CHARACTERISTICS OF MECHANICAL LOW BACK PAIN AMONG THE PATEINTS ATTENDING AT THE CENTRE FOR THE REHABILITATION OF THE PARALISED (CRP)

Mohammad Rezaul Karim

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

Session: 2005-2006

BHPI, CRP, Savar, Dhaka-1343

Bangladesh Health Professions Institute (BHPI)

Department of Physiotherapy

CRP, Savar, Dhaka- 1343.

Bangladesh

February, 2012

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

CHARACTERISTICS OF MECHANICAL LOW BACK PAIN AMONG THE PATEINTS ATTENDING AT THE CENTRE FOR THE REHABILITATION OF THE PARALISED (CRP)

Submitted by **Mohammad Rezaul Karim**, for partial fulfillment of the requirements for the degree of Bachelor of Science in Physiotherapy (B.Sc. PT).

……
Mohammad Anwar Hossain
B.Sc. PT (Hons.), Dip. Ortho. Med, MPH
Assistant Professor
Department of Physiotherapy
BHPI, CRP, Savar, Dhaka

…….
Md.Sohrab Hossain
B.Sc. PT (Hons.),Dip Ortho Med MPH
Assistant Professor of BHPI &
Head, Department of the Physiotherapy
CRP, Savar, Dhaka

……..
Nasirul Islam
B.Sc. PT (Hons.), MPH
Assistant Professor
Department of Physiotherapy
BHPI, CRP, Savar, Dhaka

……..
Md. Shofiqul Islam
B.Sc. PT (Hons.), MPH
Lecturer
Department of Physiotherapy
BHPI, CRP, Savar, Dhaka

……
Md. Obaidul Haque
B.Sc PT (Hons.), Dip. Ortho. Med, MPH
Assistant Professor & Course Coordinator
Department of Physiotherapy
BHPI, CRP, Savar, Dhaka

DECLERATION

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 information of the study. I would be bound to take written consent from my supervisor.

Signature: **Date:**

Mohammad Rezaul Karim

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

Session: 2005-2006

BHPI, CRP, Savar, Dhaka-1343

CONTENTS

Acknowledgement

The first gratitude goes to almighty Allah for giving me passion enough ability and intelligence to complete study successfully. I wish to express my sincere indebtedness to my supervisor, Mohammad Anwar Hossain, the assistant professor Bangladesh Health Professions Institute (BHPI), Department of Physiotherapy and also thanks to clinical physiotherapists of CRP, Savar, Dhaka for their constant and sympathetic guide encouragement and valuable suggestion at all stages to complete this study.

I also would like to thanks lecturers of BHPI especially my greatest gratitude to the respectable course coordinator and the assistant professor Md. Obaidul Haque, Md. Sohrab Hossain,Head,Department of physiotherapy and Md. Nasirul Islam,Md. Shofiqul Islam, the assistant professor Bangladesh Health Professions Institute (BHPI), Department of physiotherapy, who facilitates me and given contribution to complete this studies smoothly. I remain ever grateful to help for their guidance and support without I could not have come to this stage.

I also wish to express my heartiest to my colleagues especially Shimul Chanda and librarians of BHPI who helped me to providing information and using internet.

I am grateful to others who were engaged at any time for giving me valuable suggestion and helping me in different stages of the study that made my work easy and inspired me to work with enthusiasm.

I am grateful to my participants who gave me their valuable appointment and spend more time with me.

Abbreviations

CRP:	Centre of the Rehabilitation for the Paralyzed
BHPI:	Bangladesh Health Professions Institute
LBP:	Low Back Pain
MLBP:	Mechanical Low Back Pain
BMI:	Body Mass Index
SPSS:	Statistical Package for the Social Sciences

List of figures

Abstract

Purpose: To explore the characteristics of mechanical low back pain among the patients attending at the centre for the rehabilitation of the paralyzed (CRP).*Objective*: To explore the characteristics in the fields of socio-demographic, lifestyle related and work and posture related perspectives and their relationship with mechanical low back pain. *Methodology:* A cross sectional study was conducted with a structured and close ended interviewer administered questionnaire to collect information from 87 mechanical low back pain patients in respects through purposive sampling procedure. Data was numerically coded and captured in Microsoft excel, using an SPSS 16.0 version software program. *Result:* this study was found that, this survey showed female participants about 56.3% are most affected and its' contributory portion were housewives about 46.0% ,low socio economic condition revealed as low income about 39% and the prevalence of rural people about 43%,didn't regular physical exercise about 68%,higher body mass index expressed as obesed people about 35.6%,maintaining prolong sitting posture about 87.4% ,bending posture about 64%,squatting posture about 54.0% , employment period less than 12 hour about 51.7%,previous back injury about 51.7%,direct traumatic history about 48.3% including lower performing postures were lifting or twisting. *Conclusion:* This results of the current study indicates that higher prevalence of low back pain can be isolated by detecting the characteristics percentage among peoples in Bangladesh. This study can form a baseline for the physiotherapy services provision for the patient with low back pain.

CHAPTER – I: INTRODUCTION

1.1 Background

Pain is an unpleasant emotional state felt in the mind but identifiable as arising in a part of the body. In other words, it is a subjective sensation. Pain is a defense mechanism designed to make the subject protect an injured part from further damage. Low back pain is a common problem that causes substantial economic, social and psychological stresses for both the community and the individual (Wilde et al., 2007).

Low back pain (LBP) is a major health problem with two thirds of adults suffering from LBP at some time in their lives and approximately 12% to 44% have LBP at any given time (Janwantanakul et al.2011). An epidemiological survey claimed that 30.1% had never experienced LBP, 46.3% were moderate LBP and 23.6% were severe LBP (Frymoyer et al., 1983).

Of those experiencing low back pain, 30% to 70% will have recurrent episodes and Plowman (1992) claims that there is evidence that 12% to 26% of children and adolescents experience low back pain although most cases of low back pain occur in persons between that ages of 25 and 60 yr, peaking at about 40 yr (Kravitz, and Andrews,2010).

Low back pain is a common musculoskeletal complaint with significant long term morbidity. Up to 70-85% of the population experience back pain at some point in their adult lives. Recurrence rates are approximately 15% in the 12 months following an episode of back pain and approximately 6% of the whole population will be left with chronic disabling low back pain (Stevenson and Hay 2004).

It is often influenced by physical activities and posture in most cases. Demographic features such as age, gender etc and others some known risk factors for LBP are recurrent weight lifting, using vibrating equipment, sedentary life style, weakness of abdominal wall muscles, obesity, smoking, increased lumbar lordosis, scoliosis, cardiovascular disorders, low socioeconomic level etc (Tucer et al., 2009).

LBP is recognized as a work related musculoskeletal disorder resulting in high economic costs to workers, business and government institutions and thus occupational drivers those under 45 years of age suggested the increased risk for LBP regarding a variety of factors such as seating characteristics, prolong sitting, awkward posrures,lifting and carrying(Prado-Leon et al.,2007).

Certainly low back pain is one of the most frequent excuses of malingering, but sometimes it is little doubt that many people have real and severe problems. Mechanical influences must vital one because mechanical loading sometimes constitute the known risk factories for low back pain in general (Adams, 2011).

Low back pain is a significant cause of functional disability in both the working population. General population suffered by low back pain during their lifetime about 60 to 80 percent and approximately 20 percent of the general population is affected by low back pain each year whilst the annual incidence rate in European countries is approximately 40 percent. An annual incidence rate within the population of UK and Canada presented about 25 percent (Cole and Grimshaw, 2003).

People suffer from low back pain due to occupational stress and poor posture (Sarker and Rahman, 2007).Low back pain also aggravated by poor postures in both sedentary and manual workers (McKenzie, 1995).

Over a 6 month period, the National Health and Nutrition Education Survey reported 59 million people in the United States had acute or chronic back pain among patients aged 17-44 years. In Western Europe, back pain has been reported to affect up to 40% of adult population, with lower rates in Japan 19.1%.Back pain affects men and women approximately equally (McCarberg, 2010).

Now it is the most remarkable problem of the medical care of Bangladesh. Many patients visit out patient’s physiotherapy service for their low back pain problem. Evidence based health care received increased attention during the last decade and is important to monitor and improve quality of health care. Physiotherapy management of low back pain also needs to move forward in the mainstream of evidence-based healthcare (Bekkering et al., 2003).

1.2 Justification of the study

Low back pain (LBP) is the most common musculoskeletal condition in Bangladesh. LBP has become now a major medical, social and economic problem and the costs are comparable to those associated with coronary heart disease, diabetes or depressions. Thus diminishing the cost of LBP is a major health problem issue also. Moreover a large part of population has lack of physical fitness, didn't regular physical exercise, and lack of normal posture and leading of a sedentary life are most common prevalent predisposing characteristics of mechanical low back pain in Bangladesh. Stressful occupations, hard working and low income level increase the demand of physical activity that provide a continuous, prolonged stress on back ranging maximum to lower region with subsequent mechanical deformation of spinal structures or dysfunction of paraspinal musculatures causing acute, recurrent or chronic low back pain.

It is also known that once their presenting musculoskeletal condition especially low back pain has been effectively managed, patients are more likely to comply with their physio's advice to promote other aspects of their health including weight loss, increased regular physical exercise, correct abnormal posture as well as modification of stressful occupations to improve awareness regarding good lifestyle, health, nutrition and promote strength, flexibility and physical fitness.

Research on this study area can show the need for arrangement and participation in education programmes at CRP from the site of musculoskeletal department, besides the phyosio's guidelines, providing information about the LBP of mechanical origin that are closely related to characteristics found in this study, especially for those people who suffered and their family as well as community and through all over Bangladesh, and be a base for expanding the scope of the profession in this country. So, the researcher wanted to conduct the study and wanted to know the information about characteristics of low back pain for beneficial expectancies for both patients and physiotherapists.

1.3 Research Question

What are the characteristics of mechanical low back pain among the patients attending at the centre for the rehabilitation of the paralyzed (CRP)?

1.4 Objectives:

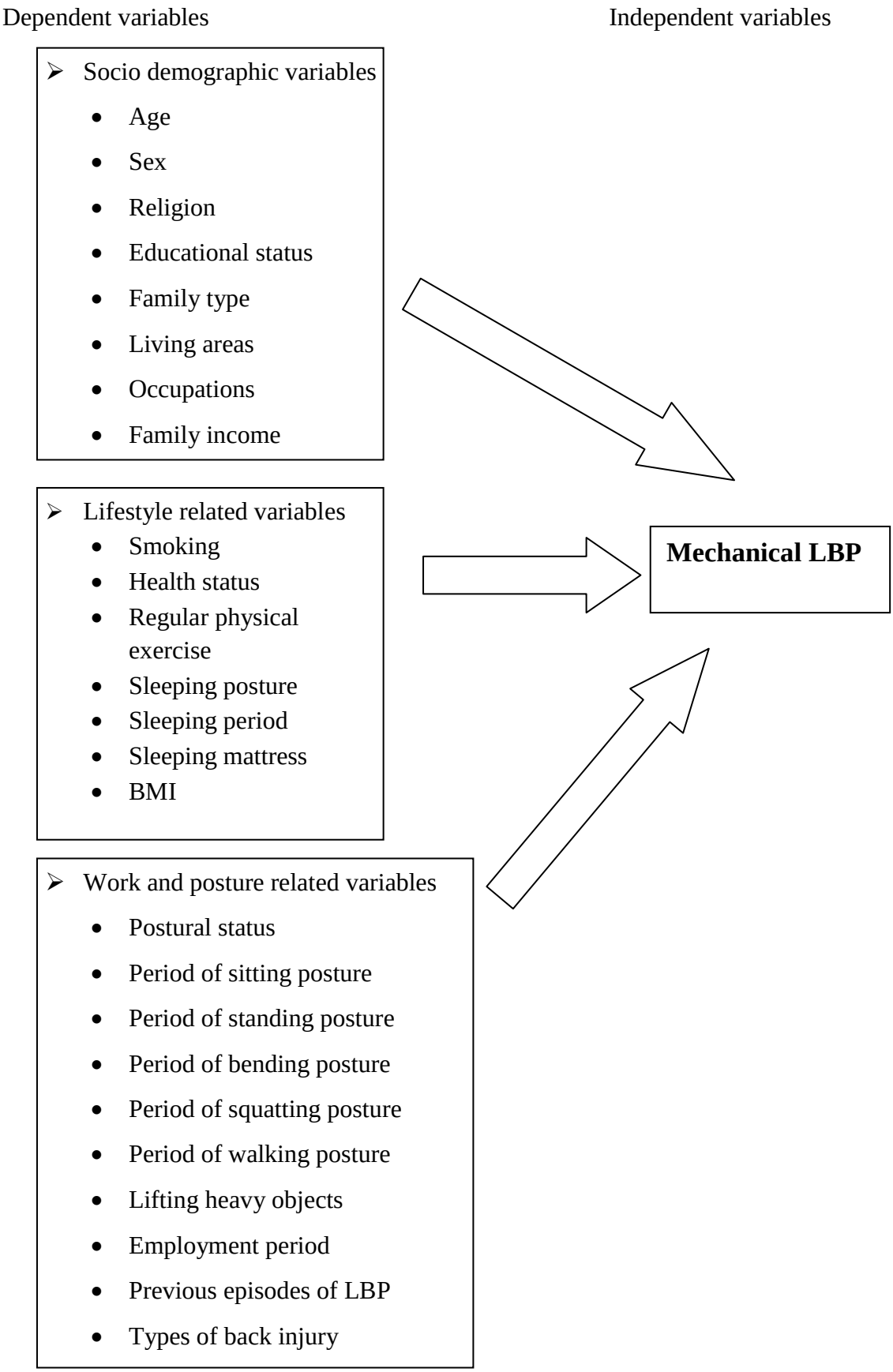
1.4.1 General Objective

- To explore the socio demographic characteristics.
- To explore the lifestyle related characteristics.
- To explore the work and posture related characteristics.

1.4.2 Specific Objective

- To find out the socio demographic information of people suffered with MLBP.
- To find out the information of male & female, age groups, occupations, income level, and educational status of people suffered with MLBP.
- To find out the lifestyle related information of people suffered with MLBP.
- To find out the information of lack of regular exercise, sleeping posture, sleeping period, sleeping mattress, smoking and obesity (BMI) of people suffered with MLBP.
- To find out the work & posture related information of people suffered with MLBP.
- To find out the information about vulnerable postures e.g. sitting, standing, bending, squatting and walking sustained more than normal period of patient suffered with MLBP.
- To find out the information regarding MLBP of precipitated by responsible factors such as lifting heavy objects, employment periods, and previous episodes of MLBP.
- To get information about various types of injuries such as direct trauma, twisting, lifting, carrying that responsible for future MLBP.

1.5 Conceptual framework



1.6 Operational definition

- **Pain**: Feeling of suffering or discomfort in a particular part of the body.
- **Mechanical**: A form of acute pain is related or aggravated by movement and worsened by coughing and relieved with rest which is typical of a herniated disc or stress fracture.
- **Low back pain**: Low back pain (LBP), perhaps more accurately called lumbago or lumbo sacral pain occurs below the 12th rib and above the gluteal folds.
- **Socio-demography**: A study of both quantitative and qualitative aspects of human populations that broken down by age, sex etc.
- **Age**: The number of years that a person has lived or a thing has existed.
- **Gender**: The fact of being male or female.
- **Area**: A rather small part of a geographical unit.
- **Urban area**: The area situated in a city or town where all facilities are available.
- **Rural area**: The area situated in a village or remote from urban where all facilities are not so available.
- **Educational status**: Level of acquiring knowledge.
- **Illiterate**: The person who is unable to read and write.
- **Primary education**: Education in the first years of school (up to class V).
- **Secondary education**: Education up to Secondary school certificate (SSC) passes.
- **Higher secondary education**: Education up to higher secondary school certificate (HSC) passes.
- **Graduate & Masters**: Person who holds a degree (Bachelor's) from a university.

CHAPTER – 2: LITERATURE REVIEW

2.1 Low back pain

Pain may be defined as an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage (International Association for the Study of Pain, 2011)Low back pain (LBP), perhaps more accurately called lumbago or lumbosacral pain occurs below the 12th rib and above the gluteal folds (Sikiru and Hanifa, 2010).

Back pain is any type of pain or discomfort throughout the posterior or back portion of the trunk, from the pelvis up through the neck (Better Medicine, 2010) If the intervertebral disc of lumbosacral spine mechanism disturbance or serious pathology affecting muscles, ligaments, disc, apophyseal joints and fascias then occurs in low back pain (McKenzie, 1995) Low back pain can affect the back anywhere below the ribs and above the legs (WebMD, 2011) It is also defined as pain between the costal margins and inferior gluteal folds (Taucer et al., 2009) Back pain is more common in the lower back, which supports most of the body's weight (Times Health Guide, 2011) Generally, the back pain is in the lower back on one or both sides, occasionally extending into the buttocks or thighs (Gale Encyclopedia of Public Health, 2002).

The term low back pain is a nonspecific phrase utilized to describe posterior trunk pain and muscular stiffness or spasm with or without diminished range of motion which is localized between the inferior costal margin and the posterior iliac crests and may include the present pain in combination with other symptoms such as buttock or leg pain (Rinkus and Knaub, 2008).

2.2 Types of low back pain

Category 1 depends on duration of pain

- Acute pain develops suddenly and lasts up to several weeks.
- Sub acute pain lasts up to 3 months.
- Chronic pain come on fast or slow, it lasts longer than 3 months (Times Health Guide, 2011).

Category 2 depends on nature of pain

- Mechanical pain meaning that the underlying cause is an anatomic or functional abnormality, rather than the underlying disease, malignant neoplasm, or manifestation of visceral disease (john & Licciardone, 2004).A form of acute pain, is related or aggravated by movement and worsened by coughing and relieved with rest which is typical of a herniated disc or stress fracture(Back.com, 2002).
- Non mechanical pain is constant and has little variation in intensity or with activity (RxPG, 2006).

2.2.1 Mechanical low back pain

Pain has a mechanical origin and occurs when the joint between two bones have been placed in a position that over stretches the surrounding soft tissues. This is true for mechanical pain in any joint of the body, including the spine (McKenzie, 1980) Structures such as intervertebral discs and joints lesion including degenerative disc lesion, synovitis or sprain of the sensory nerves of the various par vertebral structures that are responsible cause for mechanical back pain (Ebenezer, 2003).

Pain is experienced as soon as a mechanical deformation of innervated structures is sufficient to irritate free nerve endings. Pain will arise by the application of forces sufficient to stress to deform the structures. It is not necessary to actually damage tissue containing the nerve ending to provoke pain (McKenzie, 1990).

2.2.2 Syndromes of MLBP

- The postural syndrome is a mechanical deformation of postural origin causing pain of a strictly intermittent nature, which appears when the soft tissues surrounding the lumbar segments are placed on prolonged stretch. A frequently seen poor sitting posture includes a forward head, rounded shoulders, and a flexed low back.
- Dysfunction Syndrome Develops as a result of poor postural habit, spondylosis, trauma or derangement, the dysfunction syndrome is the condition in which adaptive shortening and resultant loss of mobility causes pain before achievement of full normal end range movement. Pain appears

during test movements at end range and abolishes as soon as the patient's soft tissues are off stretch.

- Derangement syndrome is the situation in which the normal resting position of the articular surfaces of two adjacent vertebrae is disturbed as a result of a change in the position of the fluid nucleus between these surfaces. The alteration in the position of the nucleus may also disturb annular material **(**The McKenzie approach-Virtual Healthcare System, 2011**).**

2.3 The demography of LBP

Demo means human beings; Graph means to draw a chart or a picture. So, demography is the scientific study of human population (Reza, 2006) Oxford Concise Medical Dictionary (2002) defined demography as, 'The statistical and quantitative study of characteristics of human populations on a national, regional or local basis in terms of age, sex and other variables including patterns of migration and survival. It is used in public health medicine to help identify health needs and risk factors.

2.4 Mechanical causes of LBP

- Common 3 McKenzie mechanical syndromes **(**The McKenzie approach-Virtual Healthcare System,2011**)**.
- Osteoarthritis or degenerative disc disease or spondylosis (American Family Physician, 2000; WebMD,2011;Health & Healing NYorg., 2011).
- Spondylolisthesis (American Family Physician, 2000; WebMD,2011).
- Spinal stenosis (Corrigan & Maitland, 1983;Kumar &Clark ,2002).
- Trauma (Kumar &Clark, 2002) initially it is mechanical but later it become chemical (McKenzie, 1981).
- Pregnancy (Apley & Solomon, 1993;Kumar & Clark, 2002).

2.5 Predisposing factors of MLBP

The predisposing factors for low back and its recurrence are mostly related to position and the short and long term consequences of maintaining them. Movement and activity may precipitate low back pain and therefore contribute to its incidence and recurrence.

It is often the unexpected and unguarded 'movement', that causes a sudden episode of low back pain. Lifting produces a strain, which is often a precipitation factor, especially when heavy, prolongs and repeated 'lifting', is involved (McKenzie, 1981) Low back pain is the most common disabling musculoskeletal symptoms and there is little understanding of regarding risk factors of low back pain. Certain mechanical stresses, repetitive heavy lifting, a sedentary life style, obesity, certain personality profiles and psychological stresses all have been cited as important risk factors associated with the frequency, severity and resultant disability of low back pain (Frymoyer et al., 1983).

The most frequently risk factors for LBP is heavy physical workload including lifting, awkward posture and whole body vibration. Life style factors including smoking behavior, lack of physical exercise and short sleep hours also increases LBP. Working periods for working population less than 8 hours are also risk population of LBP and common ages of affected over 40 years (Tomita et al., 2010) Obesity and pregnancy in its later stages, can however, distort the curvature of the spine and result in back pain (Ehrlich, 2003).

2.5.1 Postures as a predisposing factors

Abnormal or faulty postural mechanism may produce pain in lower back region. Most commonly occur LBP in situation of prolong flexion. In that case ligaments are overstretched and loaded and produce mechanical stress on that structure (McKenzie, 1995) poor sitting posture may produce back pain in itself without any additional other strains of living (McKenzie, 1995).

Some sleeping positions and work related postures such as standing and walking may develop low back pain. As the consequence postural or positional mechanism enhanced by overstretching of ligamentous structures may produce LBP (McKenzie, 1995) Working platforms' which are not adjusted to individual requirements, and poorly designed seating for domestic, commercial and transportation purpose will

prompt poor sitting posture (McKenzie, 1995) Some authorities have suggested that as much as 75% of all postural back pain is related to hyperlordosis (Borenstein and Wiesel, 1989).

2.6 Other predisposing factors

Low back pain seems to be associated with physical activity at work and in leisure time, certain lifestyle factors and demographic characteristics (Bjorck-Van Dijken et al., 2008)

Mechanical low back pain starts suddenly. It may be associated with occupations that involved heavy weight lifting, bending or twisting forces(Kumar and Clark, 2002) and heavy physical work, static work posture, pushing and pulling(Cox, 1999) Out of 230 reported LBP workers,8.2% had jobs with long working hours and 25.5% had service. In one study shows that 5.4% out of 378 were unemployed (Stanley et al., 2001).

The role of gender for common LBP is complex. Some studies showed that both male and female has chance to be a risk factor which depends on more likely to visit a health professional for consultation. Ratio found that 6% of female compared with 4% of male (Ozguler et al., 2000) Male are more affected than female (Waddel, 1998) Females have equal generalized low back pain complains when compared with males (Malanga et al., 2003) Stanley et al.,(2001)found that in the age group 18 to 65 years had consulted with a new episode of LBP in the year before the study. Obesity and sedentary life also cause low back pain (Perez, 2008) smoking and Lack of physical activity are also responsible for LBP (Waddel, 1998).

Body Mass Index is simple index of weight for height that is commonly used to classify underweight, overweight and obesity. The health risk associated with increasing BMI (WHO, 2004).

2.7 Aim of clinical assessment

- Exclude Red Flags.
- Identify any neurological deficit requiring urgent specialist management.
- Assess functional limitations caused by the pain.
- Determine clinical management options **(**New Zealand Society of Physiotherapists, 2004**)**.

2.8 Management of MLBP

A wide range of treatment is available for low back pain which depends on the causes and duration of lasting the symptoms. If patients are associated with acute low back pain, stay active rather than bed rest and consider taking over-the counter pain medicines. If the pain persists longer than 3 months, patient may benefit from more intensive treatment programme. Surgery is rarely needed for low back pain (WebMD answers, 2011).

2.8.1 Medical management

Medications containing anti-inflammatory medications, or NSAIDs, are helpful in treatment of both back pain and the associated inflammation with facing some common side effects also. Narcotic pain medications and muscle relaxers are often used to lead solve the symptoms of low back pain (Jonathan Cluett 2010) Spine surgery containing patient may benefit from surgical intervention, when all others treatment options seems to ineffective with progressive neurological deficit. Common spinal surgery consists of discectomy,foramenotomy,lumber laminectomy, lumbar spine fusion,kyphoplasty (eHow Health 2011).

2.8.2 Physiotherapy management

Chartered Society of Physiotherapy (2002) defined physiotherapy as "Physiotherapy is a health care profession concerned with human function and movement and maximizing potential:

- it uses physical approaches to promote, maintain and restore physical, psychological and social well-being, taking account of variations in health status
- it is science-based, committed to extending, applying, evaluating and reviewing the evidence that underpins and informs its practice and delivery
- The exercise of clinical judgment and informed interpretation is at its core

Postural correction is the common treatment for all syndromes. It allows the release of end stress loading in posture and dysfunction syndrome and maintenance for reduction in a derangement syndrome (poulter, 1996).

In many cases, physical therapy is an essential part of acute back pain rehabilitation to promote rapid recovery from pain and return to work as early as possible. Altemate applying of heat and ice is also helpful to relax the muscles and reduce inflammation (The Cleveland Clinic Foundation, 2011) In the treatment of sub acute and chronic spine pain, osteopathic physicians and chiropractors provide spinal manipulation techniques, such as thrust, muscle energy, counter-strain, articulation, and myofascial release (Levin, 2002).

The European Guidelines do not recommended the use of any specific programmes, such as stretching, strengthening, flexion or extension exercises for acute back pain. The McKenzie approach, is one of the most frequently used types of physiotherapy for back pain (Oxford Journal, 2005) A complete exercise program for the low back should consist of a combination of stretching for back pain relief, back strengthening exercises, low-impact aerobic exercise (Spine Health lower back pain,2007).

Regular, low impact cardiovascular exercises such as bicycling, walking or swimming ,Core strengthening exercises of abdominal and back muscles stability and gentle stretching for maintaining flexibility are group of exercise programme for the back and spine to avoid or prevent re-injury (Medtronic Sofamor Danek, 2011).

CHAPTER- III: METHODOLOGY

The major aim of the study was to answer the question of, 'Characteristics of mechanical low back pain among the patients attending at the centre for the rehabilitation of the paralyzed (CRP). This research setting in which the study was carried out including research methods used in the study, study design, study population, sampling method, instrumentation and data collection etc.

3.1 Study design

The researcher was used a quantitative cross sectional research model to explore the characteristics of mechanical low back pain. A quantitative research design was used so that there were used large number of participants and therefore to collect data. This means that was reduced to numbers for statistical analysis in order to draw conclusion.

The cross sectional survey study carried out among patients who were suffering from mechanical low back pain in Centre for the Rehabilitation of the Paralyzed (CRP) at Musculoskeletal unit. This study was conducted to determine the extent of characteristics associated with mechanical LBP.

The study questionnaire included items about the subject's socio demographic features, lifestyle related features and work & pouter related features.

3.2 Study site

Researcher was chosen musculoskeletal Department of CRP,Savar as a venue so that the researcher could obtain an appropriate sample with LBP. The researcher thought that it is the most suitable place because there has the availability of the desired sample.

3.3 Study period

All the data was collected and completed by the researcher himself by asking questions using a structured questionnaire from participants. There was taken time for data collection about 6 weeks from 21 November 2011 to 2 January 2012.

3.4 Study sampling and population

The sample was chosen purposively to conduct the study, as the using of purposive sampling method based upon the judgment of the researcher, in that a sample was made of elements that embrace the most characteristic, representative or typical attributes of the population to be studied. The researcher was developed a structured questionnaire for identifying the inclusive characteristics of subjects and then used to purify the members of the population, especially those subjects who were suffering from low back pain with considering the inclusion and exclusion criteria according to the close guidance of respected supervisors.

3.5 Study sample

Sample selection depends on the research question or hypothesis and the researcher's choice of location and characteristics. The sample was collected from the centre for the rehabilitation of the paralyzed at Musculoskeletal unit. For this study, the researcher was selected the participants who were suffering from mechanical low back pain according to the inclusion and exclusion criteria.

3.6 Sample size

The researcher was determined to take samples as large ranging from 50 to 100 or more of it within given time but number of sample was selected 87 maintaining the inclusion and exclusion criteria and within the scarcity of time.

The actual sample size for this study was calculated as 378, using the calculation of

Formula:

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

Here,

$Z(1-\frac{\alpha}{2})$ = 1.96

P = 0.44

q = 1-p

d = 0.05

3.7 Inclusion criteria

- Patient who agree willingly participate in the study as maintaining ethical rules.
- Age range 18 to 65 years as mechanical LBP patient's most commonly found in this age range (Bronfort et al., 2011).
- Both sexes of equal priority and accepted as people suffered with LBP of both sexes affected and founded in Bangladesh.
- Patient suffering with mechanical low back pain as exclude from non mechanical low back pain.

3.8 Exclusion criteria

- Children and older patient as mechanical LBP are rarely found on them.
- Mentally ill and medically unstable patient as they won't cooperate with researcher.
- Patient with cognitive problem as they won't cooperate with researcher.
- Acute PLID patients are unable to cooperate with researcher.
- Patient suffering from serious pathological diseases e.g. tumors, tuberosclerosis, rheumatoid arthritis, spondylitis etc as these are non mechanical origin source.
- Any severe fracture or existing red flags of spinal pain or interference from a concerned orthopedic consultant.

3.9 Materials of Data Collection

Data was collected by using a structured questionnaire paper set, developed by the investigators and validated by a jury of experts involved in the management of LBP (clinical physiotherapists),by conducting a face to face interview to collect information.

The questionnaire sought information on identification demographic information, lifestyle related information and work & posture related information. Some items is scored on a 4 point Likert scale. The researcher was also used pen and pencils, approved forms and consent forms, SPSS 16.0 versions software, BMI measuring tools includes weight machine and height measurement tape for collecting data in this study.

3.10 Questionnaire

The question types were structured and both close ended and open ended to purify the participants and for collecting the data for the findings of the study, therefore the researchers not predict or influence results with the research.

3.11 Data analysis

The coded responses on the questionnaire were then entered on the computer general purpose coding forms. They were analyzed using Statistical Package for the Social Sciences **(SPSS)** windows version 16.0.The results were presented with the use of simple percentage (%). The collected data was illustrated with tables, bar charts and pie charts also.

3.12 Ethical issues

The investigator was followed the guidelines given by local ethical review committee according to rules and guidelines of WCPT and BMRC.

The researcher took the permission from the academic authorities and then got permission from the research supervisor to conduct this study. The questionnaire with consent form was developed and approved by supervisor of the researcher. Each copy was filled by researcher himself with respondents' signature willingly. All the data was reviewed in strict secure and maintained confidentiality.

3.13 Informed consent

For this study consent form was given to subjects with explaining the purpose of the research and consent form verbally to gather information from the patients of mechanical low back pain.

According to the inform consent participation in fully voluntary and they had the right to withdraw at any time from this participation. The confidentiality also should have maintained. At any time the researcher was available to answer any additional questions in regard to the study to the participants.

3.14 Rigor

During the period of data collection and analysis, researcher always tried not to influence the process by his own perspectives, values and biases. When conducting the study the researcher took help form the supervisors and physiotherapists.

3.15 Limitations

This was a small study which needs to be replicated with larger numbers of participants. The sample size was limited due to scarcity of length of research project and had major problems with recruitment and retention of the sample on a given period of research project.

Moreover there was a major problem with same sample who received physiotherapy treatment as a regular patient on a given time. The shortage of selective patients' attendance resulted in a reduction of statistical power to estimate the empowerment of the research results.

With regard to the questionnaires used, ethical considerations and a lengthy questionnaire led to researcher using a single items measurement procedure that placed limitations on this finding. The questionnaires took approximately 20 to 25 minutes to complete. Time taken to complete the questionnaires was affected by factors such as explanation, asking relevant questions, in case of unable to realize the questions, there is brief explanations, measurements etc. Certain instrumental weakness (weight machine) may have little hampered to results.

To obey the purposive sampling criteria either inclusion or exclusion, there was a problem to select the appropriate sample form other musculoskeletal disordered patients.

CHAPTER – IV: RESULTS

All relevant information was analyzed by SPSS v.16 software. In this survey, variables were grouped into main three categories such as socio demographic, life style related and the posture and work related variables.

Socio demographic variables include the information about age, gender, marital status, religion educational status, family type, living areas, occupations and family income. Life style related variables include the information of smoking, health status, regular physical status, sleeping posture, sleeping period, sleeping mattress, and BMI. Work related variables containing information of postural status, lifting heavy object, employment period, episodes of back pain, back injury and back surgery etc.

All information was collected by using a structured questionnaire where most question types were close ended and information was gathered by a face to face interview with maintaining the ethical considerations from both the part of musculoskeletal department of physiotherapy in centre for the rehabilitation of the paralyzed (CRP) and the incoming indoor patient suffered by mechanical low back pain.

The researcher collected the descriptive data and calculated as percentages by using the Microsoft excel SPSS 16.0 version software programme and presented by using table, bar charts and pie charts. The number of respondents of answering questions was 87 where 43.7 %(38) were male and 56.3 %(49) were female participants. The study was conducted between 21 November 2011 to 2 January 2012 and the sample comprised 87 were selected purposively.

The collected data's from the survey were analyzed to explore the above gotten information to diminish the presenting complains of low back pain and the following findings were made. These data's analysis and description are as follows:

4.1 Percentage of male & female

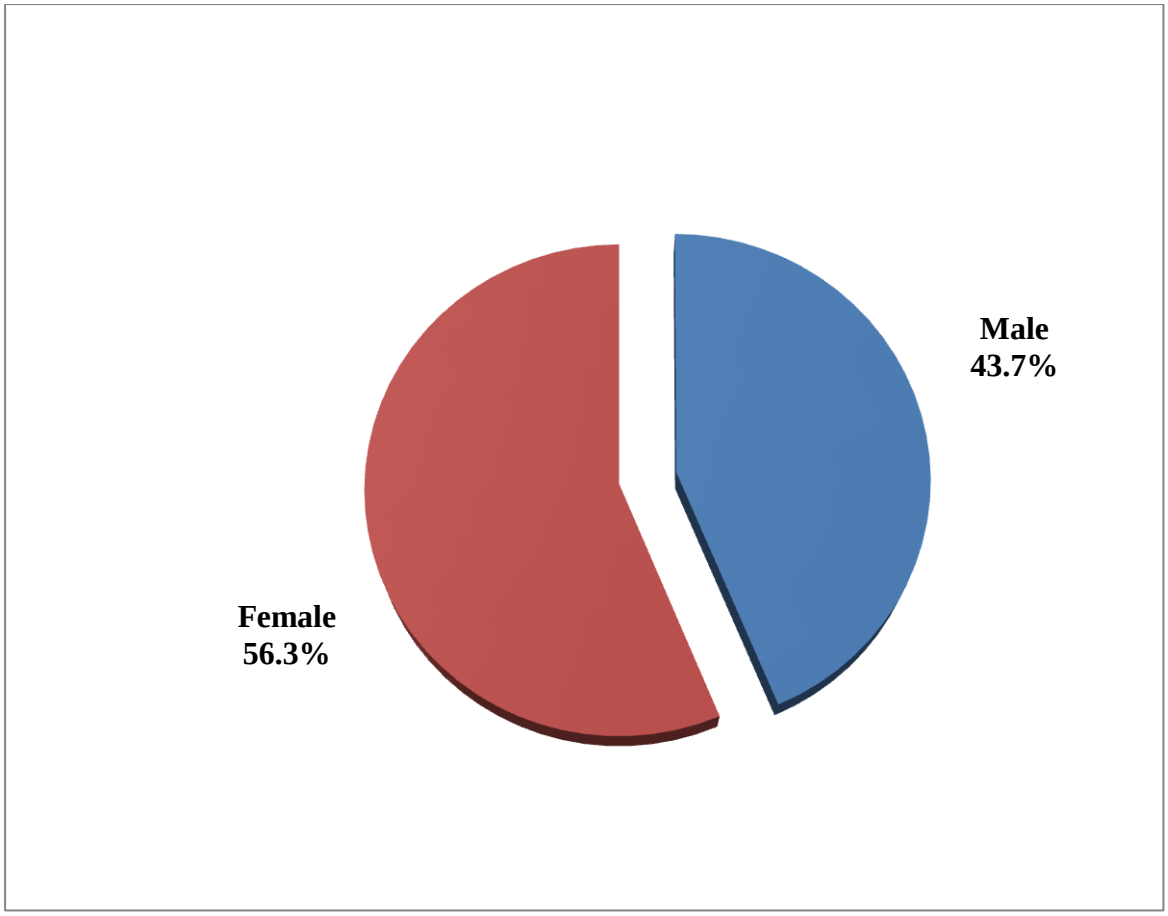


Figure-1: male & female percentage of the participants

Among 87 participants 43.7 %(n=38) were male and 56.3 %(n=49) were female.

From the above pie chart we can easily realize that both male and female patients came with low back pain. There was tendency for more women to report low back pain than men, but this difference generally was not statistically significant .This pie chart shows that 87 participants were collected by using purposive sampling.

4.2 Percentage of age groups

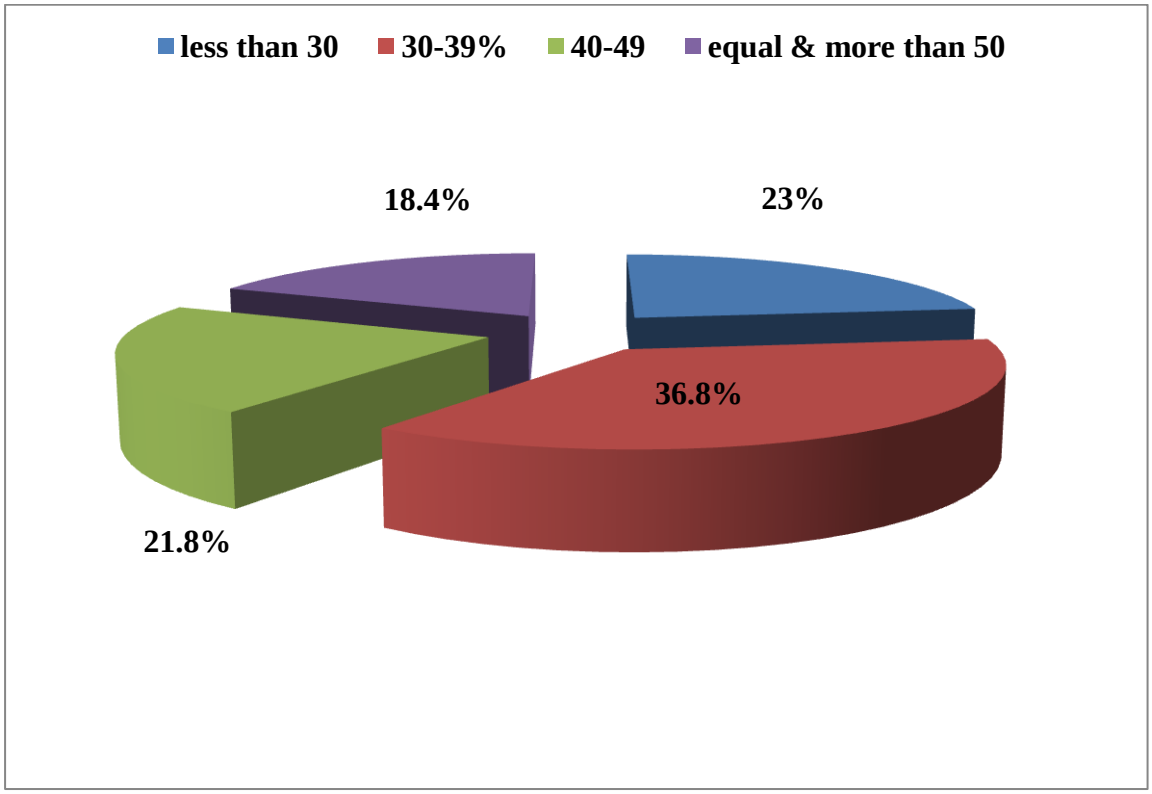


Figure-2: Age groups percentages of the participants

Ages are grouped into 4 categories that found in this study such as less than 30 were 23 %(n=20), 30-39 were 36.80 %(n=32), 40-49 were 21.80 %(n=19), equal & more than 50 were 18.40 %(n=16).

4.3 Percentage of occupations

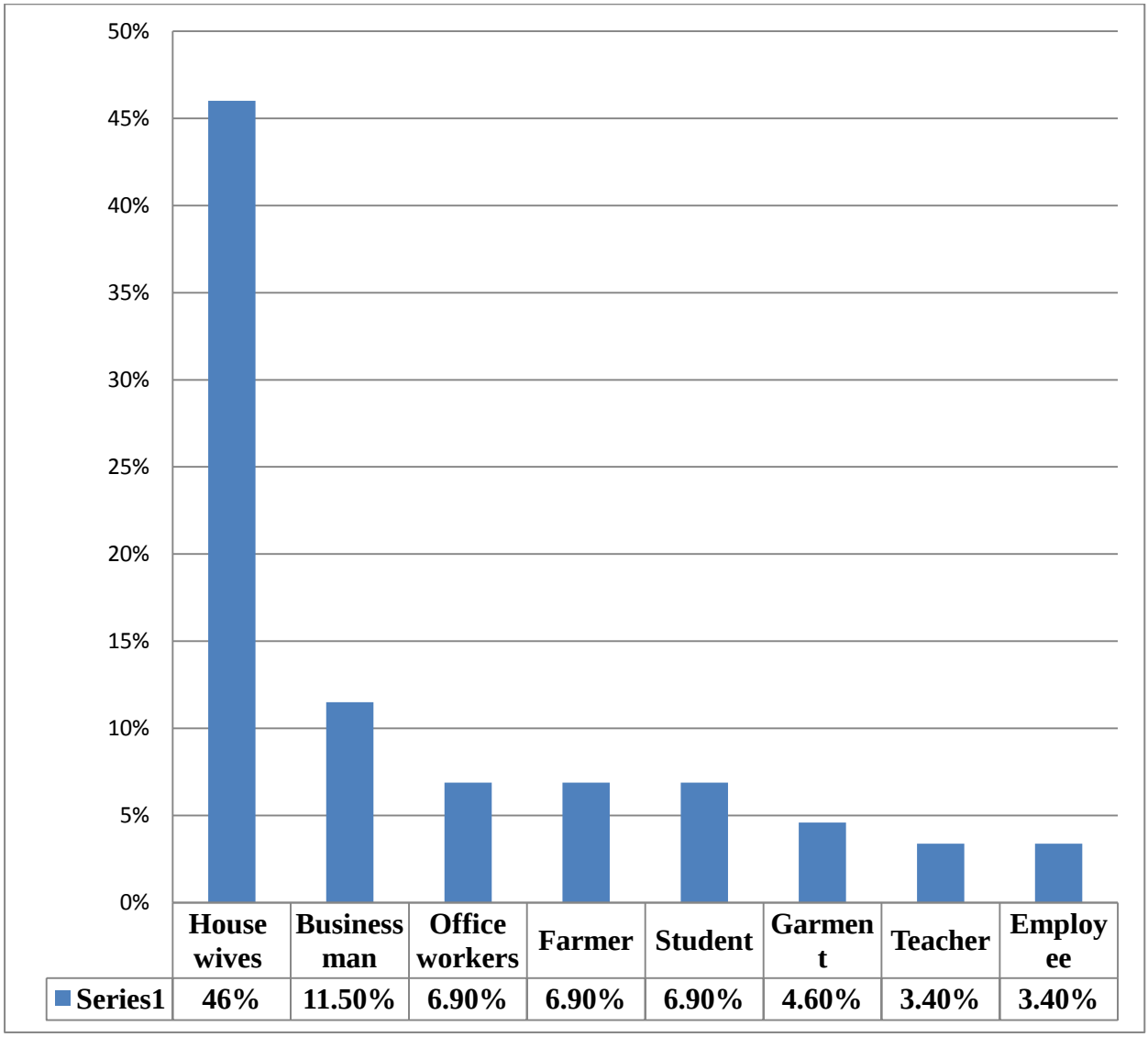


Figure-3: percentage of the various occupation groups

The results of the study focused that 46% (n=40) were house wives, 11.50% (n=10) were businessman, office workers, farmer & students are each of 6.90 %(n=6), 4.60% (n=4) were garments worker, teacher & employee are each of 3.40 %(n=3) and others are each of 1.1% (n=1).

4.4 Percentage of family income level

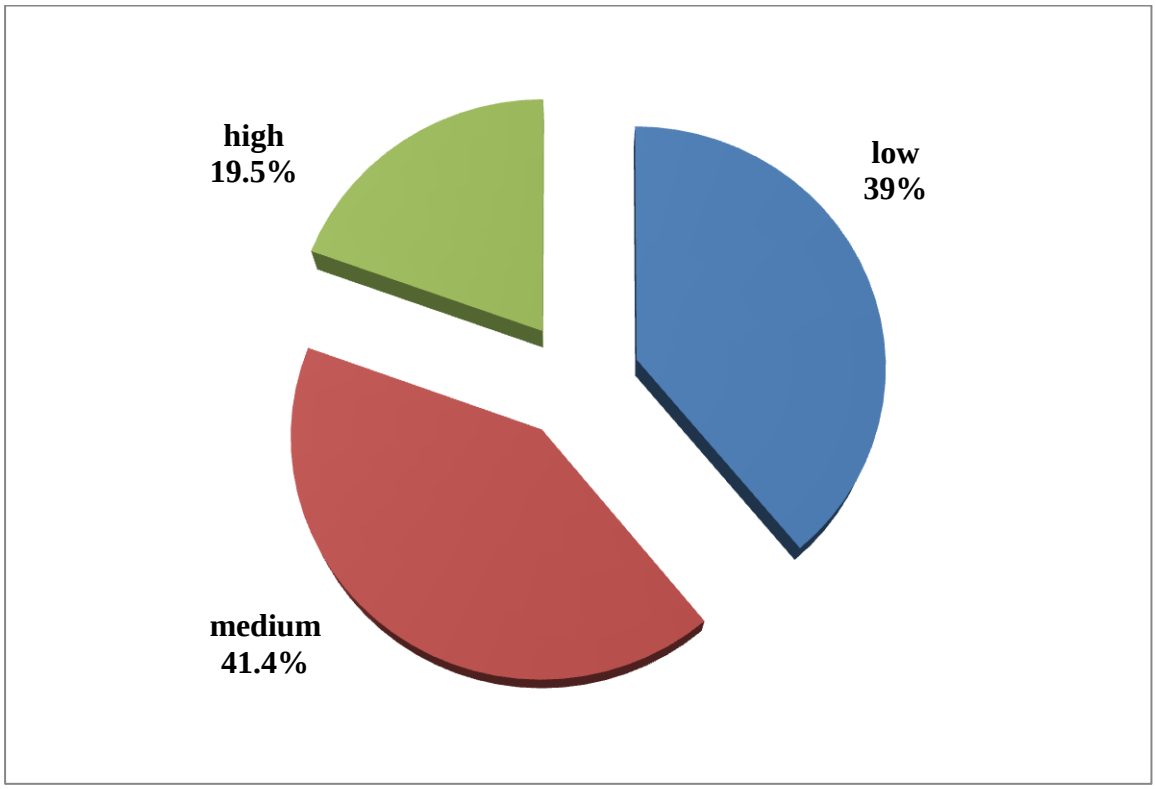


Figure-4: percentages of income level of each family of LBP patients.

The findings of the study represented that above percentage of income groups among participants low income were 39 %(n=34), moderate income were 41.40 %(n=36) and high income group were 19.50 %(n=17).

4.5 Percentage of educational status

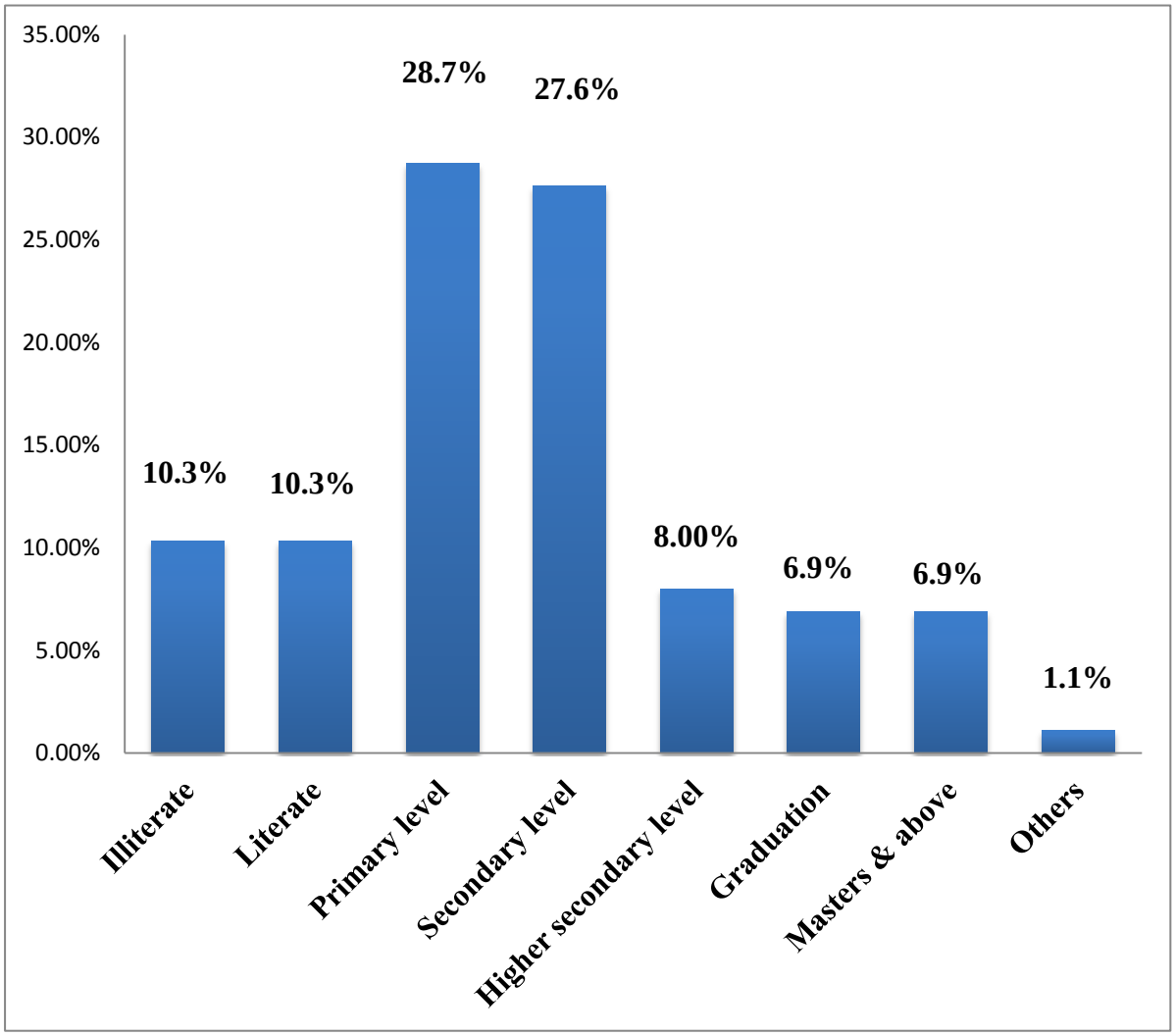


Figure-5: percentage of educational level of LBP patients.

In this study, it was found that both illiterate and literate level was equal about 10.3%,primary educational level were 28.7%, secondary educational level were 27.6%, higher secondary level were 8%, graduation level were 6.9%, masters and above level was 6.9% and others almost 1.1%.

4.6 Percentage of smoker

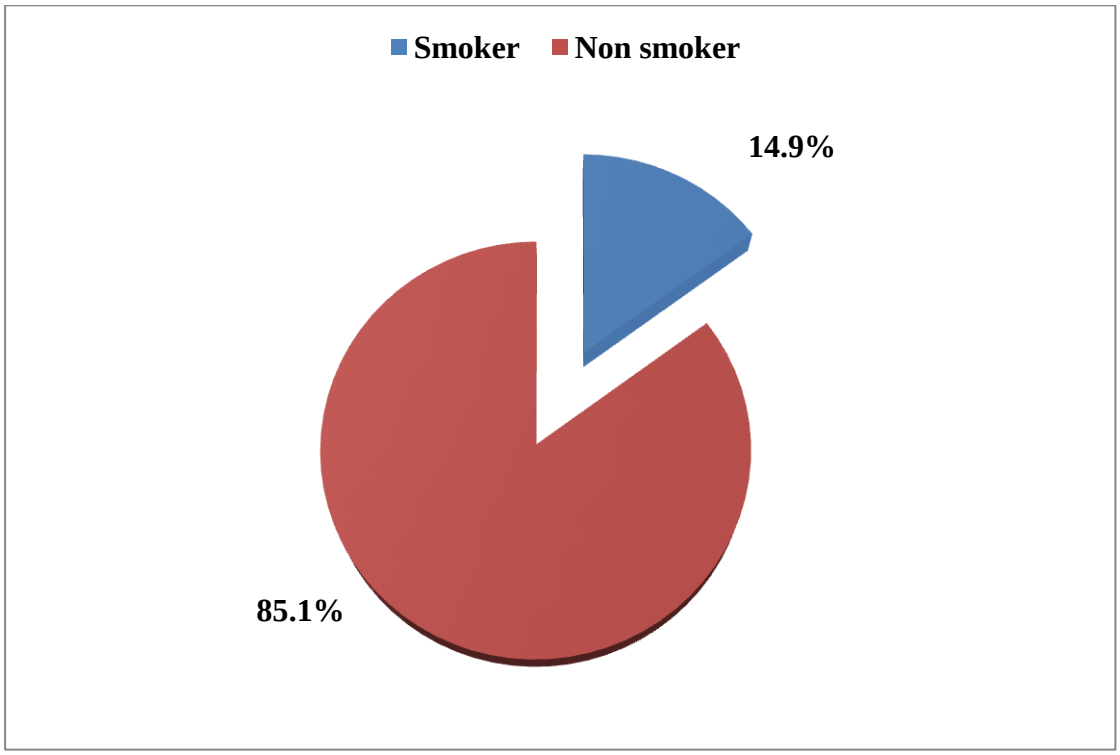


Figure-6: percentage of smoking status of LBP patients.

The above chart represented that about 85.1 %(n=74) were non smoker and smoker rate were 14.9 %(n=13) on those people who suffered with low back pain. It is also showed most of the male participants suffered with LBP are less commonly associated with smoking about 14.9% excluding the female participants.

4.7 Percentage of health status

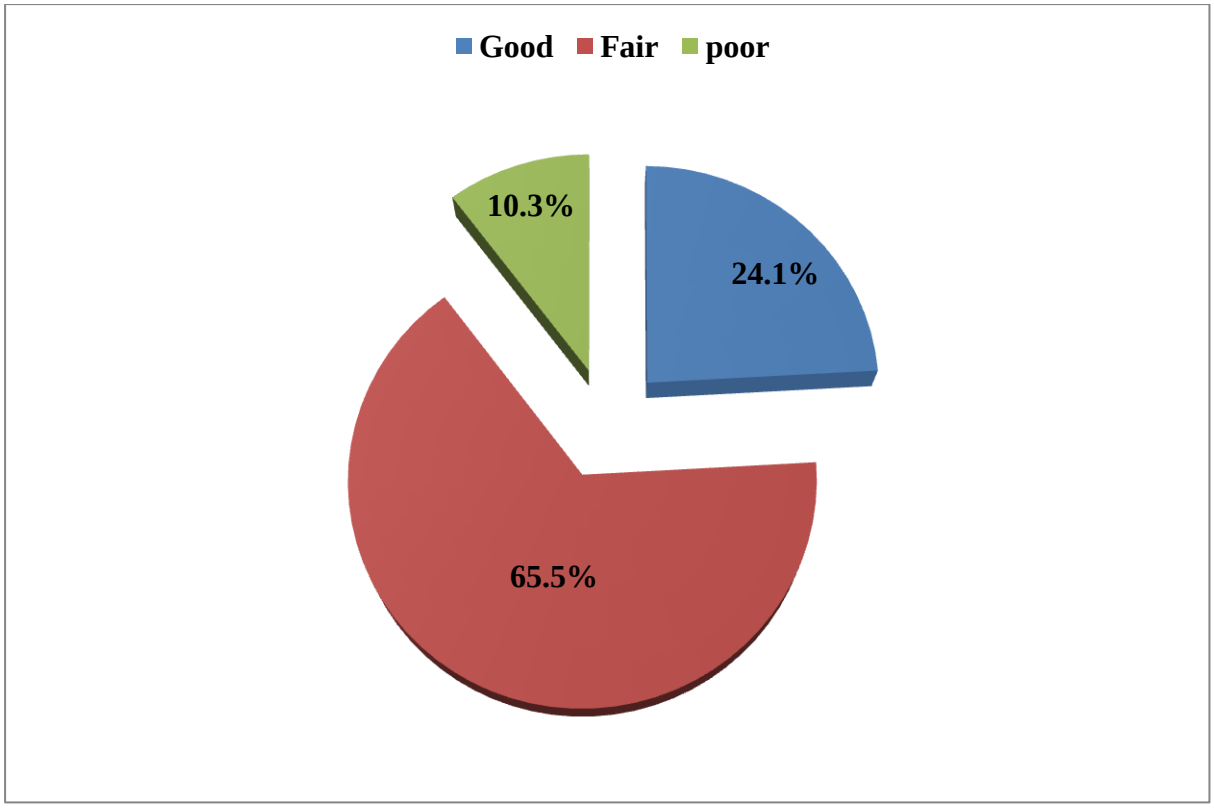


Figure-7: percentage of health status of LBP patients.

The findings of the study represented that above percentage of health status among participants, good health status were 24.1 %(n=21), fair health status were 65.5 %(n=57), poor health status were 10.3 %(n=9).

4.8 Percentage of performing regular physical exercise

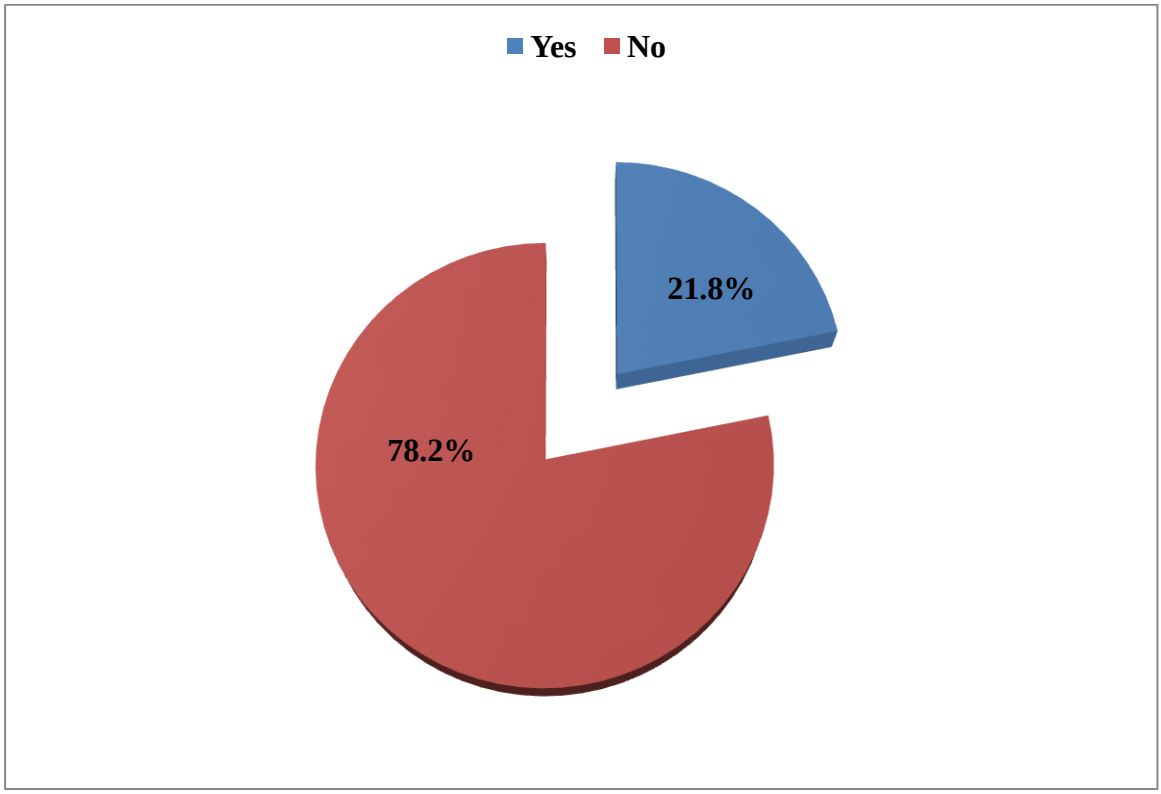


Figure-8: percentage of performing regular physical exercise of LBP patients.

This study showed that performing regular exercise of LBP patients about 21.8 %(n= 19) where about 78.2% (n=68) were non performer of physical exercise regularly. It also suggests that people suffered with LBP were more prevalent among non performer of regular physical exercise.

4.9 Percentage of sleeping posture

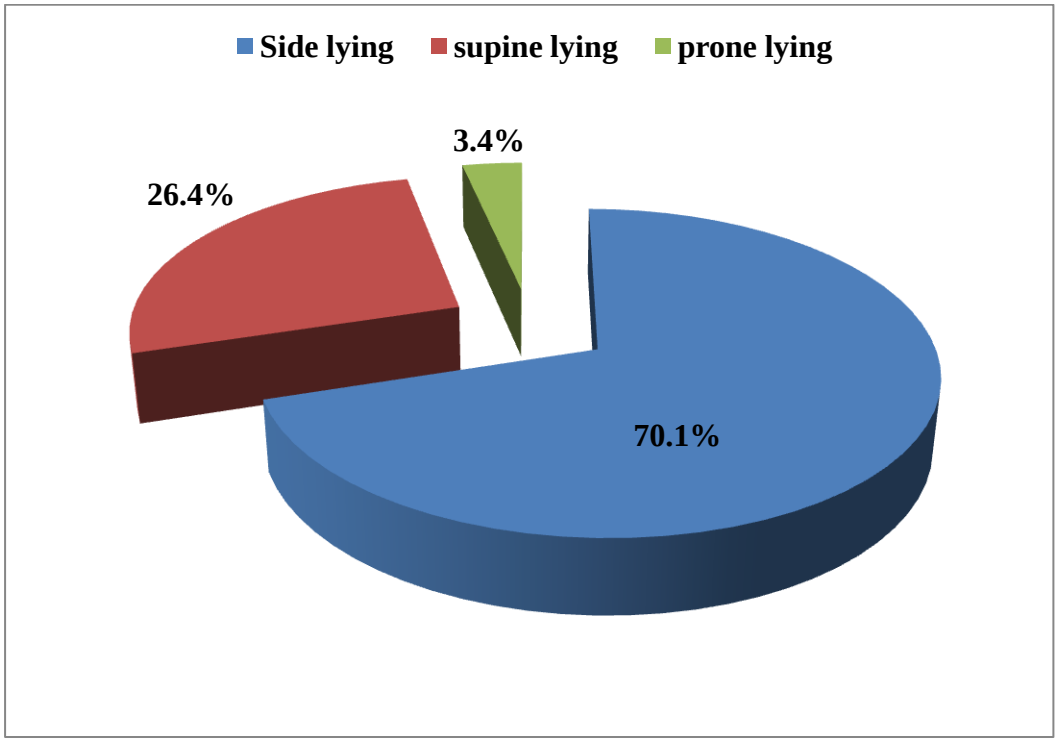


Figure-9: percentage of sleeping posture of LBP patients.

The study showed that patients suffered with LBP were most obtained side lying posture about 70.1 %(n=61), less obtained about supine lying 26.4 %(n=23) and prone lying 3.4 %(n=3) during their sleeping periods. It also suggests that side lying were most prevalent sleeping posture among patient of LBP.

4.10 Percentage of sleeping period

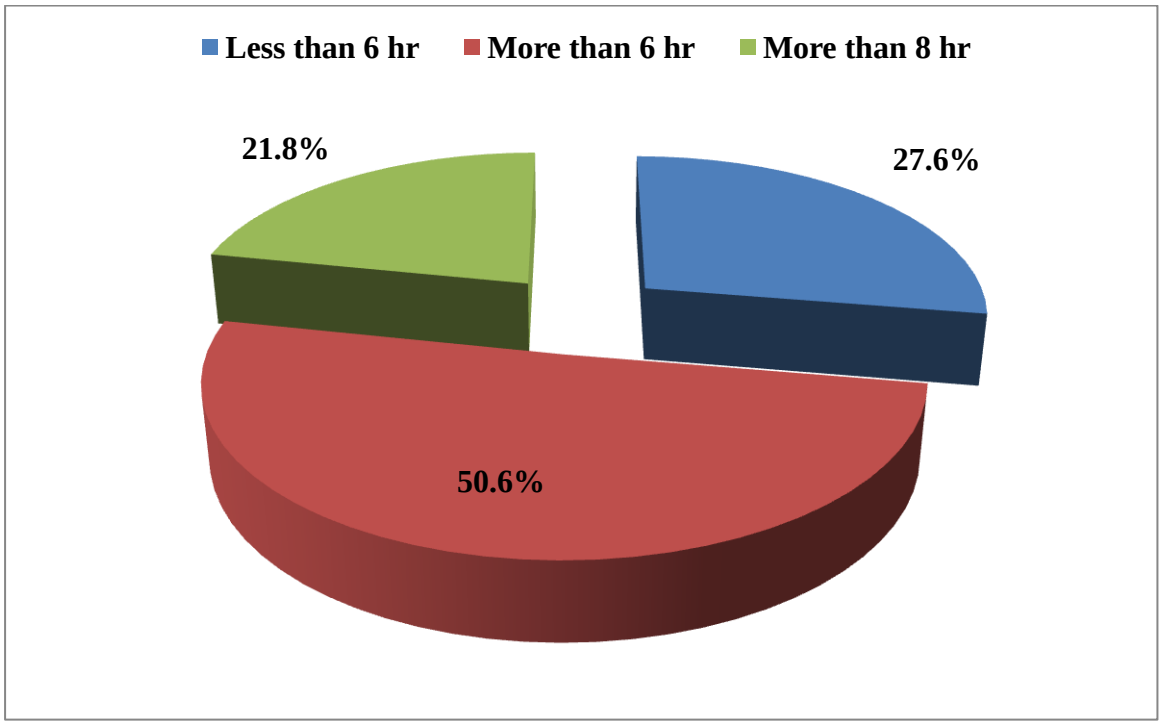


Figure-10: percentage of sleeping period of LBP patients.

The above chart showed that sleeping period more than 6 hour about 50.6 %(n= 44) of patients of LBP, less than 6 hour about 27.6 %(n= 24) and more than 8 hour were about 21.8 %(n=19).

4.11 Percentage of sleeping mattress

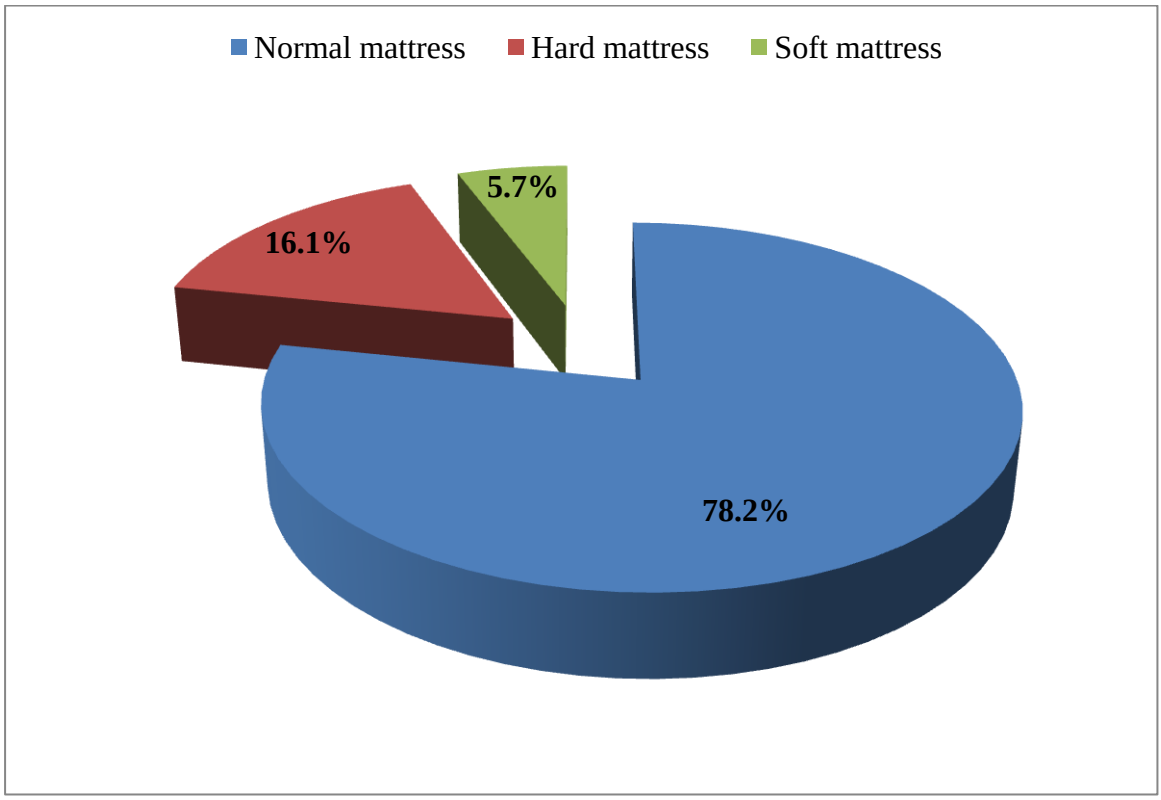


Figure-11: percentage of sleeping mattress of LBP patients.

This study showed that patients suffered with LBP were mostly used the normal mattress about 78.2% (n=68), 16.1 %(n=14) were used hard mattress and 5.7 %(n=5) were used soft mattress.

4.12 percentage of Body Mass Index

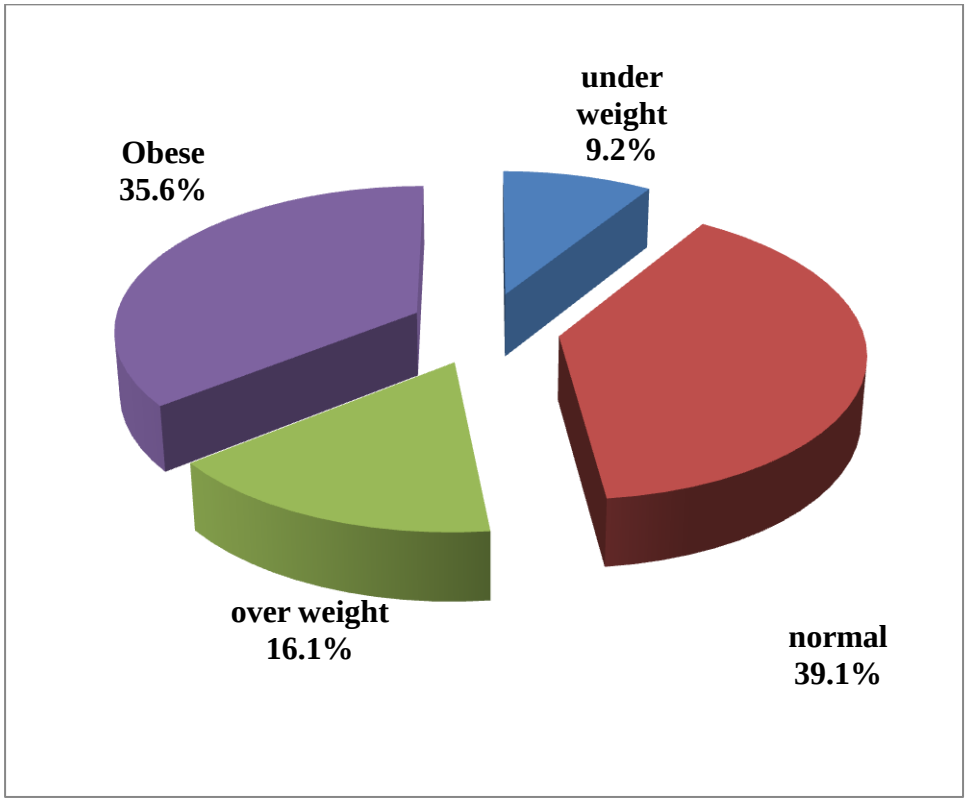


Figure-12: percentage of Body Mass Index of patients of LBP.

In this research project, Body Mass Index highlights that about 35.6%(n=31) were obese, over weighted about 16.1%(n=14),underweighted about 9.2%(n=8) and normal BMI about 39.1%(n=34).It suggests that higher BMI rating than normal is prevalent in the patient of mechanical low back pain.

4.13 Comparison of postures:

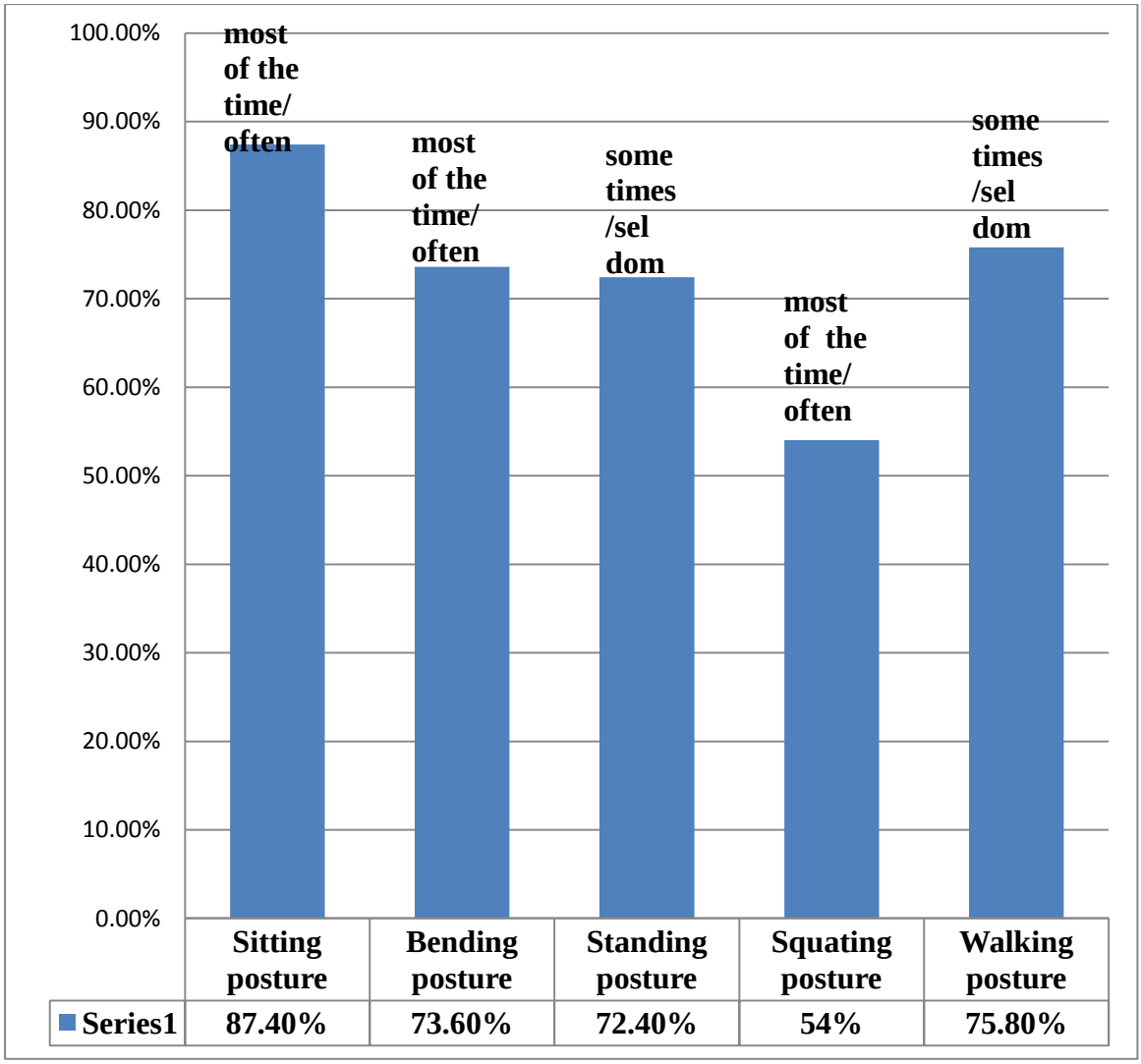


Figure-13: comparison of each postures of patients of LBP by percentage (total=87).

Most participants of LBP would prefer most of the time/often as sitting posture 87.4 %(n=76), bending posture 73.6 %(n=64), squatting posture 54 %(n=47) and sometimes or seldom maintained standing posture 72.4 %(n=63), walking posture 75.8 %(n=66).

4.14 Percentage of lifting heavy objects

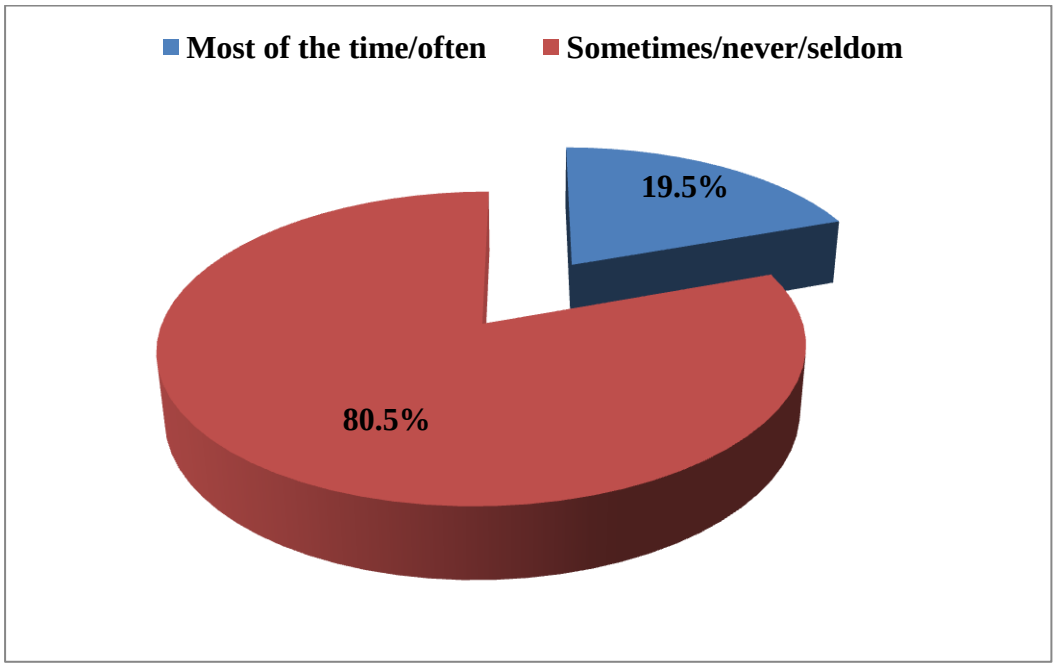


Figure-14: Percentages of lifting heavy objects of LBP patients.

The study showed that most of the time or often lifted heavy objects about 19.5 %(n=17) and sometimes or never or seldom lifted heavy objects about 80.5 %(n=70) of patients suffered with LBP.

4.15 Percentage of employment period

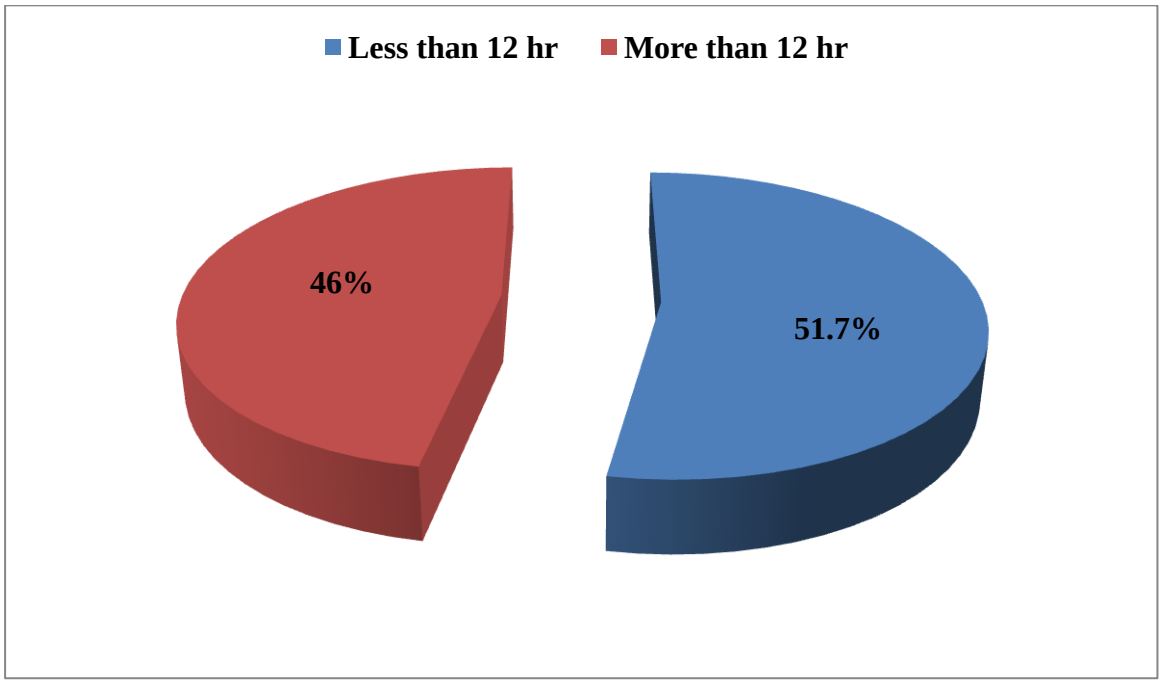


Figure-14: Percentages of employment period of LBP patients.

In this study it is found that employment period of patients suffered with LBP less than 12 hour about 51.7% (n=45) and more than 12 about46 %(n=40).

4.16 Percentage of Previous episodes of LBP

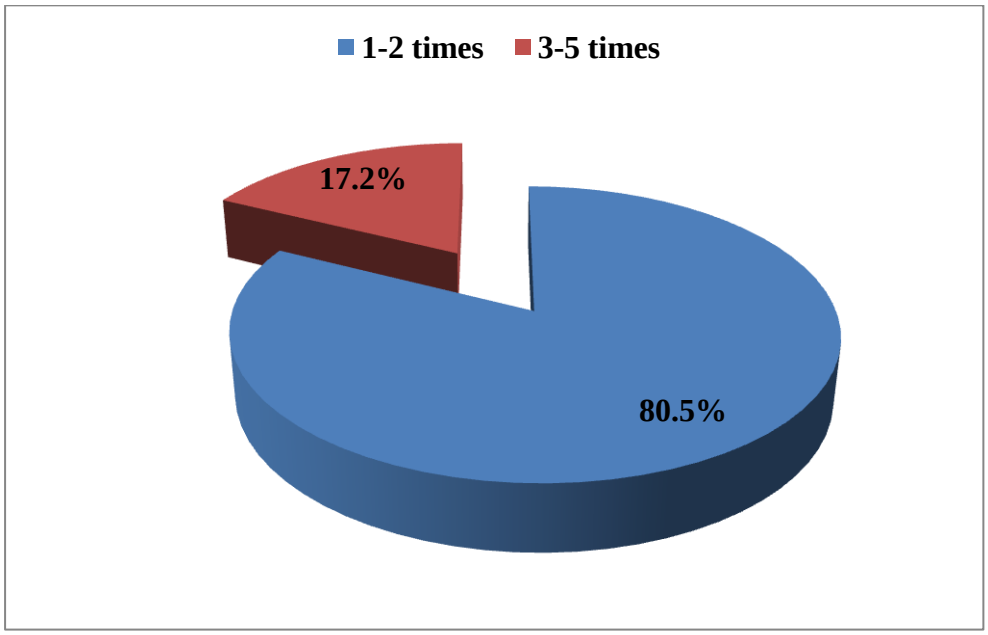


Figure-14: Percentages of previous episodes of LBP of the participants.

Previous episodes of LBP at least 1-2 times about 80.5 %(n=70) and 3-5 times about 17.2 %(n=15) among the participants who were suffered with LBP in this study projects. It also suggests that acute and sub acute pain prevalence is higher among the patients of LBP whereas chronic LBP were less common.

4.17 percentage of back injury

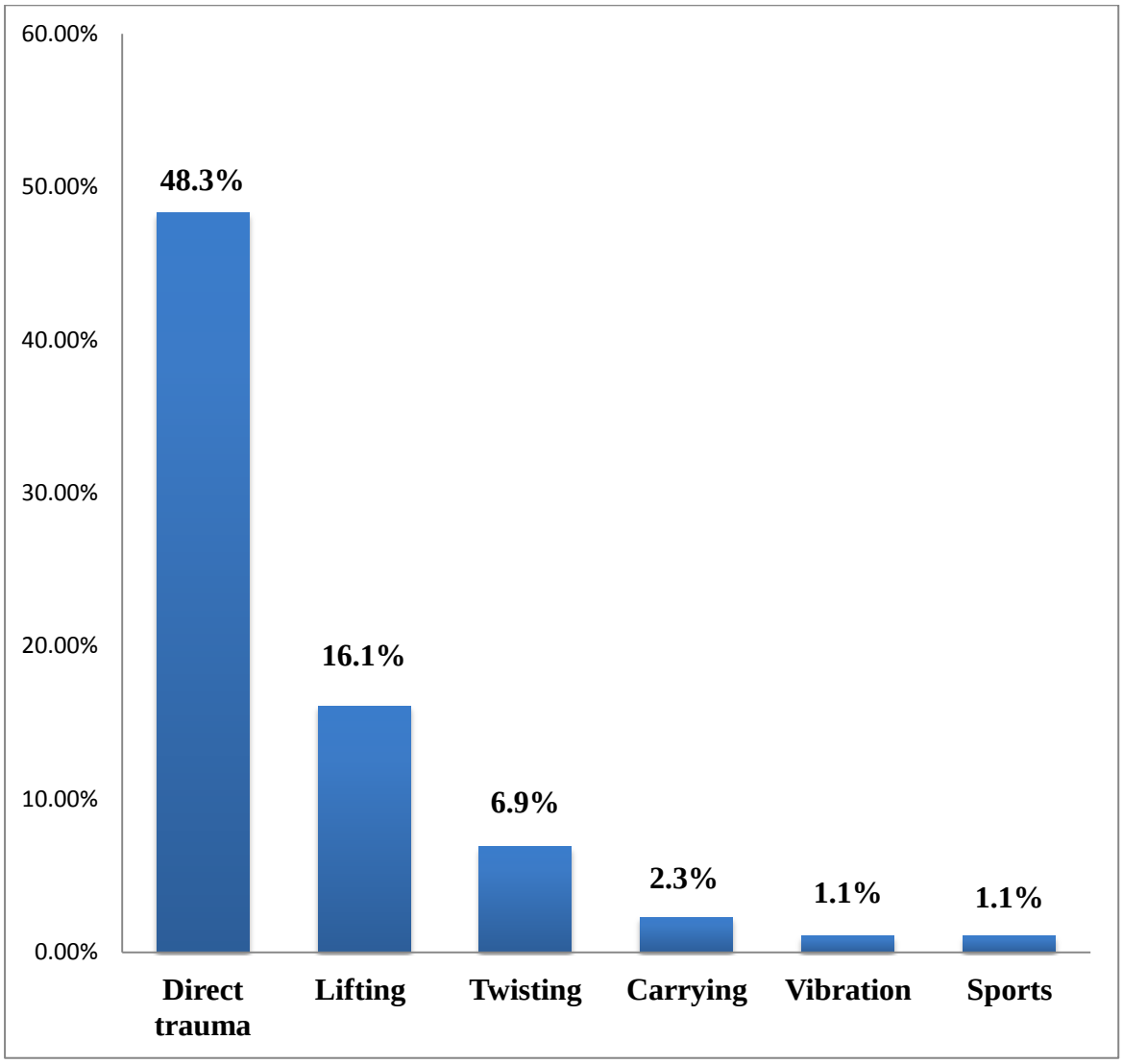


Figure-17: Percentages of types of injury of low back patients

The above chart showed the result that suggest 48.3% patients were direct trauma,16.1% were lifting injury,6.9% were twisting injury,2.3% were carrying, vibration and sports injury is about 1.1%.It is also suggests that high incidence of low back pain occurrence precipitated by direct trauma.

CHAPTER-V: DISCUSSION

The researcher aim was to explore the characteristics of mechanical low back pain among the patients attending at the centre for the rehabilitation of the paralyzed (CRP).A variety of characteristics had been found from the selected samples whether it is acute, sub acute or chronic type mechanical low back pain by a categorized variable outcome that are socio demographic, lifestyle related and posture & work related.

Characteristics refers to those features or factors that responsible for causing low back pain and mechanical means that are symptoms introduced by postures and movements with excluding the disease conditions such as tuberculosis, rheumatoid arthritis, spondlytis, tumors etc.

This was a prospective type of survey on 87 participants who were complained of mechanical low back pain where 43.7 %(38) were male and 56.3 %(49) were female. A Swedish studies showed that, among 41% of the participants reported having low back pain and of these 55% were women and 45% men (Bjorck-van Dijken et al 2008).A epidemiol community health study stated that the most affecting age group was 30 to 39 aged people where men were 39.9% and women were 38.9% (Ozguler et al. 2000).

In 2003 Bangladesh Bureau of Statistics, estimate 12.7 million women in Bangladesh do household activity and the majority of women were working in the sitting and forward bending position during their household activities which are harmful for their position. A Turkish study claimed that about 31.2% housewives are suffered by lumbar pain (Taucer et al., 2009).

The findings in this study of higher levels of physical inactivity and higher Body Mass Index are known risk factors associated with LBP.A epidemiol community health study claimed that subjects with a BMI of 34.1% male & 15.6% are overweight and 35.2% male & 14.5% female are obese from 725 participants in a study with 6 month prevalence's (Ozguler et al. 2000).

A Thai study showed that among 165 workers with one year prevalence,120 workers didn't regular physical exercises,64 workers lifting heavy loads of 5 kg,maintained sitting posture 89 person, bending posture 137 person, twisting posture 141 person most of the time or often (Stomita et al. 2010).

The researcher found that most of the LBP patients were less educated about 28.7% were at primary level and a Thai study stated that 46.1% were at educated as primary level (Stomita et al., 2010).In this study also found that most participants are married about 86.2% where a French study claimed that about 72.2% married people are suffered by LBP (Perrot et al., 2009).

CHAPTER-VI: CONCLUSION & RECOMMENDATION

Low back pain is a very common musculoskeletal condition in the developing country where Bangladesh is not out of range. Everyday a lot of patients of low back pain come to the physician's. Of them, most suffered from mechanical deformation of the spinal musculoskeletal structures, caused by a enormous surrounding factors whether it may low socioeconomic condition, harder labour activity, inadequate nutrition, lack of physical strength, prolong abnormal postural habit, lifting of heavy loads, stressful occupations, inadequate resting periods, recurrent number of back pain and sudden direct trauma by fall from height, fall of heavy objects, fall on slippery floor, road traffic accident or the normal aging process may precipitating factors for low back pain.

The result of the current study indicated that many factors are comparatively significant which are closely coordinated with individuals' lifestyles, abnormal position or posture, working environment, occupations and overall leading of poor socioeconomic condition. This study greatly emphasized on these factors to mark out the most prevalent mechanical characteristics among the patients of low back pain. For instances, most affecting age group is between 30 to 39 years, females are affected most, low educated and low economical people are highly affected, people who are obese, lack of regular physical exercise, frequent and prolong sitting, bending and squatting position in their workplace or home are more vulnerable groups for low back pain which are reasonably mechanical in origin.

So management of LBP would be effective when physiotherapists' could relieve this mechanical pain symptoms by proper awareness and modifications of about the postures, lifestyles, occupations and associated others factors that was found on this study and evidence based which will enhance well protection and reduce recurrences of symptoms patients along physiotherapy techniques. The researcher gratefully acknowledges the participation in this survey study of all the staff and patients who took part. I also grateful the ethical committee and respected supervisor. Finally praise to my merciful Allah, as I completed my research project successfully in time.

The recommendation evolves out of the content in which the study was conducted. The aim of study is to find out the predisposing characteristics of mechanical low back pain' therefore main recommendations would be made. Further research of the different perspectives emerged from the study, is recommended: In Bangladesh, as a new profession physiotherapy practice should be strong evidenced based so that can develop a interrelationship with other professionals' standard in comparison with the support of the global evidence of rigorous.

This type of study should be consider that need to be collect adequate resources that knowledge on this area could be extended and later result can obtain to generalize to the population. During further research it is recommended to take more samples with adequate time to solve the recent problems at different areas for better result and perspectives.

REFERENCES

- Adams, M.A., 2011.Biomechanics of Back Pain. Acupuncture in medicine, 22(4):178-188.
- American Family Physician, 2000.Diagnosis and Management of Acute Low Back Pain.Atul T.Patel, M.D.,Abna A.Ogle, M.D. http://www.aafp. org /afp /20000315 /1779.html.
- Apley, A.G., Solomon, L., 1993. Apley's System of Orthopedics and Fractures, 7th ed.Oxford, Butterworth Heinemann.
- Back.com**,** 2002. Symptoms: Back Pain. http://www.back.com /symptoms-pain.html.
- Bangladesh Bureau of Statistics, 2005.Statistical Pocket Book of Bangladesh 2003.Bangladesh: planning Division, Ministry of Planning, and Government of peoples Republic of Bangladesh.
- Bekkering, G.E., Hendricks, H.J.M., Kones, B.W., 2003.Dutch Physio therapy guidelines for low back pain. The journal of Chartered Society of Physiotherapy, vol.89, no.2, pp.8296.
- Better Medicine, 2010.Back Pain. http://www. better medicine.com/ article /back-pain.
- Better Medicine, 2010.Back Pain. http://www. better medicine com/article/ back-pain/causes.
- Bill McCarberg, M.D., 2010.Overview of low back pain. http://www.Pain medicinenews.com/download/lowback PMNSE10 _WM.pdf.
- Bjorck-VanDijken, C., Fjellman-Wiklund, A., Hildingsson, C., 2008. Low Back Pain, Life Style Factors and Physical Activity: Population-Based Study. Journal Rehabilitation medicine, 40:864-869.
- Borenstein, D.G., Wiesel, S.W., 1989.Low back pain: Mechanical Diagnosis and Comprehensive Management, Philadelphia, London, p.148.
- Bronfort,G.,Maiers,M.J.,Evans,R.L.,2011.Supervised exercise, spinal manipulation, and home exercise for chronic low back pain: a randomized clinical trial. The spine journal 11,585-598.

- Chartered Society of Physiotherapy, 2002.The physiotherapy site-what is physiotherapy.http:// www.the physiotherapy site. co. uk /physiotherapy/ physiotherapists/what-is-physiotherapy.
- Cole, M.H., Grimshaw, P.N., 2003.Low back pain and lifting: A review of epidemiology and aetiology. Biomechanics Laboratory, School of Health Sciences, University of South Australia,Adelaide,Australia,21(173-184).
- Corrigan, B., Maitland, G.D., 1983.Practical Orthopedic Medicine, London: Butterworth.
- Cox, JM 1999, Low back pain, Mechanism, Diagnosis and treatment. Philadelphia, London.
- e How Health, 2011.Types of spinal surgery. http://www.ehow.com/ about_50874 17_ types-spinal-surgery.html.
- Ebenezer, j., 2003.Essentials of orthopedics for physiotherapists: Low backache and Yoga. Jaypee Brothers Medical Publishers Ltd, New Delhi.
- Ehrlich, G.E., 2003. Low back pain. http www.who.intbulletin volumes 819 Ehrlich.pdf.pdf.
- Frymoyer, J.W., Pope, M.H., Clements, J.H., 1983.Risk Factors in Low Back Pain. The Journal of Bone and Joint Surgery, Vol.65-A, no.2, pp.213-218.
- Gale Encyclopedia of Public Health, 2002.Musculoskeletal Disorder. http://www.answers.com/topic/musculoskeletal-disorders.
- Health and Healing NY.org, 2011.Low Back Pain.http://www .healing chronic pain.org/content/backpain/pfactors.asp.
- International Association for the Study of Pain, 2011.Pain Terms http:// www.iasp pain.org/AM/Template.cfm? Section= Pain_ Defi.isplay.cfm & ContentID=1728.
- Janwantanakul**,**P**.,**Pensri,P.,Moolkay,P.,2011**.**Development of a risk score for low back pain in office workers a cross-sectional study. BMC musculoskeletal disoreders, 12**:**23doi:10.1186/1471-2474-12-23.
- John,C.,Licciardone,D.O., 2004.The Unique Role of Osteopathic Physicians in Treating Patients With Low Back Pain.*JAOA*,Vol.104,no. 11,S13.
- Jonathan Cluett, M.D., 2010.Back Pain Treatment. http://orthopedics. about.com/cs/ back pain/a/back pain 2.htm>
- Kravitz, L., Andrews, R., 2010. Fitness and Low Back Pain. http://www. unm.edu/~lkravitz/Article% 20folder /lowback.html.

- Kumar, P., Clark, M., 2002.Kumar and Clark Clinical Medicine.5th edi. Philadelphia, W.B .Sauders.
- Kumer, P and Clark, M 2002, 'Clinical Medicine: Rheumatology and bone disease, 5th edi. Philadelphia, London, pp.522-523.
- Levin, K.H., 2002. Low Back Pain-chronic nonspecific back pain. http://www. Cleveland clinicmeded.com/ medical pubs/ disease management/ neurology/low-back-pain/.London, Butterworth.
- Malanga, G.A., Sxott, F., Nadler, D., 2003.Epidemiology: The low back pain handbook, 2th edi. Hanley & belfus, Philadelphia.
- Mc Kenzie, R., 1995. The lumbar spine: Mechanical diagnosis and therapy, spinal publication, 5th edi. Treat your own back, Newzealand.
- McKenzie, R., 1980.The lumbar spine: Mechanical diagnosis and therapy, spinal publication, treat your own back: waikavaw, Newzealand.
- McKenzie,R.,1981.The lumbar spine: Mechanical diagnosis and therapy, spinal publication, Newzealand, p.7.
- McKenzie,R.,1990.The Cervical and Thoracic spine: Mechanical diagnosis and therapy: waikanae, Spinal publications limited, Neazealand,p.12-13.
- McKenzie, R., 1995.The lumbar spine: Mechanical diagnosis and therapy, spinal publication, Newzealand, p.4.
- McKenzie, R., 1995.The lumbar spine: Mechanical diagnosis and therapy, spinal publication, Newzealand, p.5-13.
- McKenzie, R., 1995.The lumbar spine: Mechanical diagnosis and therapy, spinal publication, Newzealand, p.5.
- McKenzie, R., 1995.The lumbar spine: Mechanical diagnosis and therapy, spinal publication, Newzealand, p.1.
- McKenzie, R., 1995.The lumbar spine: Mechanical diagnosis and therapy, spinal publication, Newzealand, p.23.
- McKenzie, R., 1995.The lumbar spine: Mechanical diagnosis and therapy, spinal publication, Newzealand, p.13.
- Medtronic Sofamor Danek, 2011.Acute back pain. http: //www.back.com/ articles-back_pain_relief.html.

- Moffett, J., McLean, S., 2005.Rheumatology: The role of physiotherapy in management of non-specific back pain and neck pain. Oxford Journals, 45:371-378.
- New Zealand Society of Physiotherapists, 2004. New Zealand Acute Low Back Pain Guide. Httpwww.nzgg.org. nzguidelines 0072acc1038 _col. pdf .pdf.
- Ozguler, A., Leclerc, A., France Landre, M., 2000.Insicidual and occupational determinants of low back pain according to various definitions of low back pain. Journal Epidemiol Community Health, 54:215-220.
- Prado-Leon,L.R.,CarlosAxeves-Gonzalez,RosalioAvilaChaurand,2007. Occupational driving as a risk factor in low back pain: A case control study in a Mexican population. Ergonomic Research Centre, Art, Architechture and Design University Center, University of Guadalajara, Guadalajara, Jalisco, Mexico, 31(387-396).
- Perrot, S., Allaert, F.A., Concas, V., 2009.A national survey on patients and physicians expectations concerning the recovery time for acute back pain. European Spine Jounal, 18:419-429.
- Perez, D.W., 2008.Seven Risk Factors For Lower Back Pain.http:// ezinearticles.com/?Seven-Risk-Factors-For-Lower-Back-Pain & id =132939 4.
- Poulter, D., 1996.Clinical tip. Newsletter. The McKenzie Institute United Kingdom, 4(3), p-50.
- Reza, S., 2006.The essentials of community medicine, 8th edi, Dhaka.
- Rinkus, K.M., Knaub, M.A., 2008.Clinical and diagnostic evaluation of low back pain. Seminars in Spine Surgery,20:93-101.
- RxPG, 2006.Back and Neck Pain. http:// www. rxpg online.com/postt419 49.html.
- Sarker,A.,Rahman,A.,2007.Mobilization significantly effective for treatment of prolongs low back pain suffesrers.Bangladesh Physiotherapy
- Sikiru,L.,Hanifa,S., 2010.Prevalence and risk factors of low back pain among nurses in a typical Nigerian hospital.Afr Health Science,vol.10, no.1, pp.26.
- Spine Health lower back pain, 2007**.**Common Causes of Lower Back Pain. Peter, F.Ullrich, Jr.MD. http://www.spinehealth.com/conditions/lower-back-pain/ low-back-pain-muscle-strain

- Stanley,I.,Miller,J.,Pinnington,M.A.,2001.Uptake prompt access physio therapy for new episodes of back pain presenting in primary care. Physio therapy Journal, Vol.87, no.2, pp.60-66.
- Stevenson, K., Hay, E., 2004.An integrated care pathway for the management of low back pain. Chartered Society of physiotherapy, vol.90, no.2, pp.91-92.
- The Cleveland Clinic Foundation, 2011.Acute Mechanical Back Pain-physicaltherapy.http://my.clevelandclinic.org/disorders/back_pain/hic_acute_mechanical _back_pain.aspx.
- The McKenzie approach-Virtual Healthcare System, 2011.Three Mechanical Low Back Pain Syndromes. http://www. vhct.org/case1699/3 LBP syndromes.htm.
- Times Health Guide, 2011.Back pain-low: Symptoms and Causes.http://health.nytimes.com/health/guides/symptoms/back-pain-low/risk-factors. html.
- Tomita,S., Arphorn,S.,Muto,T., 2010.Prevalence and Risk Factors of Low Back Pain among Thai and Myanmar Migrant Seafood Processing Factory Workers in Samut Sakorn Province, Thailand. Industrail Health,48,283-291.
- Tucer, B., Yalcin, B.M., Ozturk, A., 2009.Risk Factors for Low Back Pain and Its Relation with Pain Related Disability and Depression in a Turkish Sample. Turkish Neurosurgery, vol.19, no.4, pp.327-332.
- Waddel, G., 1998.The back pain revolution, Edinburgh: Churchill, Living stone.
- WebMD answers, 2011. How is Low Back Pain treated. http://answers. webmd.com/answers/1191844/.
- WebMD, 2011.LowBack Pain topic overview. http:// www .webmd.com/ back-pain/tc/low-back-pain-topic-overview.
- WHO, 2004.BMI classification. http://apps.who.int/bmi/index.jsp?intro Page= intro _3.html.
- Wilde, V.E., Ford, J.J., McMeeken, J.M., 2007.Indicators of Lumbar Zygapophyseal Joint Pain: Survey of an Expert Panel with the Delphi Technique. American Physical Therapy, vol.87, no.10.

APPENDIX: A

প্রশ্নপত্র

জনসংখ্যাতাত্ত্বিক ও আর্থসামাজিকগত তথ্য

১.	বয়স ঃ ____ ____
২.	লিঙ্গ ☐ পুরুষ ☐ নারী
৩.	বৈবাহিক অবস্থা ঃ ☐ অবিবাহিত ☐ বিবাহিত ☐ তালাকপ্রাপ্ত ☐ বিধবা
৪.	ধর্ম ঃ ☐ ইসলাম ☐ হিন্দু ☐ বৌদ্ধ ☐ খ্রিষ্টান ☐ অন্যান্য
৫.	শিক্ষাগত যোগ্যতা ঃ ☐ নিরক্ষর ☐ সাক্ষর করতে পারে ☐ প্রাথমিক ☐ মাধ্যমিক ☐ উচ্চ মাধ্যমিক ☐ স্নাতক ☐ স্নাতোকোত্তর এবং অধিক ☐ অন্যান্য
.৬.	পরিবারের ধরণ ঃ ☐ একক পরিবার ☐ যৌথ পরিবার
৭.	আবাসিক এলাকা ঃ ☐ গ্রামীণ ☐ নগরস্থ
৮.	পেশা ঃ ☐ অফিস শ্রমিক ☐ নির্মাণ শ্রমিক ☐ চালক ☐ গৃহীনি ☐ কাজে নিয়োজিত ☐ কাজে অনিয়োজিত ☐ অবসরপ্রাপ্ত ☐ ছাত্র ☐ অন্যান্য
৯.	পরিবারের আয় ঃ _____ টাকা

জীবন পদ্ধতি সম্পর্কিত তথ্য

১০.	ধূমপান ঃ ☐ হ্যাঁ ☐ না
১১.	হ্যাঁ হলে, প্রতিদিন ধূমপান নিবারনের সংখ্যা ঃ ☐ দশটির কম ☐ পনেরটির কম ☐ বিশটির বেশী
১২.	স্বাস্থ্য অবস্থা ঃ ☐ স্বাস্থ্যবান ☐ মাঝারি স্বাস্থ্য ☐ ক্ষীণ/দুর্বল
১৩.	প্রতিসপ্তাহে শারীরিক ব্যায়াম ঃ ☐ না ☐ এক থেকে দুই দিন ☐ তিন থেকে চার দিন ☐ প্রায়ই সাত দিন
১৪.	শয়ন অঙ্গবিন্যাস গত অবস্থা ঃ ☐ চিৎ শয়ন ☐ উপুর শয়ন ☐ পার্শ্ব শয়ন
১৫.	শয়ন সময়সীমা ঃ ☐ ছয় ঘন্টার কম ☐ ছয় ঘন্টার বেশী ☐ আট ঘন্টার বেশী ☐ দশ ঘন্টার বেশী
১৬.	শয়ন তোষক ঃ ☐ শক্ত ☐ নরম ☐ কাঠের বিছানা
১৭.	বি এম আই= **ওজন** (কেজি)/ উচ্চতা(মিটার)২ ঃ _____

কাজ ও অঙ্গবিন্যাস গত সম্পর্কিত তথ্য

১৮.	কর্মস্থলের অঙ্গবিন্যাস গত অবস্থান কি ঃ ☐ উপবেশন) ☐ দন্ডায়মান ☐ কোমর ঝুকান ☐ হাটু ও কোমর ভাজ অবস্থা ☐ হাঁটা
১৯.	উপবেশন অবস্থান সময়কাল ঃ ☐ সর্বক্ষণ ☐ প্রায়ই ☐ মাঝেমাঝে ☐ কখন ও না

২০.	দন্ডায়মান অবস্থান সময়কাল ঃ ☐ সর্বক্ষণ ☐ প্রায়ই ☐ মাঝেমাঝে ☐ কখন ও না
২১.	কোমর ঝুকান অবস্থান সময়কাল ঃ ☐ সর্বক্ষণ ☐ প্রায়ই ☐ মাঝেমাঝে ☐ কখন ও না
২২.	উপবেশন অবস্থান সময়কাল ঃ ☐ সর্বক্ষণ ☐ প্রায়ই ☐ মাঝেমাঝে ☐ কখন ও না
২৩.	হাটু ও কোমর ভাজ অবস্থার অবস্থান সময়কাল ঃ ☐ সর্বক্ষণ ☐ প্রায়ই ☐ মাঝেমাঝে ☐ কখন ও না
২৪.	ভারবস্তু উত্তোলন কর্মসীমা ঃ ☐ সর্বক্ষণ ☐ প্রায়ই ☐ মাঝেমাঝে ☐ কখন ও না
২৫.	ভারবস্তু উত্তোলন পরিমান) ঃ _____ kg
২৬.	কর্ম সময়সীমা ঃ ☐ কর্মহীন ☐ ১২ ঘন্টার কম ☐ ১২ ঘন্টার বেশী ☐ অতিরিক্ত কর্ম
২৭.	কোমর ব্যাথার ঘটনাপ্রবাহ সংখ্যা ঃ ☐ না ☐ এক থেকে দুই ☐ তিন থেকে পাঁচ ☐ পাঁচ অধিক ☐ দশ অধিক
২৮.	পিঠে আঘাতের পূর্ব ইতিহাস ঃ ☐ হ্যাঁ ☐ না
২৯.	হ্যাঁ হলে, আঘাতের ধরণ ঃ ☐ সরাসরি আঘাত ☐ কোমর বাঁকান আঘাত ☐ উত্তোলন আঘাত ☐ বহন আঘাত ☐ অন্যান্য

APPENDIX: B

Questionnaire form

Socio demiological Information

1.	Age : ___ ___
2.	Gender/sex: ☐ Male ☐ Female
3.	Marital status : ☐ Unmarried/single ☐ Married/living with partner ☐ Divorced ☐ Widowed
4.	Religion: ☐ Islam ☐ Hinduism ☐ Christianity ☐ Buddhist ☐ Other
5.	Educational status : ☐ Illiterate ☐ Literate ☐ Primary level ☐ SSC ☐ HSC ☐ Graduation ☐ Masters and above ☐ Other
6.	Family type : ☐ Nuclear family ☐ Extended family
7.	Living areas : ☐ Rural ☐ Urban
8.	Occupations ☐ Office workers ☐ Labourers ☐ Drivers ☐ House wives ☐ Employee ☐ Unemployee ☐ Retired ☐ Student ☐ Others
9.	Family income per month: _____ Taka

Life style related Information

10.	Smoking: ☐ Yes ☐ No
11.	If yes , no of cigarette consuming per day ☐ <10 ☐ <15 ☐ Above 20
12.	Health status ☐ Good ☐ Fair ☐ Poor
13.	Regular physical exercise per week ☐ None ☐ 1-2 days ☐ 3-4 days ☐ Almost 7 days
14.	Sleeping posture ☐ Supine lying ☐ Prone lying ☐ Side lying
15.	Sleeping period : ☐ <6 hour ☐ >6 hour ☐ >8 hour ☐ >10 hour
16.	Sleeping mattress ☐ Firm/normal mattress ☐ Soft/cushioned mattress ☐ Wooden /hard bed
17.	BMI= weight (kg) / height(m2): _____

Work and posture related Information

18.	postural status at the work place: ☐ Sitting ☐ Standing ☐ Bending ☐ Squatting ☐ Walking
19.	Period of sitting posture : ☐ Most of the time/always ☐ Often ☐ Sometimes ☐ Never/seldom

20.	Period of standing posture : ☐ Most of the time/always ☐ Often ☐ Sometimes ☐ Never/seldom
21.	Period of bending posture : ☐ Most of the time/always ☐ Often ☐ Sometimes ☐ Never/seldom
22.	Period of squatting posture : ☐ Most of the time/always ☐ Often ☐ Sometimes ☐ Never/seldom
23.	Period of walking posture : ☐ Most of the time/always ☐ Often ☐ Sometimes ☐ Never/seldom
24.	Lifting heavy objects: ☐ Most of the time/always ☐ Often ☐ Sometimes ☐ Never/seldom
25.	Amount of lifting heavy objects: _____ kg
26.	Employment period: ☐ Sedentary ☐ Less than 12 hr ☐ More than 12hr ☐ Overtime
27.	Previous episodes of low back pain: ☐ None ☐ 1 – 2 ☐ 3 -5 ☐ More than 5 ☐ More than 10
28.	Incident of back injury: ☐ Yes ☐ No
29.	If yes, types of injury: ☐ Direct trauma ☐ Twisting ☐ Lifting ☐ Carrying ☐ Others

APPENDIX: C

গবেষনাকর্মে অংশগ্রহণের **সম্মতিপত্র**

(প্রার্থীকে পড়ে শোনাতে হবে)

গবেষনাকারী মোহাম্মদ রেজাউল করিম বাংলাদেশ হেলথ প্রফেশনস্ ইন্সটিটিউট (বি,এইচ,পি, আই), সি ,আর, পি,সাভার এর ফিজিওথেরাপি বিভাগের ৪র্থ বর্ষের একজন নিয়মিত ছাত্র, যিনি গবেষনার উদ্দেশ্য সম্পর্কে প্রত্যেক অংশগ্রহণকারীকে স্পষ্টভাবে অবগত করিয়াছেন, যার শিরোনাম ' পক্ষাঘাতগ্রস্তদের পূণর্বাসন কেন্দ্রে (সি ,আর , পি) উপস্থিত রোগীদের কোমর ব্যাথার বৈশিষ্টসমূহ।

অংশগ্রহণকারী গবেষনায় অংশগ্রহণ এবং যেকোন সময় গবেষনা থেকে তাহার অংশগ্রহণ বাতিল করার অধিকার রাখে এবং গবেষনা সম্পর্কিত বিষয় নিয়ে যেকোন সমস্যা আলোচনা করতে গবেষনাকারী এবং গবেষনা তদারককারীর সাথে যোগাযোগ করতে পারবে। গবেষনাকারী তার গবেষনার ফলাফল তৈরীর জন্য অংশগ্রহণকারীর তথ্য ব্যাবহার করতে পারবেন।

উপরোক্ত সমস্ত তথ্যাবলী জেনে অংশগ্রহণকারী স্বেচ্ছায় গবেষনায় অংশগ্রহণ ও সাহায্য করতে ইচ্ছুক।

সনাক্তকারীর নংঃ	
সাক্ষাৎকার গ্রহণের তারিখঃ	
সাক্ষাৎকার গ্রহণের স্থানঃ	
গবেষনাকারীর নাম,স্বাক্ষর ও তারিখ ঃ	
অংশগ্রহণকারীর নাম, স্বাক্ষর ও তারিখঃ	
সাক্ষীর নাম, স্বাক্ষর ও তারিখঃ	
ঠিকানা ঃ	
গ্রাম / বাড়ী নংঃ	
ডাকঘর ঃ	
থানাঃ	
জেলা ঃ	
মোবাইল নং ঃ	

APPENDIX: D

CONSENT FORM

(*Please read out to the participant*)

The researcher, **Mohammad Rezaul Karim**, is a 4th year student of Bachelor of Science in Physiotherapy,BHPI,CRP,Savar, has clearly been informed the purpose of the study to each participants, which entitled as **'Characteristics of mechanical low back pain among the patients attending at the centre for the rehabilitation of the paralyzed (CRP)'.**

The participants have rights to take part in this study or refuge it and can consult with researcher or research supervisor when facing any type of problems regarding to research project. The researcher will be eligible to access in the information for his publication of the research result. Being informed above information, the participants are willing to coorporate in this programme.

ID no:	
Date of interview:	
Area of doing interview:	
Name & signature of the researcher:	
Name & signature of the participants:	
Name& signature of the witness:	
Address:	
Village/house no-	
P.O-	
Thana-	
Districts-	
Mob no-	

APPENDIX: E

Date: 01.11.2011

To,

The Head,

Department of Physiotherapy,

Bangladesh Health Professions Institute (BHPI),

CRP, Savar, Dhaka-1343.

Subject: Seeking allowance for data collection at physiotherapy Musculoskeletal Unit of CRP to conduct research study.

Sir,

I beg most respectfully to state that I am a regular 4th year student of Bachelor of Science in Physiotherapy and I need to complete a research project according to the curriculum under your supervision. The topic of my research is, **"Characteristics of Mechanical Low Back Pain among the Patients attending at the Centre for the Rehabilitation of the Paralyzed (CRP)**,'.The participants would be the patients who are suffering from low back pain. I would like to collect data at physiotherapy musculoskeletal unit of CRP. The data would be collected within 8.00 a.m. to 5.00 p.m.

So, I therefore pray and hope that you would be kind enough to give me the permission collect data from your department and oblige thereby.

Yours faithfully,

_____

Mohammad Rezaul Karim

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

Session: 2005-2006

BHPI, CRP, Savar, Dhaka-1343

APPENDIX: F

Logical frame work

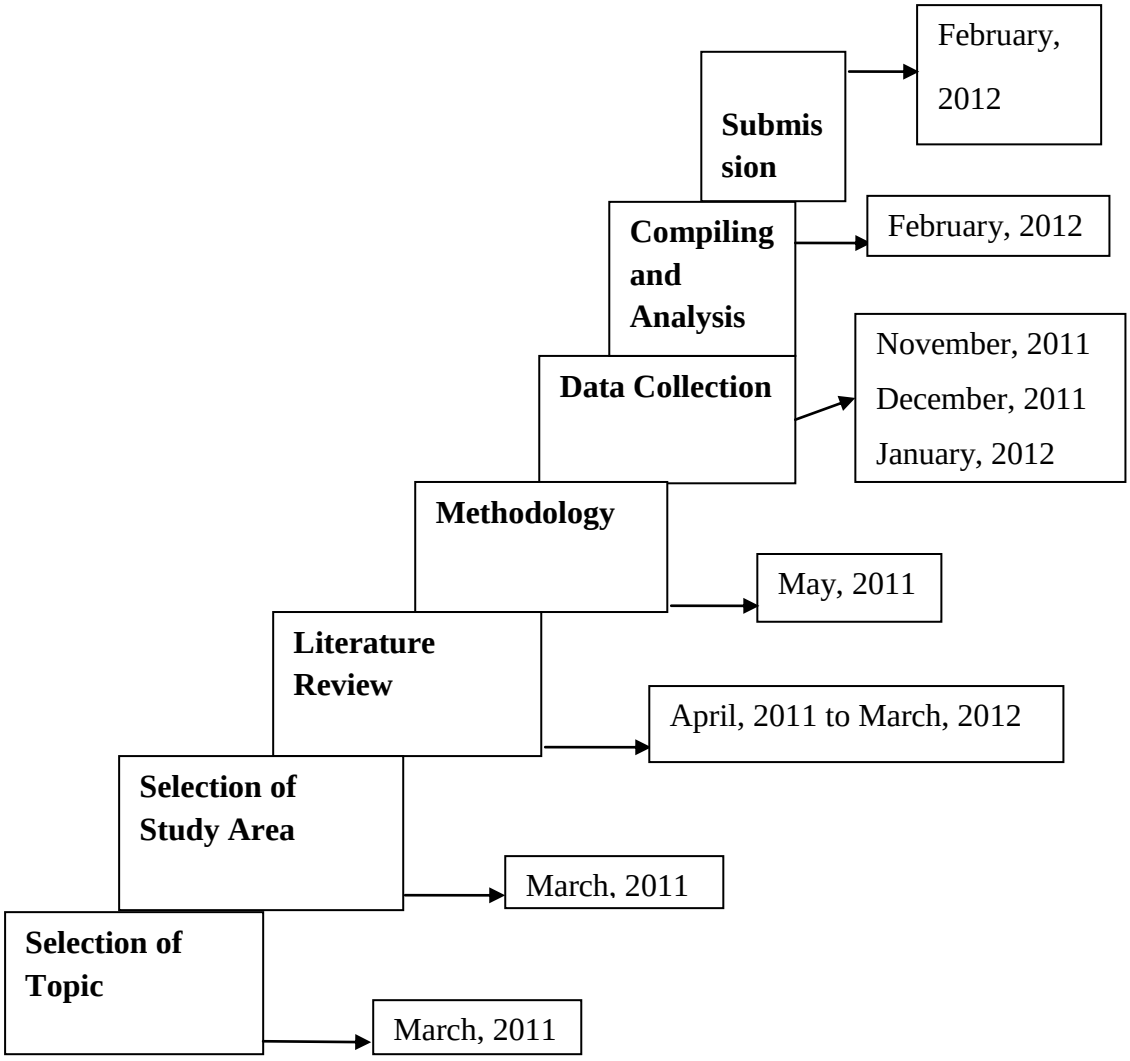


Figure: Activities progression