features support the pathological findings of both inflammation and fibrosis. Characteristically, pain precedes stiffness in frozen shoulder, which suggests an evolution from inflammation to fibrosis (Hand et al., 2007) Codman coined the term frozen shoulder. He said that patients having frozen shoulder shared some common features. These features were: "a slow onset . . . of pain felt near the insertion of deltoid, inability to sleep on the affected side, painful and restricted elevation and external rotation, with a normal radiological appearance" (Bunker, 2005).

The shoulder has been reported as the third most common site of musculoskeletal pain after low back pain and knee pain. In the general population a point prevalence of 7-26%, and one-year prevalence of 7-47% of self-reported shoulder pain are reported while the annual incidence is estimated to be around 1-2%. Among patients in primary care the annual consultation prevalence has been estimated to range from 2-10% of the population and incidence from 11-30/1000 person-years. Besides individual risk factors, such as age, arthritis, obesity, diabetes and thyroid disease, a strong relationship between working conditions and shoulder disorders has been reported in several studies. Also, regional pain in the shoulder can evolve into more generalized pain syndromes. The gender impact on shoulder disorders is not clear and is a topic of discussion (Tekavec et al., 2012).

In a study, 19% of older diabetic patients had adhesive capsulitis; however, recent estimates place the incidence is increase as 71% when patients with pre-diabetes (metabolic syndrome) are included. Both Type I and Type II diabetics are susceptible to frozen shoulder; unfortunately, diabetics have worse functional outcomes which is measured by disability and quality of life questionnaires compared to non-diabetics with frozen Shoulder (Laska & Hanning, 2010). Frozen shoulder is also a common complication after stroke, Its occur around 25% of patients within 6 months in USA (Riley et al., 2006).

AC is often described as a continuum of four stages : The first stage (approximately the first 10 weeks) is the so-called "inflammatory stage," in which hyper vascular synovitis is seen. During the "freezing stage" (stage 2; lasting approximately 10 to 26 weeks following stage 1), glenohumeral motion is starting to restrict progressively. During stage 3 (5–12 months), the "frozen stage," hypervascularity reduces and the joint capsule thickens. Finally, during stage 4 (from 12 months after onset), the "thawing stage," the symptoms start to resolve. As primary AC tends to resolve over the course of 1 to 3 years, it is often described as self-limiting. However, it appears that a large percentage of patients will still have some residual movement limitations and residual pain after many years (more than 2 years). The presence of secondary comorbidity such as diabetes and a severely restricted glenohumeral joint at baseline is potentially associated with poor prognosis (Struyf & Meeus., 2014).

In a prospective study of 41 patients followed up for up to 10 years, Reeves reported that approximately 40% of patients demonstrated a full recovery from adhesive capsulitis. However, more than 50% had some clinical limitation of movement, without restriction of shoulder function. A further 7% had restriction of shoulder function. Similar results were reported by Shaffer et al, who studied 61 patients in a prospective longitudinal study, with a mean follow up time of 7 years. They reported 50% of patients complained of pain or stiffness, and 60% had a reduction in range of motion on clinical review. 11% of cases demonstrated a functional deficit (Nagy et al., 2013).

Factors associated with adhesive capsulitis include female gender, age older than 40 years, trauma, immobilization, diabetes, thyroid disease, stroke, myocardial infarction, the presence of autoimmune diseases, cervical spine disorders and reflex sympathetic dystrophy syndrome. Idiopathic (primary) adhesive capsulitis is

characterized by fibrosis of the capsule resulting with progressive, painful loss of active and passive shoulder motion (Guler-Uysal, 2006).

In a study show, DM remained an independent risk factor of developing ACS after adjustment for age, sex, and dyslipidemia. Moreover, subgroup analysis showed an increased risk of developing ACS in all sex and age subgroups, with no interaction effect between DM and either sex or age. These findings show that the association between DM and ACS is independent of age or sex. Previous studies have shown that the duration of DM is correlated with the risk of ACS. In our study, the difference in the cumulative risk of ACS between the DM and non-DM groups tended to become more obvious after 6 months of follow up which also suggests that the development of ACS is associated with the duration of DM (Huang et al., 2013)

Kang et al. performed a population-based study on 10935 subjects with ACS and 32805 subjects without ACS using an insurance database and demonstrated an increased risk of developing stroke after the occurrence of ACS. Compared to the non-ACS subjects, the estimated hazard ratio of stroke for the ACS patients was 1.22 after adjusting for demographic characteristics, diabetes, hypertension, and heart diseases. On the basis of these findings, clinicians should be alert to the possibility of cerebrovascular accident when treating patients with ACS since stroke is a highly disabling or even fatal disease resulting in enormous social burden. However, in their study, there was a substantial imbalance in the distribution of demographic characteristics and vascular risk factors between the ACS and non-ACS groups. The ACS group was significantly older and had a 1.5-fold higher prevalence of diabetes and hyperlipidemia than the non-ACS group. Such a significant imbalance may not be effectively overcome by adjustment for these potential confounding factors in multiple regression analysis, especially when the estimated increase in stroke risk associated with ACS is only modest (Wu et al., 2012).

Although the exact pathophysiologic cause of this pathology remains elusive, there are two types identified in the literature: idiopathic and secondary adhesive capsulitis. Idiopathic (“primary”) adhesive capsulitis occurs spontaneously without a specific precipitating event. Primary adhesive capsulitis results from a chronic inflammatory response with fibroblastic proliferation, which may actually be an abnormal response from the immune system. Secondary adhesive capsulitis occurs after a shoulder injury

or surgery, or may be associated with another condition such as diabetes, rotator cuff injury, cerebrovascular accident (CVA) or cardiovascular disease, which may prolong recovery and limit outcomes (Kirkley et al., 2005).

Patients with frozen shoulder exhibit significant deficits in shoulder kinematics, including increased elevation and upward scapular rotation. Eventually, patients with adhesive capsulitis develop the characteristic "shrug sign" during glenohumeral joint elevation, where the scapula migrates upward prior to 60 degrees of abduction. This indicates compensation due to lack of capsular extensibility as well as a change in the central nervous system motor patterning due to maladaptive movement (Morrison et al., 2005).

Codman first described a set of diagnostic criteria and it still now present. These muscles, and local tenderness. The pain is "very trying", but patients are usually able to carry out the activities of daily living. There is limitation incase of both active and passive motion, with painful and decreased elevation and rotations of the arm. There is no exact range of motion (ROM) restriction required for a patient to be diagnosed as having a frozen shoulder. Dias et al. described diffuse tenderness over the glenohumeral joint, extending to the trapezius and interscapular area (Carbone et al., 2010).

Musculoskeletal disorders are common in industrial countries and bring enormous costs to the society. In the European Union the cost of treatment and lost productivity is estimated to 0.5-2% of the gross domestic product and in 2000 in the United States, the direct cost for treatment of shoulder dysfunction was estimated to $7 billion. There was approximately 3.75 million working days per year lost in the United Kingdom (2008–2009) due to musculoskeletal problems. In Sweden musculoskeletal problems represent about one third of all sick-leave and make up for the majority of all long-term sick leave. Besides the economical burden, shoulder pain causes great individual harm and influences both work and private life (Tekavec et al., 2012).

There are few specific laboratory tests or radiological markers for frozen shoulder, and the diagnosis is essentially clinical. Immunological studies (such as human leucocyte antigen B27), C reactive protein, and erythrocyte sedimentation rate are all normal and would be measured only to exclude other conditions. Most orthopaedic surgeons would not investigate a frozen shoulder beyond a plain x ray. When plain

radiographs of the frozen shoulder are taken they may well be reported as normal, although they may show peri articular osteopenia as a result of diseases (Dias, 2005).
The most commonly prescribed medications for shoulder pain are non-steroidal anti-inflammatory drugs (NSAIDs), skeletal muscle relaxants, and opioid analgesics. Benzodiazepines, systemic corticosteroids, antidepressant medications, and antiepileptic drugs are also prescribed. Frequently used over-the-counter medications include acetaminophen, aspirin, and certain NSAIDs (Chou & Huffman, 2007).
Acetaminophen used as first line drugs because it may offer a more favorable safety profile than NSAIDs but it also seems less effective for pain relief. Primarily liver toxicity with long term, high dose consumption and increased risk of high blood pressure associated with long term use. If patient with liver disease then acetaminophen is contraindicated (IHE, 2009).

In general, the principles for treating patients with AC are defined by the ability of the tissue to cope with physical stress, often described as "tissue irritability." Tissue irritability will guide physical therapists in deciding whether a specific therapeutic modality is appropriate at that time, what kind of intensity to apply, and how long and how often a specific technique can be performed. Kelley et al. defined three levels of irritability: high (≥7/10 on a VAS, consistent night or resting pain, high disability, pain before end range, less active ROM than passive ROM due to pain), moderate (4–6/10 on a VAS, intermittent night or resting pain, moderate disability, pain occurs at end range, active ROM = passive ROM) and low (≤3 on a VAS, no night or resting pain, low disability, pain at overpressure end range, active ROM = passive ROM) . In patients with a high irritability level, treatment should emphasize on pain reduction, patient education, and pain-free active or passive exercises (e .g., low-intensity joint mobilizations in a pain-free zone). Together with the lowering of the tissue irritability, the intensity of the active and passive exercises increases. Finally, at the lowest levels of tissue irritability, physical therapists can apply more intense stretching and strengthening exercises (Wong & Tan., 2010)

Limitations in glenohumeral movements are often associated with the location of a capsular contracture. In contrast, Johnson et al. reported that posterior glide mobilizations, thus focusing on the posterior capsule contractures, demonstrated greater improvement in external rotation range of motion compared to the patients

treated with anterior glide mobilizations. Likewise, Placzeket al. performed glenohumeral manipulations to patients under anesthesia and concluded that posterior translations restored both external and internal rotation motion. They hypothesized that posterior translations stretch both the posterior capsule and the rotator cuff interval. Finally, they also concluded that inferior translation techniques stretch the adhesions within the inferior fold, leading to greater elevations of motion. Conventionally, this encompasses the use of weighted pendulum stretching followed by passive stretching exercises, which aims to stretch the lining of the glenohumeral joint. A study published in 2008 indicates the promising use of continuous passive motion as compared to that of conventional practice. Dierks and Stevens described a prospective study of 77 patients that compared exercise within the limits of pain with intensive physiotherapy in patients with idiopathic frozen shoulder. In this study, they found that exercise performed within the limits of pain (64% reached near normal, painless shoulder movements at 12 months and 89% at 24 months) yielded better results than that with intensive physiotherapy (63% achieved a similar result at 24 months). Improvement in daily activities, pain relief and range of motion is more significant with deep heating combined with stretching exercises than with superficial heating alone (Wong & Tan., 2010).

Radiographs of the shoulder are normal. Thickening of the coracohumeral ligament (CHL) and of the joint capsule in the rotator cuff interval (RCI), as well as the subcoracoid triangle sign, are characteristic magnetic resonance (MR) arthrographic findings in frozen shoulder. The RCI, in fact, is the region in the anterosuperior aspect of the glenohumeral joint formed by a complex intersection of the fibres of the coracohumeral ligament, the superior glenohumeral ligament, the glenohumeral joint capsule, and the supraspinatus and subscapolaris tendons. criteria include: pain in the shoulder which comes on slowly and is felt at the insertion site of the deltoid, difficulty to sleep on the affected side (Carbone et al., 2010).

Management is controversial and depends on the phase of the disease. Decision making is often based on quality of life and whether the patients are able to cope with the pain or stiffness till its eventual resolution. Treatment options include a range of conservative and surgical measures. In a recent survey of UK health professionals, only 3% recommended surgical procedures for the initial painful “freezing” phase.

Conservative treatment options include oral non-steroidal anti-inflammatory preparations (NSAIDs) for symptomatic pain relief; which can be used in any stage of frozen shoulder. Physiotherapy forms the mainstay of early- and mid-stage disease. The role of oral corticosteroids has short term benefit with reduction in pain, especially during the early stages of frozen significant improvements in pain and functional scores at 3 and 6 weeks in the steroid group, benefit does not persist more than 6 weeks (Nagy et al., 2013).

Four RCTs assessed MUA. A single, satisfactory-quality study compared MUA with home exercise alone. There was no significant difference between groups in pain, function and disability, range of movement or working ability at short-, medium- or long-term follow-up. A study with some risk of bias compared MUA with arthrographic distension. There was greater improvement in pain and function and disability at 6 months with arthrographic distension than with MUA in participants with adhesive-stage primary frozen shoulder. The remaining two studies had a high risk of bias (Maund et al., 2012).

For the second and third phases of frozen shoulder, nearly 50% of the respondents suggested surgical treatment (including MUA and capsular distension injections). Operative treatment (i.e. manipulation under anaesthesia or arthroscopic capsular release) are generally considered only after conservative measures have failed (Nagy et al., 2013).

Oral steroids may work to treat shoulder pain (adhesive capsulitis) in the short term. Oral steroids may decrease pain and disability, and may improve movement in the shoulder. Steroids taken over longer periods of time shows that harms could include high cholesterol and high blood pressure (Buchbinder , 2006).

NSAIDs are the most commonly prescribed medication in whole worldwide. Koes et al., found that, NSAIDs might be effective for short-term symptomatic relief in patient with uncomplicated shoulder pain, but are less effective or ineffective in patients with adhesive capsulitis pain. NSAIDs are used for more severe pain, and a small increase in cardiovascular or gastrointestinal risk with NSAIDs in exchange for greater pain relief could be an acceptable tradeoff for some patients, but others may consider even a small increase in these risks unacceptable (Chou, 2007).

Non-steroidal anti-inflammatory drugs (NSAIDs) are one of the most widely prescribed medication in the world. Their main benefit derives from their anti-inflammatory and analgesic effect, but the use of these agents is not innocuous since they mainly increase the risk of gastrointestinal (GI) and cardiovascular complications compared with non-NSAID users. NSAIDs injures the upper and lower gut by depleting COX-1 derived prostaglandins and causing topical injury to the mucosa. The risk of upper GI complications varies, depending on the presence of one or more risk factors. Among them, the three main risk factors are prior history of peptic ulcer, the single most important risk factor, age, the most common, and concomitant aspirin use, due to their GI and cardiovascular implications. Those individuals at-risk should be considered for alternatives to NSAID therapy and modifications of risk factors. If NSAID therapy is required, patients at risk will need prevention strategies including co-therapy of NSAID with gastroprotectants (PPI or misoprostol) or the prescription of COX-2 selective inhibitors. The probable introduction of NO-NSAIDs in the market in the near future may open a new therapeutic option for patients with hypertension who need NSAIDs (Sostres et al., 2010).

Some muscle relaxants such as cyclobenzaprine may be appropriate in selected patients for symptomatic relief of pain and muscle spasm. Caution must be exercised with managing side effects, particularly drowsiness, and also with patient selection, given the abuse potential for this class of drugs (IHE, 2009).

Opioid analgesics are effective for pain relief. The most common side effect of opoid analgesia in pain is constipation. At the start of opoid therapy a prophylactic bowel regimen should be initiated. Other common side effects are somnolence, confusion, nausea, and vomiting. Patients usually develop tolerance to these effects within 1 week to 10 days (Glajchen, 2001). Physical therapy interventions for frozen shoulder syndrome are joint mobilization and exercise. Physical therapy is the most effective interventions. Non-aggressive physical therapy interventions are generally more effective than aggressive or intensive interventions (Roubal et al., 2012). Among the side effects of opioids, only constipation and nausea were clinically and statistically significant (Furlan et al 2006).

Interestingly, transcutaneous electrical stimulation (TENS) has been shown to significantly increase range of motion more than heat combined with exercise and manipulation. Research also suggests that low-power laser therapy is more effective

than a placebo for treatment of patients with adhesive capsulitis. Recently, deep heating through diathermy combined with stretching was shown to be more effective than superficial heating for treating frozen shoulder patients (Vermeulen et al., 2006).

Few mobilization concepts are described in the literature, such as Mulligan's technique. This technique combines sustained manual application of a “gliding” force to the shoulder joint in accordance with the normal arthrokinematic pattern of shoulder motion. Both Mulligan's technique and passive stretching reduced pain and restored range of motion and function in a randomized controlled study. In addition, better improvements in terms of pain, range of motion, shoulder scores, and patient and physiotherapist satisfaction were achieved in favor of Mulligan's technique. In addition, Gaspar et al. concluded that the use of the a dynamic splinting mechanism may be an effective adjunct as home stretching exercise for stage 2 AC patients, recommending 60 min per day of low-load, prolonged-stretch. However, their outcome measure only included external rotation range of motion.

Stretching techniques can influence pain and improve range of motion. However, these improvements may not exceed the efficacy of other interventions. Still, no strong evidence exists in order to guide physical therapists in defining the optimal therapy frequency, or the number of repetitions and duration of stretching. However, stretching intensity that matches the given level of tissue irritability is indicated (Struyf & Meeus., 2014).

Probably the most commonly prescribed therapeutic exercises for adhesive capsulitis are active-assisted range of motion (AAROM) exercises. These typically involve the patient using the uninvolved arm, or using equipment such as rope-and-pulley, wand/T-bar, or exercise balls. Generally, these exercises are performed for flexion, abduction and external rotation ranges of motion which are frequently the most limited (Kazemi, 2009). Resistive exercises typically include strengthening of the scapular stabilizers and rotator cuff, when range of motion has progressed enough for strengthening to be an appropriate intervention. Muscles prone to weakness in a variety of shoulder dysfunctions include the lower trapezius, serratus anterior, and infraspinatus. Patients with adhesive capsulitis have significantly weaker lower trapezius muscles compared to asymptomatic controls. It is important that treating

therapists facilitate normal movement patterns rather than allowing pathological adaptive patterns to prevail during movement for the sake of completing an exercise (Jobe & Jobe, 2012).

Treatment of the shoulder capsulitis often involves the use of anti-inflammatory agent or corticosteroid. NSAIDs may be used during any phase as an attempt to relive symptoms. In non operative treatment include medical management and physiotherapy management. Medical treatment of shoulder capsulitis often involves anti-inflammatory drugs and intra-articular corticosteroid injection. Intra-articular corticosteroid injection is also commonly used to decrease the inflammation of the shoulder joint (Manske & Prohaska, 2008).

CHAPTER-III METHODOLOGY

3.1 Study design

Qualitative research approach was applied to explore the patient perception towards medicine and physiotherapy treatment among the Adhesive Capsulitis attended at CRP. It was an interpretive approach within the philosophy of phenomenology that enables the researcher to gain an understanding of individual patient's opinions, feelings, attitudes, and behavior. It was selected qualitative approach to accomplish the objective of the research which helps to gain understanding and explore the feelings, attitudes, opinions, fears and behavior of adhesive capsulitis patients about medicine and physiotherapy service.

3.2 Study settings

Musculoskeletal unit of the Centre for the Rehabilitation of the Paralysed (CRP), Savar, Dhaka-1343, Bangladesh. Further more this study will help to understand.

3.3 Population

Adhesive Capsulitis patient of Centre for the Rehabilitation of the Paralysed (CRP).

3.4 Sample size

Thirteen samples with adhesive capsulitis from musculoskeletal unit of Centre for the Rehabilitation of the Paralysed (CRP) out patient physiotherapy department were included in this study.

3.4.1 Sampling procedure

The samples were selected by convenience sampling method.

3.4.2 Inclusion criteria

- Patient having atleast 5 sessions physiotherapy treatment.
- Participants with any age group.
- Male and female both were the participants.
- Both literate and illiterate patient were included on the study.
- Participant who took both medication and physiotherapy treatment.

3.4.3 Exclusion criteria

- Patient who are not interested.
- Mental challenged people.

3.5 Data collection

The researcher took qualitative data with respect to the subject of the study.

3.5.1 Materials:

A tape recorder was used during the interviews to record the conversation. Simultaneously pen and papers were also used to write down field notes.

3.5.2 Method of data collection

Face to Face interview by the researcher were held by providing a open ended questionnaire form.

3.5.3 Duration of data collection

Data was collected in between 1st October 2016 to 1st November 2016. Each data was collected carefully and confidentiality is maintained. Each participant provide particular time to collect data. Each questionnaire took approximately 20-30 minutes to complete.

3.5.4 Procedure of data collection

Open ended interview questions were used in this study. The interview was recorded using a tape recorder by taking permission from the patients. With open ended questions, participants got much freedom to explain their feelings in their own words. Audiotape was used to record the all interviews to discover exact feeling, attitude and emotions of the participants during interviews. The interview was conducted in Bengali as though they can understand the questions easily. Face to face interview was conducted because this may provide higher response than other data collection methods. Every interview lasted for 20-30 minutes. Interview continued until saturation point was reached, that is no major new insights were being revealed and there was repetition of the same issues with different respondents.

3.5.5 Data analysis

The data were collected by using an open ended questionnaire form and coded by nine themes; finally the coded data are analyzed and presented qualitative analysis. Calculator was used to find out the percentage of participant response and shown in a table.

3.6 Ethical consideration

Research proposal was submitted to the ethical committee named Institutional Review Board (IRB) of Bangladesh Health Professions Institute (BHPI) and approval was of trained from the board. World Health Organization & Bangladesh Medical Research Council (BMRC) guideline were followed to conduct the study.

For this study a consent form was given and the purpose of the research and consent form was explained to the subject verbally. Participants were fully voluntary and they have the right to withdraw at any time. Participants were also ensured that they are confidentiality will be maintained. Information might be published in any presentation or writing but they will not be identified. The study results might not have any direct effects on them but the members of physiotherapy population may be benefited from the study in future. They would not be embarrassed by the study.

3.8 Rigor

Researcher always tried not to influence the process by his own value and biases .No leading questions were asked or no important question is avoided. When conducting the study the author take help from her supervisor and follows his direction appropriately.

CHAPTER-IV RESULTS

4.1 Participant's details

In the study the number of subjects was 13 with adhesive capsulitis. Both male and female were included in this study. Among the participants there were 7 female and 6 male. The range is minimum age 32 years and maximum 67 years. Among the participants are the highest number of the participants are the age of 58 and there number were 3 of them were still working 8 and 5 of them were not working

Table-1: Participant's detail

No	Age	Sex	Pain Duration	Present condition
1	58	Female	6 months	Not working
2	48	Male	4 months	Not working
3	32	Male	9 months	Still working
4	58	Male	2 years	Still working
5	66	Male	6 months	Not working
6	62	Female	6 months	Not working
7	35	Female	1 years	Still working
8	38	Male	5 months	Still working
9	36	Female	2 months	Still working
10	42	Female	3 months	Still working
11	55	Female	6 months	Still working
12	58	Female	2 years	Not working
13	42	Male	4 months	Still working
Mean age= 48.46		M:F= 6:7	Mean months= 8.5 months	

4.2 Socio-demographic information at a glance

Among thirteen participants (32-49) years old participants were seven with percentage (53.9) and (50-67) year's old participants were six with percentage (46.1).From them male were six with percentage (46.1) and female were seven with percentage (53.9). Among them four participants had primary education with percentage (30.8), six participants had some secondary education with percentage (46.1), three participants were completed secondary education with percentage (23), Among 13 participants two participants were employee, with percentage (15.3), three participants were housewife with percentage (23),three participants were businessmen with percentage (23), and four participants were garments worker with percentage (30.8), and one participants was rickshaw puller with percentage (7.7)

Age	Number	Percentage
32-49 years	7	53.9%
50-67 years	6	46.1%
Gender		46.1%
Male	6	53.9%
Female	7	
Education		30.8%
Primary	4	46.1%
Secondary	6	23%
Complete secondary	3	
Occupation		
Employee	2	15.3%
Housewife	3	23%
Businessman	3	23%
Garments worker	4	30.8%
Rickshaw puller	1	7.7%

4.3 Following Themes are emerged on the basis of data analysis

1. Improvement is not sustainable with medicine for adhesive capsulitis.
2. Analgesic produce side effect
3. Patients prefer multidimensional intervention.
4. Home exercise is effective for frozen shoulder patient .
5. Physiotherapy treatment cost is not affordable.
6. Patient are quite satisfied with attitude of the physiotherapist.
7. Physiotherapist provide much time to solve patients problem.
8. Physical environment in physiotherapy department is user friendly.
9. Physiotherapy is effective treatment.

CHAPTER-V DISCUSSION

Discussion according to the themes are provided below

5.1 Improvement is not sustainable with medicine for Adhesive capsulitis

This theme relates to the patients perception of outcome of medical treatment which are received by physician. It included the issues regarding the quality of patient health as a consequence of treatment. The participant responses are displayed at below in table-03.

Participants Response	Pain is reduced	Pain is reduced for Sometime then start	Pain is not changed
P1		✓	
P2		✓	
P3		✓	
P4			✓
P5		✓	
P6	✓		
P7	✓		
P8		✓	
P9		✓	
P10	✓		
P11			✓
P12		✓	
P13	✓		
Total	**4**	**7**	**2**

(P =Participants)

Table-3: Improvement is not sustainable with medicine for Adhesive capsulitis

According to the transcripts, 7 of the participants (53.9 %) stated that, Pain is reduced for sometime then start again. 4 participants (26.7%) stated that their pain was reduced, 2 participants (15.3 %) said that their pain is unchanged.

As the pain was main problem to the patient and they received medical treatment for this reason, so they made different comments on it. Among six participants one of them reported that,*"I took medicine for 3 months and pain was reduced, then I stopped to take medicine but as a result my shoulder pain was start again".*

Another one participants stated that, *"My shoulder pain was reduced for some time for taking medicine but as the day progress it was start again."*

These statements reflect that, Pain killer or analgesic drugs relief pain for sometimes when its action becomes stop the pain starts again. In this way all participants mentioned the efficacy of drugs.

Over all most of the participants responses were, improvement are not sustainable with medicine for adhesive capsulitis. And most of them are disappointed with this care.

5.2 Analgesic produces side effect

This theme describes the patient's perception of the side effect of drugs which are produced to taking medicine. The participant's responses are displayed at below in table-04

Participants Response	Produce side effect	Not produce side effect but aware	Not aware about side effects
P1			✓
P2			✓
P3		✓	
P4		✓	
P5			✓
P6		✓	
P7	✓		
P8			✓
P9			✓
P10	✓		
P11			✓
P12	✓		
P13		✓	
Total	**3**	**4**	**6**

(P =Participants)

Table-4: Analgesic produces side effect

From the transcripts among 13 participants, 6 participants (46.1%) reported that, they are not aware about side effects of analgesic, 3participants (20%) responded some side effects where as 4 participants (30.8%) informed that though any side effect was not produced but they were aware with side effect.

The research result demonstrates that participants had very little or no idea about side effect of analgesic. One respondent states that, *"I have no idea about side effect or adverse effect of medicine and my doctor did not explain me about this side effect"*.

This statement reflects that knowledge of side effect of drugs should be given to the patients during prescription.

Among 13participants 4 of them were aware about side effect of drugs. Participants two state that, *"Antibiotic can damage lungs, liver and kidney and antidepressant can weak the whole body"*. And that's why he was reluctant receiving medicine.

This statements reflect that, some respondents have little much awareness about adverse effect of drugs and they were unwilling to receiving medicine.

So 46.1% respondents are not aware about side effects of medicine. This statement represents that maximum people take medicine themselves for their problem but they are not aware about side effects.

5.3Patient prefer multidimensional intervention, it will be solve their problem

Here the researcher wanted to know strategies followed by the patients to relief from present pain. Every participant was asked the same question-what strategy do you follow to control your present pain? The participant responses are displayed at below in table-05.

Participants Response	Physiotherapy	Both physiotherapy and medication	Medication
P1		✓	
P2		✓	
P3	✓		
P4		✓	
P5	✓		
P6	✓		
P7	✓		
P8		✓	
P9		✓	
P10	✓		
P11		✓	
P12		✓	
P13	✓		
Total	**6**	**7**	**0**

(P =Participants}

Table-5: Patient prefer multidimensional intervention

This table represents the participant views about treatment seekness behavior to get relief from present pain. 7 of the participants (53.9%) said that, they receive both medication and physiotherapy, 6 participants (46.1%) were received only physiotherapy and nobody used to take only medication.

Among 8 participants whose were received both medication and physiotherapy treatment, one of them stated that, "Doctor prescribed me some medications to reduce pain and also suggested me to receive physiotherapy treatment from CRP".

This statement reflects that, patients were not cure to receive only medication that's why, Patients used to receive physiotherapy along with drugs therapy.

So, this theme explains that, medication and physiotherapy both are effective treatment for the patients because this multidimensional treatment strategy had much more efficacy.

5.4 Home exercise is effective for Adhesive capsulitis patient

This theme illustrates the outcome of home exercise given by physiotherapist. The participant responses are displayed at below in table-06.

Participants Response	Pain is so much Reduced	Pain is reduced than before	Pain is no changed
P1	✓		
P2			✓
P3		✓	
P4		✓	
P5		✓	
P6	✓		
P7	✓		
P8		✓	
P9	✓		
P10		✓	
P11		✓	
P12		✓	
P13		✓	
Total	**4**	**8**	**1**

(P =Participants)

Table-6: Home exercise is effective for Adhesive capsulitis patient

This table represent that 4 participants (30.8%) said, their pain is so much reduced, other 8 participants (61.5%) said pain is reduced than before and only 1 participants (7.7%) said their pain was not changing through home exercises.

According to the 1st participant, "My shoulder pain is much better following home exercises and it lasts up to three to four hours and I am feeling better today".

This statement reflects the effectiveness of home exercise. He took different kinds of medication before coming at CRP but the pain had not been changed. Even after coming at CRP he also used to take both medication and physiotherapy treatment. He got good outcome after taking medication and following home exercise according to the prescription of the therapist. This means medication is not sufficient to manage the back pain rather physiotherapy along with home exercise had much more efficacy.

This statement reflects that many of the participants were not compliance with home exercise. Many of them were feeling less confident with home exercise, they feel uneasy and they only depend on therapist to solve their problem.

Overallthisthempresentsthathomeexerciseprogramisveryeffectiveforadhesive capsulitis patients. So if a patient follows home exercise according to the recommendation by Physiotherapist, it will solve the problem easily.

5.5 Physiotherapy treatment cost is not affordable

Here the researcher wanted to know the patient perception of the cost of their care. To find out it, every participant was asked-what is your opinion about the physiotherapy treatment expenses. The participant responses are displayed at below in table-07.

Participants response	Accessible and bearable	The physiotherapy treatment cost is not affordable	Not expensive
P1	✓		
P2	✓		
P3		✓	
P4		✓	
P5		✓	
P6		✓	
P7			✓
P8			✓
P9		✓	
P10		✓	
P11		✓	
P12			✓
P13			✓
Total	**2**	**7**	**4**

(P =Participants)

Table-7: Physiotherapy treatment cost is not affordable

This table represents the participants view about expenditure of Physiotherapy treatment at CRP. 7 participants (53.9%) reported that the "cost of treatment is not affordable". 4 participants (26.7%) stated that, "physiotherapy treatment is no expensive" whereas only 2 of the participants (15.3%) stated that,"the cost of treatment is easy to accessible and bearable".

Different participants expressed their opinion in different ways. Among 3 participants one of them stated that, *"Per session treatment cost is 200 taka which is not affordable for me. That is why I take therapy after one week interval".*

Another one stated that, *"I wanted to take physiotherapy treatment regularly ifPhysiotherapy treatment cost could be less".*

This statement reflects that therapy cost is too much for them because they are still now off work and their income source is poor. That is why it is difficult to receive physiotherapy regularly.

5.6 Patients are quite satisfied with attitude of the physiotherapist

The researcher wanted to find out the physiotherapist attitude because through this the participants perspective towards the service is influenced. The participant responses are displayed at below intable-08.

Participants Response	Very good Behavior	Good behavior & Communicative	Behavior is not Good
P1	✓		
P2		✓	
P3	✓		
P4		✓	
P5	✓		
P6	✓		
P7	✓		
P8		✓	
P9			✓
P10		✓	
P11		✓	
P12		✓	
P13		✓	
Total	**5**	**7**	**1**

(P =Participants)

Table-8: Patients are quite satisfied with attitude of the physiotherapist

This theme covers the issues on relationship between the patient and therapist. 7 participants (53.9%) stated that therapist behavior is good and also communicative, 5 of the participants (33.3%) stated that, therapist's behavior is very good, and only 1 participants (7.7%) stated that therapist behavior is not good.

Among 7 participants one of them are said that, *"Physiotherapist's behavior is good, therapists were very communicative during treatment time".*

These statements reflect the physiotherapist developed trust of the patients showing professional attitude.

Another one participant stated that, *"The behavior of physiotherapist is good. My therapist was very cooperative and friendly. He/she gives lot of effort in order to make me cure.*

This statement reflects that, patient is satisfied with the behavior of CRP's physiotherapist. Therapists are so much cooperative with the patient This theme represent that 53.9% participants express physiotherapist's attitude is good, polite and also communicative and cooperative. We can see that the physiotherapist has a very positive professional behavior than other professionals.

5.7 Physiotherapist provides much time to solve patients problem

This theme describes the opinion of the patient about treatment schedule which is given by therapist. The researcher asked the same question from the participants to know the valuable opinion of them. The participant responses are displayed at below in table-09.

Participants response	Give enough time for Treatment	Time is less for treatment
P1	✓	
P2	✓	
P3	✓	
P4		✓
P5	✓	
P6	✓	
P7	✓	
P8	✓	
P9		✓
P10	✓	
P11	✓	
P12	✓	
P13	✓	
Total	**11**	**2**

(P =Participants)

Table-9: Physiotherapist provide much time to solve patients problem

This table represents the participants view about treatment schedule. 11 respondents (84.7%) represented that therapist used to give enough time, other 2 participants (15.3%) represented that the time given by therapist was not enough.

Among 11 participants 2 of them stated that, *"Physiotherapist given enough time to me*. 2 of the participants stated that, *"Physiotherapist used to give me enough time. Sometime hegave me extra time to cure my condition"*.

The underline causes for this respond is closely related with the outcome of the patients followed by physiotherapy. This domain is closely associated with patient satisfaction.

5.8 Physical environment in physiotherapy department is user friendly

The researcher wanted to know the perception of the patients about environment of the therapy place and surrounding at CRP. To find out this opinion every participant was asked the same question. The participant responses are displayed at below in table-10

Participants Response	Department is neat and clean and well decorated	CRP Environment is calm and quiet	CRP Environment is very beautiful
P1			✓
P2			✓
P3	✓		
P4		✓	
P5			✓
P6	✓		
P7	✓		
P8	✓		
P9	✓		
P10		✓	
P11		✓	
P12	✓		
P13	✓		
Total	**7**	**3**	**3**

(P =Participants)

Table-10: Physical environment in physiotherapy department user friendly

This table shows that the different opinion about environment. 7 participants (46.7%) are impressed with the physical environment of physiotherapy department. They found, the department is neat and clean.3 respondents (23%) said, Environment of the CRP is calm and quiet, and another 43 participants (23%) CRP environment is very beautiful.

Among 7 respondents, one of them stated that,*"Treatment place is neat and clean. I am very pleased".*

Another participant stated that,*"The environment of CRP is very beautiful".*

These statements represent that; environment of service centre should be peaceful, safe and must have neat and clean. If the treatment place is peaceful and quiet the patient may feel comfortable and also patient may be motivated to take physiotherapy. So these are very important to achieve patient satisfaction.

5.9 Physiotherapy is effective treatment

The researcher wanted to find out which are the convenient treatment to the patient according to cost and effectiveness. To find out it every participant was asked the same question. The participant responses are displayed at below in table-11.

Participants Response	Physiotherapy Treatment	Medication and physiotherapy (both)	Confused among medication and physiotherapy
P1	✓		
P2		✓	
P3	✓		
P4	✓		
P5	✓		
P6		✓	
P7		✓	
P8	✓		
P9	✓		
P10	✓		
P11	✓		
P12		✓	
P13		✓	
Total	**8**	**5**	**0**

(P =Participants)

Table-11: Physiotherapy is effective treatment

In this table majority of participants (61.5%) stated that, physiotherapy is a most effective treatment for them, 5 participant(38.4%) said both medication and physiotherapy is effective treatment.

Another respondent express that, *"I took drug for longtime but result was not satisfactory. That is why I have received physiotherapy treatment from CRP. On the other hand medication has many side effects but physiotherapy has no side effect and that's why physiotherapy is effective for health. So I think physiotherapy is effective treatment for my condition".*

Another one said, *"I think physiotherapy is a cost effective treatment than medication for me because I have taken medication for longtime but ultimate result is not good. I have taken physiotherapy up to six sessions and now my condition is much better than before. I could not straight my back for pain but after received physiotherapy I can extend my back and my back pain is too much decrease".*

These statements represent that, most of the participants were not satisfied with the treatment of medication because they did not get good result to take medication only. Also medication has much adverse effect which has produced many harmful effects on the body. These statements also reflect that, the outcome of physiotherapy treatment is acceptable to all of the participants and it is an effective treatment for all of them.

So this theme represents that, effectiveness of physiotherapy care at CRP is an acceptable standard to solve shoulder pain. Majority of the participants were satisfied with this care. They got effective results from physiotherapy care whether they did not get sustainable relief by medicine.

The research area was relatively new. That is why researcher did not get a lot of literature addressing this area. The researcher was a 4th year B.Sc. in physiotherapy student and this was her first research project. She had limited experience with techniques and strategies in terms of the practical aspects of research. As it was the first research of the researcher so might be there were some mistakes by the researcher.

CHAPTER-VI CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

This study explores that perception towards medicine and physiotherapy treatment among adhesive capsulitis patients. The study results shows medication does not work for long time and it has short term benefit for adhesive capsulitis. Moreover, it has lot of side effects and very often patients are not aware about those. So awareness regarding side effects should raise among the general population. In mechanical problem the study shows that medicine has no longer effectiveness. Early Physiotherapy can prevent secondary complications.

6.2 Recommendations

The aim of the study to find out perception towards medicine and physiotherapy treatmentamong adhesive capsulitis patients. Patients attended at CRP. From this study it is concluded the effectiveness of physiotherapy treatment and no longer efficacy of medication. There are several issues come out by this study like a improvement is not sustainable with medicine for Adhesive Capsulitis, analgesic produces side effects, patient prefer multidimensional intervention, it will be solve their problem, home exercise is effective for Adhesive Capsulitis, physiotherapy treatment is not affordable, patient are quite satisfied with attitude of the physiotherapist, physiotherapist provide much time to solve patients problem, physical environment in physiotherapy department is user friendly and physiotherapy is effective treatment for Adhesive Capsulitis. Patients were satisfied with physiotherapy treatment care and disappointed with medication. In this study it is mentioned that participants are not aware about side effects of medicine. So it is very essential to increase awareness with in patients about adverse effect of drugs.one person of the participants mentioned that some physiotherapist behavior was not good. So it is very essential to have good behavior of other physiotherapist. In this study have some limitations that, the research area are relatively new, that is why researcher did not get a lot of literatures addressing this area. So to conduct further study in this area, more resources should be included. As the patient's perception was the outcome of physiotherapy treatment is effective and their expectation of the outcome raised very high. So it is recommended to do further research on patient's perception towards evidence based physiotherapy treatment for adhesive capsulitis and it is also recommended that the next generation of physiotherapy members continue study regarding this area, this may involve-use of large sample size and participants form different institute of Bangladesh where physiotherapy service are available.

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APPENDIX

1. Consent form (Bengali)
2. Consent form (English)
3. Questionnaire (Bengali)
4. Questionnaire (English)
5. Institutional Review Board (IRB)
6. Permission letter

বাংলাদেশ হেল্‌থ প্রফেশন্স ইনষ্টিটিউট (বিএইচপিআই)
BANGLADESH HEALTH PROFESSIONS INSTITUTE (BHPI)
(The Academic Institute of CRP)

Ref: CRP-BHPI/IRB/04/17/81 *Date:* 05/04/2017

To

Mst. Sayera
Bachelor of Science in Physiotherapy
Session: 2009-2010, DU Reg. No.: 849
BHPI, CRP, Savar, Dhaka-1343, Bangladesh

Subject: Approval of the thesis proposal – Perception towards Medication and Physiotherapy Treatment among Adhesive Capsulitis Patients attended at CRP.

Dear Mst. Sayera,

The Institutional Review Board (IRB) of BHPI has reviewed and discussed your application on February 17, 2016 to conduct the above mentioned thesis, with yourself, as the Principal investigator. The Following documents have been reviewed and approved:

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

Since the study involves answering a questionnaire that takes 20 to 30 minutes, have no likelihood of any harm to the participants, the members of the Ethics committee has approved the study to be conducted in the presented form at the meeting held at 08:30 AM on February 25, 2016 at BHPI.

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

Best regards,

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

CRP-Chapain, Savar, Dhaka-1343. Tel: 02-7745464-5, 7741404 , Fax: 02-7745069,
Email: contact@crp-bangladesh.org, www.crp-bangladesh.org

February 17, 2016
The Chairman
Institutional Review Board (IRB)
Bangladesh Health Professions Institute (BHPI)
CRP-Savar, Dhaka-1343, Bangladesh

Subject: **Application for review and ethical approval.**

Sir,

With due respect I would like to draw your kind attention that I am a student of Bachelor of Science in Physiotherapy at Bangladesh Health Professions Institute (BHPI)- an academic institute of CRP under Faculty of Medicine of University of Dhaka (DU). I have to conduct a thesis entitled, "Perception towards medication and physiotherapy treatment among adhesive capsulitis patients attend at CRP" under honorable supervisor, Md. Shofiqul Islam, Assistant Professor Department of Physiotherapy BHPI, CRP, Savar, Dhaka.The purpose of the study is to find out the perception towards medication and physiotherapy treatment among adhesive capsulitis patientsattend at CRP.
Questionnaire will be used that will take about 20 to 30 minutes. Data collectors will receive informed consents from all participants. Any data collected will be kept confidential.

Therefore I look forward to having your kind approval for the thesis proposal and to start data collection. I can also assure you that I will maintain all the requirements for study.

Sincerely yours,

Mst. Sayera Mst. Sayera
Bachelor of Science in Physiotherapy (B.Sc PT)
Session: 2009-2010, DU Reg. No.: 849
BHPI, CRP, Savar, Dhaka-1343, Bangladesh.

Recommendation from the thesis supervisor:

.....Shofiq.....
Md. Shofiqul Islam
Assistant Professor
Department of Physiotherapy
BHPI, CRP, Savar, Dhaka

Attachment: Thesis Proposal including measurement tools and process and procedure for maintaining confidentiality, Questionnaire (English version & Bangla version), Information sheet & consent.

সম্মতিপত্র

(অংশগ্রহনকারীকে পড়ে শোনাতে হবে)

আসসালামু আলাইকুম/ নমস্কার,

আমার নাম মোসাঃ সায়েরা, আমি এই গবেষণা প্রকল্পটি বাংলাদেশ হেল্‌থ প্রফেশন্স ইন্সটিটিউট বিএইচপিআই, (ঢাকা বিশ্ববিদ্যালয়ের চিকিৎসা অনুষদের অধীনে) পরিচালনা করছি যা আমার ফিজিওথেরপী স্নাতক কোর্সের অধিভূক্ত। আমার গবেষণা শিরোনাম হল "অ্যাডহেসিভ ক্যাপসুলাইটিস রোগীদের ঔষধ এবং ফিজিওথেরাপী সম্পর্কে উপলব্ধি"। আমার গবেষণা প্রকল্পটি পূরণে কিছু তথ্য সংগ্রহ করা প্রয়োজন। সুতরাং এই গবেষণার জন্য অংশগ্রহনকারীর সম্মতি প্রয়োজন এবং এতে আনুমানিক ২০-৩০ মিনিট সময় লাগবে।

আমি আপনাকে অবগতি করছি যে, এটা একটি একাডেমিক গবেষণা এবং যা অন্য কোন উদ্দেশ্য ব্যবহৃত হবে না। এই গবেষণা আপনার বর্তমান ও ভবিষ্যত পেশায় কোন প্রকার প্রভাব ফেলবেনা। আপনি যে সব তথ্য প্রদান করবেন তার গোপনীয়তা বজায় থাকবে। এই অধ্যয়নে আপনার অংশগ্রহন সেচ্ছা প্রনোদীত এবং আপনি যে কোন সময় এই অধ্যায়ন থেকে কোন নেতিবাচক ফলাফল ছাড়াই নিজেকে প্রতাহার করতে পারবেন। এছাড়াও কোন নির্দিষ্ট প্রশ্ন অপছন্দ হলে উত্তর না দেয়ার এবং সাক্ষাৎকারের সময় কোন উত্তর না দিতে চাওয়ার অধিকারও আপনার আছে।

শুরু করার আগে আপনার কি কোন প্রশ্ন আছে?

আমি আপনার অনুমতি নিয়ে সাক্ষাৎকার শুরু করতে যাচ্ছি।

হ্যাঁ.....

না.....

অংশগ্রহণকারীর স্বাক্ষর ও তারিখ.....

গবেষকের স্বাক্ষর ও তারিখ.....

সাক্ষীর স্বাক্ষর ও তারিখ.....

Inform Consent

Assalamualaikum\Namashkar,

I am Mst. Sayera, I am conducting a study for partial fulfillment of Bachelor of Science in Physiotherapy degree at Bangladesh Health Professions Institute (BHPI) (Under the Faculty of Medicine University of Dhaka). My research title is **" Perception Towards Medication and Physiotherapy Treatment among Adhesive Capsulitis Patients attended at CRP".** I need some information to fulfill my research project. So participants consent need for this research and it will take approximately 20-30 minutes. I would like to inform you that this is a purely academic study and will not be used for any other purposes. I also assure that all data will be kept confidential. Your participation will be voluntary. You may have the rights to withdraw consent and discontinue participation at any time from this study. Besides you also have the rights to reject a particular question that you don't like.

Do you have any questions before I start?

So, I can proceed with the interview.

Yes ☐ No ☐

Signature of the participant and Date……

Signature of the researcher and Date…….

Signature of the witness and Date…….

শিরোনামঃ সিআরপিতে অংশগ্রহণকারী অ্যাডহেসিভ ক্যাপসুলাইটিস রোগীদের ঔষধ এবং ফিজিওথেরাপি সম্পর্কে উপলব্ধি।

ব্যক্তিগত বিবরণঃ

তারিখঃ

কোড নং:

রোগীর নামঃ

বর্তমান ঠিকানাঃ

১। বয়সঃ

২। লিঙ্গঃ

৩। শিক্ষাগত যোগ্যতাঃ

৪। পেশাঃ

প্রশ্নাবলী

১। আপনার প্রধান সমস্যা কি?

উঃ

২। কতদিন ধরে আপনি ব্যাথায় ভুগছেন?

উঃ

৩। ব্যাথা শুরু হওয়ার কত দিন পরে আপনি সিআরপিতে থেরাপি নিতে এসেছেন?

উঃ

৪। আপনি কিভাবে সিআরপি সম্বন্ধে জেনেছেন?

উঃ

৫। অ্যাডহেসিভ ক্যাপসুলাইটিস এর জন্য আপনি প্রথমে কি চিকিৎসা গ্রহণ করেছিলেন?

উঃ

৬। চিকিৎসার ফলাফল কি ছিল?

উঃ

৭। আপনি কি এখনও ঔষধ সেবন করছেন?

উঃ ক) হ্যাঁ..... কেন?

খ) না..... কেন?

৮। ঔষধের পার্শ্বপ্রতিক্রিয়া সম্বন্ধে আপনি কতটুকু জানেন?

উঃ

৯। বর্তমানে ব্যাথার জন্য আপনি কোন পদ্ধতি অনুসরণ করছেন?

উঃ

১০। ফিজিওথেরাপিস্ট আপনাকে কি কি নির্দেশ দিয়েছেন সিআরপিতে এবং বাসায় অনুসরণ করার জন্য?

উঃ

১১। আপনি কি ফিজিওথেরাপিস্টের দেয়া পরামর্শ গুলো বাসায় অনুসরণ করছেন?

উঃ ক) হ্যাঁ..... কেন?

খ) না..... কেন?

১২। আপনি বাসায় যে পরামর্শ গুলো অনুসরণ করছেন তার ফলাফল কি?

উঃ

১৩। ফিজিওথেরাপি চিকিৎসা খরচ সম্পর্কে আপনার অভিমত কি?

উঃ

১৪। কিভাবে ফিজিওথেরাপিস্টের আচরণ আপনার সমস্যার সমাধান করতে উৎসাহিত করেছে?

উঃ

১৫। ফিজিওথেরাপিস্টের দেয়া সময় এবং সিআরপির পরিবেশ সম্পর্কে আপনার অভিমত কি?

উঃ

১৬। ভাল ফলাফল এবং চিকিৎসা খরচের উপর ভিত্তি করে কোন চিকিৎসা আপনার কাছে সুবিধাজনক বলে মনে হয়?

উঃ ক) ঔষধ..... কেন?

খ) ফিজিওথেরাপি..... কেন?

Questionnaire

(English)

Title: Perception towards the Medication and Physiotherapy Treatment among Adhesive Capsulitis Patients attended at CRP

Part-A: Socio-demographic information

Personal details

Date:

Code:

Patient name:

Present address:

Personal mobile no:

Socio demographic information

Age:

Gender:

Educational level:

Occupation:

Part-B: This part is designed to explore perception about medication and physiotherapy treatment for adhesive capsulitis patients.

Q.1: What is your main problem?

Answer:

Q.2: How long have you been suffering from pain?

Answer:

Q.3: How many days after starting pain you were came for therapy to CRP?

Answer:

Q.4: How was you aware about CRP?

Answer

Q,5: What is your initial treatment for adhesive capsulitis?

Answer:

Q.6: What was the outcome of the treatment?

Answer:

Q.7: Do you take medication often?

Answer: Yes…… Why?.....

No…… Why?.....

Q.8: Do you know adverse effect of drug?

Answer:

Q.9: What strategy do you follow to control your present pain?

Answer:

Q.10: What instruction was given by physiotherapist at CRP and as a home advice?

Answer:

Q.11: Do you follow home advice which is given by physiotherapist?

Answer:

Q.12: What is the outcome of home advice?

Answer:

Q.13: What is your opinion about the physiotherapy treatment expenses?

Answer:

Q.14: How therapist attitude encourage you to solve your problem?

Answer:

Q.15: Would you please give me your valuable opinion regarding time given by physiotherapist, treatment and environment of CRP?

Answer:

Q.16: Which one is convenient treatment for you according to effectiveness and cost?

Answer: Medication…….. Why?.....

Physiotherapy…….. Why?.....