EFFECTIVENESS OF MANUAL LUMBAR TRACTION FOR THE MANAGEMENT OF LOW BACK PAIN PATIENT ALONG WITH PHYSIOTHERAPY TREATMENT

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

EFFECTIVENESS OF MANUAL LUMBAR TRACTION FOR THE MANAGEMENT OF LOW BACK PAIN PATIENT ALONG WITH PHYSIOTHERAPY TREATMENT

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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 decline that same any publication, presentation or dissemination of information of the study. I would bind to take consent from the department of Physiotherapy of Bangladesh Health Profession Institute (BHPI).

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List of Contents

Acronyms

ADL	Activity of Daily Living
BHPI	Bangladesh Health Professions Institute.
BMRC	Bangladesh Medical Research Council
CRP	Centre for the Rehabilitation of the Paralysed.
df	Degree of Freedom
IRB	Institutional Review Board
LBP	Low Back Pain
NSAID's	Non-Steroidal Anti-inflammatory Drugs
ODI	Oswestry Disability Index
PT	Physiotherapy
RCT	Randomized Control Trail
USA	United States of America
VAS	Visual Analogue Scale
WHO	World Health Organization

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Abstract

Introduction: Low back pain as well as Lumbar disc herniation is a common complaint in the general population in the world. Manual lumbar traction is commonly used for treating low back pain as a physiotherapy treatment. *Purpose:* The study was conducted to identify and investigate the therapeutic effectiveness of Manual lumbar traction for the management of low back pain patient along with physiotherapy treatment. This study made the comparison, in order to discover the most effective treatment protocol to alleviate the symptoms of this condition. *Methodology:* This study was randomized control trial design. Total ten samples were selected by random sampling procedure. Dallas pain questioner was used to measure pain in different position and Oswestry Disability Index (ODI) was used to measure disability of the LBP patients. Data was analyzed by using SPSS software version 20.0 which focused through column, pie chart, line diagram and paired t-test and also unrelated t-test of the parametric test. *Results*: Result shows that both groups were effective but manual lumbar traction was superior to basic physiotherapy treatment. The study has used statistical analysis by paired t test to compare the Experimental and Control Group and analysed by interpreting the probability level of significance of t value. The results were found to be significant for t value at probability level 0.05. Manual lumbar traction and basic physiotherapy treatment both group were similarly effective in unrelated t-test. *Conclusion:* The study concludes that the combination technique is significantly capable of producing beneficial effects on pain reduction and minimization of functional disability for the patient with Low back pain.

Keywords: Low back pain, Manual lumbar traction, Basic Physiotherapy.

CHAPTER – I INTRODUCTION

1.1 Background

Low back pain (LBP) is one of the most common complaints in the general population and is a common cause of disability and work loss in developed countries (Cavagnaro et al., 2014). Generally, incidents of back pain most commonly occur in between ages 25 and 50 years. Low back pain is affected approximately 75-85% of all people at some time during their lifetime. Approximately 50% of them have a recurrence within a year who are affected. The prevalence of low back pain is reported to be as high as 84%, and the prevalence of chronic low back pain is about 23%, with 11–12% of the population being disabled by low back pain (Balague et al., 2012). 90% improve without surgery. Approximately 7.4% of patients with low back pain account for 75% of the money spent on low back pain. The massive majority of acute low back pain is the result of injury such as sprain or strain, while the cause of chronic low back pain is multi-factorial (Picavet et al., 2003).

The incidence of low back pain in India has been reported to be 23.09% and has a lifetime prevalence of 60- 85%. Low back pain affects men and women equally, with onset most often between the ages 30 to 50 years. It is most common cause of disability in individuals under 45 years of age and third most common cause in the age group of 45 to 65 years. It has been reported that 37% of health care costs associated with low back pain are a direct result of physical therapy services. The incidence of low back pain decreases after the age of 55. The incidence of degenerative changes on x-ray, however, increases throughout a lifetime (Pawar & Metgud, 2010).

Acute low back pain (LBP) with or without radiculopathy is one of the most common health problems in the United States and is the leading cause of disability for persons younger than age 45. The cost of evaluating and treating acute LBP runs into billions of dollars annually, not including time lost from work (Luow et al., 2007).

According to WHO LBP is responsible for a major portion of people staying away from work or visiting a medical practitioner. This condition may cause a decrease in the

quality of life of individuals, as well as deterioration in physical activity (Charoenchai et al., 2006).

Menzel (2016) explained that low back pain is pain and stiffness in the lower back. It is one of the most common reasons people to failure their own work. The cause of pain is non-specific in about 95% of people presenting with acute low back pain, and serious conditions are rare. Etiologies are related primarily to various musculoskeletal problems, mostly muscle strain and degenerative disease of the vertebral joints (Rahman et al., 2007).

30 percent of adolescents have experienced at least one episode of back pain, and Canadian youths have the highest prevalence of frequent back pain in the world. With respect to incidence, a Finnish study reports 17.6 percent and a British study reports 5 percent, increasing with age (Feldman et al., 2001). The lifetime prevalence of LBP (at least one episode of LBP in a lifetime) in developed countries is reported to be up to 85% (Louw et al., 2007).

The health care and social costs for low back pain have been estimated to be between $100 to $200 billion annually with a majority of these costs due to lost wages and decreased productivity (Carey and Freburger, 2014). Direct costs for LBP are estimated between $20 billion and $98 billion in the US, with indirect annual costs included cost estimates are as high as $200 billion (Thiese et al., 2014).

Primary care physicians are the main first-contact providers for patients with both acute and chronic low back pain in the United States. The decision points for the primary care physician are relatively simple: (1) screen for back pain red flags such as foot drop or warning signs of infection or malignancy (fever, weight loss); (2) after a screening history and physical, low-risk patients are provided advice on activity and medications, reassurance that further treatment is not necessary or beneficial, and that their prognosis is good; (3) for medium- and high-risk patients, the patient is referred to a trained physical therapist (Carey & Freburger, 2014). The prevailing approaches to chronic low back pain fall into three categories: mono therapies, multidisciplinary therapy, and reductionism (Bogduk, 2004).

A systematic review by Rothschild studied whether conservative treatments (e.g., manual therapies, physical medicine methods, medication, and patient education) relieved pain or improved function/disability, patient satisfaction, and global perceived effect in adults with chronic low back pain. Results of this review revealed that exercise combined with mobilization/manipulation/traction demonstrated either intermediate or long-term benefits. Critical review of literature and randomized controlled trials by concluded manipulation, mobilization, or exercise are beneficial in patients suffering from chronic low back pain when applied as single-modal treatment approaches (Sharma et al., 2015).

Physiotherapy (PT) interventions for the management of LBP are wide and inconstant according to condition of the individuals, but the efficacy is still questionable. One of the treatment options is traction, which can be applied in many forms: motorized lumbar traction (traction applied by a motorized pulley), auto-traction (the patient exerts the traction force through a pulling or pushing action), gravitational traction (traction through a suspension device), or manual traction (forces exerted by the therapist). The aim of this study is to evaluate the effectiveness of Manual lumbar traction for low back pain patients along with basic physiotherapy treatment.

1.2 Rationale

Low back pain is not only a disabling condition but also has significant impact on the sufferer. It has become now a major medical, social and economic problem. Moreover a large number 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 low back pain in Bangladesh leading to limitation of daily activity such as dressing, picking up objects from the floor etc. All of these factors are affected the individual’s quality of life.

So, remedy these factors have various types of management. Medicine is one process that is reducing their complications and to give maximum functional recovery within short time. Physiotherapy is one of the best treatment options for recovery LBP, like- treatment options- Manual lumbar traction, Lumbar Mobilization (Maitland mobilization), McKenzie Approach, Soft tissue technique, IRR but there is inefficiency of evidence as a treatment of manual lumbar traction along with basic physiotherapy.

So this study is designed to investigate the efficacy of manual lumbar traction with other physiotherapy and basic physiotherapy alone for the patient with LBP. There were many research articles published about physiotherapy intervention for patient with Low back pain, but manual lumbar traction for Low back pain is not so focused among them. So, in this study effectiveness of manual lumbar traction for the management of low back pain patient along with physiotherapy treatment will give the evidence. However, research helps to improve the knowledge of health professionals, as well as develops the profession. The results of the study may help to guide physiotherapists to give evidence based treatment in patient with Low back pain, which will be beneficial for both the patient with Low back pain and for developing the field of physiotherapy profession.

1.3 Aims of the study

The aim of the study is to assess the therapeutic effectiveness of Manual lumbar traction for low back pain patients along with basic physiotherapy treatment.

1.4 Objectives

General objectives

To evaluate the effectiveness of manual lumbar traction for low back pain patients along with basic physiotherapy treatment.

Specific objectives

1. To explore socio-demographic (age, gender, marital status, educational status) characteristics of patients with Low back pain.
2. To find out the different working posture affecting of the Low back pain.
3. To evaluate the outcome of pain in different functional position after receiving treatment.
4. To find out the functional disability status.
5. To examine the outcome after using the manual lumbar traction.

1.5 Hypothesis

Null Hypothesis

$H_0 : \mu_1 - \mu_2 = 0$ or $\mu_1 \geq \mu_2$, where the experimental group and control group initial and final mean difference is same or control group is higher than experimental group.

Alternative Hypothesis

$H_a : \mu_1 - \mu_2 \neq 0$ or $\mu_1 \neq \mu_2$, where the experimental group and control group initial and final mean difference is not same.

Where,

H_0 = the null hypothesis,
H_a = the alternative hypothesis,
μ_1 = the mean of population 1, and
μ_2 = the mean of population 2

1.6 Operational definition

1.6.1 Lumbar traction

Intermittent or continuous force is applied to the lumbar spine either manually or mechanically is called lumbar traction. The aim of lumbar traction is to decrease the back pain related with back muscle spasms and lumbar nerve root impingement.

1.6.2 Manual lumbar traction

Intermittent or continuous force is applied manually to the lumbar spine is called manual lumbar traction. Manual lumbar traction involves a lot more effort on the therapist's part as the intention is to distract almost half of the patient's body's weight. The therapist may pull at the ankles, drape the patient's legs over the therapist's shoulders or utilize a pelvic belt with straps to achieve the required distraction force. Again the therapist may decide to position the patient in the aggravating postures over a neutral posture.

1.6.3 Low back pain

Low back pain means pain experienced in the lumbar region of the spine with or without radiation of the lower limb.

1.6.4 Basic Physiotherapy Treatment

Basic physiotherapy treatment comprises pelvic floor muscles strengthening; back muscles and leg muscle strengthening with postural and home advice.

CHAPTER – II LITERATURE REVIEW

Pain is a normal protection mechanism and physiological reaction of the body to an abnormal stimulus and the main presenting symptom of patients with low back trouble. Although the symptoms of pins and needles, numbness, weakness, stiffness and instability are common, the most important symptom is pain (Sikiru & Hanifa, 2010). Pain has been defined by the International Association for the Study of Pain (IASP) as 'an unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage' (Merskey & Bogduk, 1994).

Pain is a defense mechanism of the body to create an awareness of the subject to protect the injured part from further damage. Low back pain more accurately called lumbago or lumbosacral pain occurs below the 12th rib and above the gluteal fold. Lower back pain can be acute (pain under 6 weeks), sub-acute (6 to 12 weeks), or chronic (Over 12 weeks) (Balague et al., 2012). Strain or sprains, poor mal-alignment or fusion of the vertebra, degenerative disease, osteoarthritis, disc bulge, disc herniation, spinal stenosis, spondylolisthesis , small ruptures to the spine from osteoporosis, Scoliosis are some of the common causes of low back pain (Borenstein et al., 2012).

Low back pain is often accompanied by sciatica, which is pain that involves the sciatic nerve and is felt in the lower back, the buttocks, and the backs of the thighs. Low back pain has several different possible causes: strain on the muscles of the lower back may be caused by obesity; pregnancy; or job-related stooping, bending, or other stressful postures (Waddell and Burton, 2005). It was once known as an ancient curse is now known as a modern international epidemic. In India incidence of low back pain has been reported to be 23.09% and has a lifetime prevalence of 60- 85%. Low back pain affects men and women equally, with onset most often between the ages 30 to 50 years. It is most common cause of disability in individuals under 45 years of age and third most common cause in the age group of 45 to 65 years (Krismer and Van Tulder, 2007). Approximately 80% of the population experiences low back pain (LBP) at some time in their lives; 90% will resolve within 2 to 4 weeks, but 60% to 80% will have recurrence within 1 year.

Although back pain is the most frequently presented disorder of the musculoskeletal system (Rahman et al., 2007).

The low back architecture consists of vertebral bodies (the bones of the spine), vertebral discs (cushions between the bones), cartilage (lines the bones that connect with other bones), supportive structures surrounding the spine, such as muscles, tendons (connecting muscle to bone), ligaments (connecting bone to bone) (Integrative pain medicine, 2012). A number of options exist for patients with obstinate back pain and degenerative disc disease (DDD). Intervertebral body fusion techniques exploit the mechanical advantages of the disc space anteriorly, including a large fusion bed, excellent blood supply and graft compression (Truumees et al., 2008). The occurrence of LBP has been linked with various abnormalities of the spine on MRI, evidence being strongest for disc herniation (protrusion or worse), nerve root deviation/compression, disc degeneration and high intensity zone (HIZ). However, each of these abnormalities can be found in the absence of symptoms, and many patients with back complaints do not exhibit any demonstrable pathology on MRI (Shambrook et al., 2011).

Low back pain (LBP) is the most common symptoms experienced by people throughout the world (Charoenchai et al., 2006). It is a major health problem around the world and a major cause of medical expenses, absenteeism and disability (Vos et al., 2013). Mechanical low back pain is a major public health problem (Phaner et al., 2009).

Mechanical causes (80-90%): Pain from mechanical causes is typically aggravated with motion and relieved with rest. The mechanical causes of LBP are given bellow Lumbar strain (65-70%): A lumbar strain is a stretch injury to the ligaments, tendons, and or muscles of the lower back. The stretching incident results in microscopic tears of varying degrees in these tissues. Lumbar strain is considered one of the most common causes of LBP. The injury can occur because of over use, improper use or trauma (Cohen et al., 2009). Although LBP is usually a self-limiting and benign condition that tends to improve spontaneously over time, a large variety of therapeutic interventions is available for treatment (Chou & Huffman, 2007).

Low back pain remains to be the single most common reason for a visit to a general practitioner and is also the greatest cause for work- related disability. It is from mechanical origin is identified by the presence or absence of symptoms and signs with different postures or movements. Mechanical LBP is commonly treated conservatively with physical therapy (Kumar, 2011). LBP is a major health issue with significant socioeconomic implications in most Western countries. Many forms of treatment have been proposed and investigated in the past, with exercise being a commonly prescribed intervention. Within allied health, in particular physiotherapy, there has been a growing movement that recognizes the role of the McKenzie method in treating LBP (Dunsford et al., 2011). It is a common and disabling disorder in western society. The management of LBP comprises a range of different intervention strategies including surgery, drug therapy, and non-medical interventions (Middelkoop et al., 2011).

All age groups are affected by low back pain. For decades it was suggested that children and adolescents did not experience low back pain unless they had a serious and sometimes life-threatening disorder. However, findings from many epidemiological studies (Jeffries et al.,2007) report that the prevalence of low back pain, at least in teenagers, is similar to that in adults. Only a few teenagers reported being free of any pain symptoms in the period before the survey, (Pellise et al., 2009) and some were in pain for a long time. However, in this age-group, low back pain seems to have little effect on quality of life (Dunn et al., 2011) unless the pain is highly recurrent or present in other locations (Pellise et al., 2009).

Most people will experience back pain at some point in their life. Individuals who do not seek medical attention do not differ substantially from those who do seek care in terms of the frequency or intensity of low back pain experienced. Although the proportion of health-care resources used for low back pain is large, few people with the problem seek health care (Vingard et al., 2002). Picavet et al., (2008) reported that less than a third of patients with low back pain had consulted their family doctor in the previous year, and Wieser et al., (2011) reported that 22.8% had sought outpatient medical care (11.6% had consultations with a family doctor, and 6.4% with a specialist) in the previous 4 weeks. Women and patients with a history of low back pain are more likely to seek care, and

perceived disability is more strongly associated with care-seeking than is pain intensity. Elderly people are also affected by low back pain; results from a large community-based sample surveyed twice in 2 years showed that, at both time points, almost half the patients sampled reported some kind of disabling back pain in the previous 2 weeks (Meyer et. al., 2007). About 10% of those surveyed reported disabling low back pain most or all of the time. The effect of low back pain on wellbeing or health related quality of life and functioning in this age-group is substantial (Puts et. al., 2008), even in those reporting low pain intensity and disability (Urquhart et al., 2009), nonetheless, fewer than half of elderly people with low back pain seek care (Hicks et al., 2008).

Low back pain (LBP) is the second most common cause of disability in US adults (Stewart et al., 2003) and a common reason for lost work days (Ricci et al., 2006) An estimated 149 million days of work per year are lost due to LBP. The condition is also costly with total costs estimated to be between 100–200 billion dollars annually, two-thirds of which are due to decreased wages and productivity (Katz, 2006). Studies have found the incidence of low back pain is highest in the third decade, and over all prevalence increases with age until the 60–65 year age group and then gradually declines. Other commonly reported risk factors include low educational status, stress, anxiety, depression, job dissatisfaction, low levels of social support in the workplace and whole-body vibration. However, its burden is often considered trivial. Low back pain is the leading cause of activity limitation and work absence throughout much of the world (Steenstra et al., 2005), and it causes an enormous economic burden on individuals, families, communities, industry and governments (Thelin et al., 2008).

Non-specific mechanical low back pain is most common. Treatment options include surgical and conservative. Conservative treatment is usually given with analgesics, thermo therapy and lumbar traction. Treatment plan and referral is made on the basis of judgment on clinical findings. The aim of the present review was to assess the efficacy of traction for LBP patients with or without radiating pain. To reflect clinical practice, we need to understand the clinical parameters and treatment regimens being used by clinicians, and these must be addressed before a trial can be designed to look further at the effectiveness of traction for LBP with or without radiating pain. The evidence for the

use of traction in LBP remains inconclusive because of the continued lack of methodological rigor and the limited application of clinical parameters as used in clinical practice (Rahman et al., 2007). Traction was compared with no treatment, manipulation, exercises, corset, interferential, transcutaneous electric nerve stimulation (TENS), heat, and massage (Sherry et al., 2013).

Randomized control trials of all types of conservative treatments for patients with the lumbosacral radicular syndrome selected by two reviewers. Two reviewers independently assessed the methodological quality and the clinical relevance. Because the trials were considered heterogeneous we decided not to perform a meta-analysis but to summaries the results using the rating system of levels of evidence. Thirty trials were included that evaluated injections, traction, physical therapy, bed rest, manipulation, medication, and acupuncture as treatment for low back pain. Because several trials indicated no evidence of an effect it is not recommended to use corticosteroid injections and traction as treatment option. Whether clinicians should prescribe physical therapy, bed rest, manipulation or medication could not be concluded from this review. At present there is no evidence that one type of treatment is clearly superior to others, including no treatment, for patients with a lumbosacral radicular syndrome (Luijsterburg et al., 2007).

Harrison et al.'s work in this area was pioneering in its reference to the possibility of lumbar sagittal curve correction with 2 way lumbar traction. To date, no published randomized controlled trial has addressed the issue of lumbar curve correction by this type of traction. Only two non-randomized trials were conducted pertaining to the cervical and lumbar regions. Despite the importance of these studies, all attempts to assess the efficacy of this type or other types of traction on the restoration of the sagittal curve, have generally relied on radiographs to determine the global or segmental magnitude of the lordosis, and questionnaires to assess pain, while ignoring the assessment of global sagittal balance that is recognized as an important aspect to be considered in the rehabilitation of spinal disorders (Diab & Moustafa, 2013).

There is ongoing confusion surrounding the use of traction in the management of low back pain (LBP), with differences between recommendations in the UK, New Zealand, Denmark and the USA clinical guidelines (Van et al., 2006). Despite such

recommendations, traction continues to be commonly used by physiotherapists in the management of LBP; a recent UK-wide survey indicated that 41% of therapists used traction with 5% of LBP patients, who almost exclusively presented with 'nerve root' problems (Harte et al., 2005).

Lumbar traction has been used for centuries as a treatment for LBP and was popularized by Cyriax as an intervention for patients with nerve root involvement due to lumbar intervertebral disk herniation. Evidence-based guidelines and systematic reviews have generally not supported the use of traction for patients with LBP (Chou et al., 2007). Despite the lack of research support, surveys indicate continued use of traction, in various forms and delivered by various providers, for patients with LBP (Poitras et al., 2005). The rationale offered by those who advocate the use of traction despite the lack of supporting evidence is the low methodological quality and questionable external validity of the majority of the research examining traction (Bronfort et al., 2008). External validity concerns have centered on divergences between the delivery of traction in research and clinical practice, including questions about dosage parameters (traction force and duration), the use of concomitant interventions, and patient selection. Specifically, traction has generally been researched as a stand-alone treatment, whereas clinicians often deliver traction in conjunction with other treatments, most often exercise interventions (Harte et al., 2005).

One treatment for LBP and sciatica is traction, which has been used for thousands of years. It is used relatively frequently in North America (e.g. up to 30% of people with acute LBP and sciatica in Ontario, Canada) (Li and Bombardier, 2001), and to a lesser extent in the UK, Ireland and the Netherlands. Traction is often provided in combination with other treatment modalities (Harte et al., 2007). Use of traction in the physiotherapy management of LBP 7% in Southern Ireland and the United Kingdom, 13.7% in Northern Ireland,7% in the Netherlands,21% in the United States,6 and up to 30% in acute LBP with sciatica in Canada (Harte et al, 2003).

Exercise therapy is more effective than usual care, and better than back school; but the evidence is conflicting on whether exercise is more effective than an inactive. There is strong evidence that strengthening exercises are not more effective than other types of

exercises. Surgery for back pain lacks compelling evidence of efficacy. There is no universal definition of multidisciplinary therapy (Bogduk, 2004).

Physical therapy practice for managing LBP is often characterized by a vast array of intervention approaches, such as stretching and strengthening exercises, direction-specific exercises, manual therapy approaches to mobilize spinal segments, soft tissue mobilization/massage, and the use of electrical or thermal modalities (Poitras et al., 2005). Therefore, we examined supplemental interventions in patients' plans of care. It was clear that respondents used traction as part of comprehensive plans of care incorporating multiple interventions. The most commonly used interventions included core stabilization exercises, education regarding posture and body mechanics, mobilization techniques, prescription of general exercise/fitness programs, and massage or soft tissue mobilization techniques (Santos & Ribeiro, 2010).

Manual traction is a physical therapy technique used to increase range of motion (ROM) or to reduce pain in limited joints (Wegner et al., 2013). The most commonly used traction techniques are mechanical or motorized traction (where the traction is exerted by a motorized pulley), manual traction (in which the traction is exerted by the therapist, using his or her body weight to alter the force and direction of the pull), and auto traction (where the person controls the traction forces by grasping and pulling bars at the head of the traction table). There are also less common forms, such as underwater (where the person is fixed perpendicularly in a deep pool, a bar is grasped under the arms and traction is applied), and gravitational traction (e.g. bed rest traction, in which the person is fixed to a tilted table or bed, and inverted traction, where the participant is held in an inverted position by the ankles and another part of the lower extremities and gravity provides the force). Lumbar traction uses a harness (with Velcro strapping) that is fitted around the lower rib cage and around the iliac crest. Duration and level of force exerted through this harness can be varied in a continuous or intermittent mode. The force can be standardized only in motorized traction or in methods using computer technology (Wegner et al., 2013). Physical therapists may choose from myriad intervention options for LBP, but the effectiveness of many of these options is questionable (Plaza-Manzano et al., 2014). One option is spinal traction, in which forces applied via motorized pulleys,

manual methods, or through auto traction are thought to distract tissues and joints in the lumbar spine (Harte et al., 2005). Authorities have recommended traction for conditions including protruded intervertebral discs, spinal muscle spasm and general pain and stiffness (Sari et al., 2005).

The exact mechanism through which traction might be effective is unclear. It has been suggested that spinal elongation, by decreasing lordosis and increasing intervertebral space, inhibits nociceptive impulses, improves mobility, decreases mechanical stress, reduces muscle spasm or spinal nerve root compression (due to osteophytes), releases luxation of a disc or capsule from the zygo-apophysial joint, and releases adhesions around the zygo-apophysial joint and the annulus fibrosus (Wegner et al.,2013). The dysfunction involves self-maintaining pain-provoking neuromuscular reflex patterns. In relation to benefits of traction, this rationale involves the ’shocking’ of dysfunctional higher centers by means of relaying ’unphysiological’ proprioceptive information centrally, and thus ’resetting’ the dysfunction (Blomberg, 2005).

In the past, traction has also been applied by use of a pelvic harness when patients were admitted to the hospital for bed rest, but this treatment is now apparently obsolete. To apply the traction force, auto traction and manual traction rely on the strength of the patient or therapist, gravitational traction on the weight of the patient, and motorized traction on a motorized machine. Auto traction, manual traction, and gravitational traction can be difficult to maintain for a specific period of time because of fatigue or intolerance to the force or position by the patient or therapist. Therefore, motorized traction can be more successfully standardized for repeatability in a trial (which encompasses the use of a split couch to eliminate friction between the bed and the body). Research to date has included all these modes of traction. The variation in treatment modes may be an additional factor why conclusive results of traction’s effects have remained elusive (Harte et al., 2003).

Lumbar traction is among the oldest known treatments for low back pain (LBP). Lumbar traction in various forms has been used for centuries since Hippocrates, and continues to be used in today’s clinical environment (Harte et al., 2005). But some systematic reviews of literature and evidence- based guidelines (Harte et al., 2003) have concluded that there

are not enough evidence to support the conventional supine lumbar traction as an effective treatment for patients with LBP. Recently, a newly developed lumbar traction system , vertebral axial decompression is introduced, demonstrate a significant pressure decrement up to 100 mm Hg and has been gaining some popularity (Beattie et al., 2008). During the traction applied with this method, the patient is prone, with no thoracic harness, on a table specifically designed to eliminate frictional resistance. This method provides distraction forces and rest periods through a pelvic harness while the patient stabilizes himself / herself by holding a hand grip. Prone position may reduce a patient's reflex spinal muscle contraction and allows distraction of the vertebrae, causing a subsequent symptom reduction (Mousavi et al., 2006).

Spinal decompression therapy is used to treat radiating pain resulting from chronic low back pain. This is a treatment method that alleviates disc problems and removes the pressure imposed on the discs by creating zero gravity or negative pressure conditions inside the spinal canal so that nutritive substances and oxygen are supplied to the discs. This reduces pressure inside the intervertebral discs by softly extending certain parts of the discs through the decompression of lesion sites. Although there have been many studies of manual therapy methods for chronic low back pain patients, few studies have compared manual therapy using joint mobilization techniques and flexion-distraction techniques with spinal decompression therapy. Therefore, the aim of this study was to examine the effects of manual therapy using joint mobilization techniques and flexion-distraction techniques and using spinal decompression therapy on the low back pain and disc heights of patients with chronic low back pain (Choi et al., 2014).

Low back pain (LBP) poses a significant problem to society. Although initial conservative therapy may be beneficial, persisting chronic LBP still frequently leads to expensive invasive intervention. A novel noninvasive therapy that focuses on discogenic LBP is Intervertebral Differential Dynamics Therapy. The intervertebral disc and facet joints are unloaded through axial distraction, positioning and relaxation cycles (Schimmel et al., 2009).

The Philadelphia Panel concluded that clinically important benefits of manual lumbar traction were demonstrated for neither acute nor chronic LBP (Albright et al., 2001).

More recently, Beattie and Silfies, (2015) summarized moderate evidence that traction should not be used in patients with acute or sub-acute non-radicular LBP or in patients with chronic LBP. A Cochrane review concluded that traction as a sole treatment for LBP cannot be recommended (Wegner et al., 2013). Nevertheless, traction has commonly been used; for example, 15% of patients with LBP in Northern Ireland received traction. Harte et al. (2003) reported that 41% of physical therapists in the UK used traction, most commonly in patients with sub-acute LBP who also presented with nerve root symptoms. Despite a huge number of systematic reviews regarding its efficacy in lumbar pain management (Macario & Pergolizzi, 2006), the evidence of traction use is still unclear. On the contrary, many surveys have shown its continued use: with 7% of the LBP patients in the Republic of Ireland and the UK (Gracey et al., 2002), with 13.7% in Northern Ireland, 7% in the Netherlands 21% in the United States (Li and Bombardier, 2001), and up to 30% of patients with acute LBP and sciatica in Canada. The aim of our short review is to summarize and analyze the latest result reporting the use of lumbar traction in LBP treatment in order to evaluate the real effectiveness and indications of this specific physical therapy (Ozturk et al., 2006).

Many factors may influence whether traction is selected as an intervention and how traction parameters are chosen. Understanding how clinicians make decisions about using traction, how they select patients in whom traction is administered, and how they make decisions about traction parameters is important. While Harte et al. (2003) described some of those characteristics among physical therapists in the UK, it is not clear how physical therapists in the United States use—or make decisions about using—traction. Therefore, the purpose of this study was to examine how traction is used for managing LBP in the United States. Specifically, we examined (1) the percentage of physical therapists who use traction in their practices, (2) whether clinicians were using traction for patients preliminarily identified as those who may benefit from lumbar traction, (3) the delivery modes and parameters (eg, patient positioning, load, duration) being used, (4) the supplemental interventions in patients' plans of care, and (5) whether professional characteristics influenced clinical decisions regarding the use of traction (Madson & Hollman, 2015).

The discrepancy between published clinical guidelines and the use of traction may be due to several factors. Trials examining traction's efficacy in LBP, for example, might have been underpowered to detect clinically meaningful changes in pain or function (Savigny et al., 2009). Traction parameters, force amplitudes, and patient positioning have often been variable, not described, or not well controlled (Wegner et al., 2013). Additionally, trials might not have optimized the patients in whom traction was most likely to be beneficial (Madson et al., 2015). One classification system, for example, espouses that lumbar traction may be useful for patients with LBP and lower extremity symptoms that move distally with lumbar extension, or for those who present with a positive crossed straight leg raise test. Nevertheless, traction's efficacy for LBP has been reviewed extensively and demonstrated limited benefits (Harte et al., 2007).

CHAPTER – III METHODOLOGY

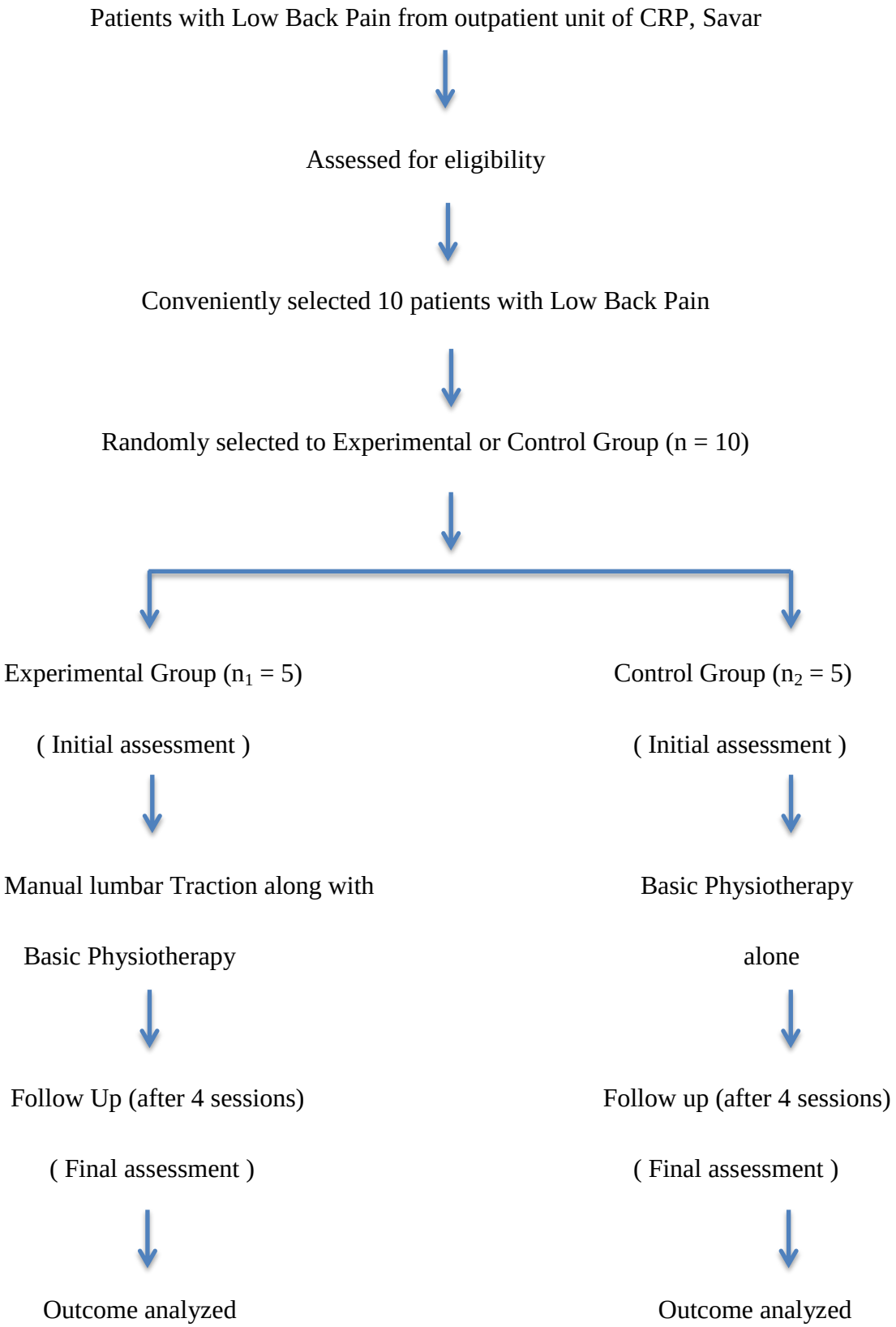
This research was an experimental design to evaluate the effectiveness of physiotherapy treatment techniques combining Manual Lumbar Traction along with other physiotherapy treatment options and also to compare their effectiveness with basic physiotherapy alone for the management of pain and improvement of different functional activities of the patients with LBP.

3.1 Study Design

Experimental quantitative research which was Randomized Controlled Trail (RCT) design was chosen because the experimental study is the best way to find out the effectiveness of this study. The study was an experimental between two subject designs. Manual lumbar Traction and other basic physiotherapy treatment were applied to the experimental group and only other basic physiotherapy treatment was applied to the control group.

A pre-test (before intervention) and post-test (after intervention) was administered with each subject of both groups to compare the pain and functional ability of the subject in within group and the between group.

Flow-chart of the phases of Randomized Controlled Trial



3.2 Study Area

Musculoskeletal Unit of Physiotherapy Department at CRP , Savar, Dhaka.

3.3 Study Population

The study population was the patients diagnosed with Low Back Pain attended at the Musculoskeletal Unit of Physiotherapy Department, CRP, Savar, Dhaka.

3.4 Sample Size

10 samples were selected conveniently according to inclusion and exclusion criteria for this study. 5 participants were in experimental group and 5 participants in control group.

3.5 Sampling Technique

Simple random sampling technique was used for this study. Subjects, who met the inclusion criteria, were taken as sample in this study. 10 patients with Low Back Pain were selected from outpatient musculoskeletal unit of physiotherapy department of CRP, Savar and then 5 patients were randomly assigned to Experimental group comprising of treatment approaches of Manual Lumbar Traction along with other Physiotherapy treatment and 5 patients to the only basic Physiotherapy treatment for this study. The study was a single blinded technique.

3.6 Inclusion criteria

- Patient with mechanical cause of Low Back Pain.
- Age between 20 to 50 years. These age groups patient were usually affected by LBP.
- Male and female both are included.
- Those who were motivated and given consent to include in the study.

3.7 Exclusion Criteria

- Patients with clinical disorder where Manual Lumbar Traction is contraindicated.
- Acute disc prolapse patient.
- Diagnosis of secondary complications such as tumour, TB spine, fracture, dislocation and severe osteoporosis, Paget's disease.
- All sorts of infection, Rheumatoid Arthritis, Ankylosing Spondylitis.
- History of any malignant disease.
- Cauda-equina lesions, Cord signs & Syndrome, Transverse myelitis.
- Surgery to the lumber spine.
- Pregnant women.
- Mentally retarded patient.

3.8 Data Processing

3.8.1 Data Collection Tools

- Record or Data collection form
- Consent Form
- Structured questionnaire: Dallas questionnaire and Oswestry Disability Index (ODI)
- Pen, Paper

3.8.2 Measurement Tools

Dallas questionnaire: Dallas pain questionnaire by using Visual Analogue Scale (VAS) for pain measurement in different working position. The VAS is a simple and accurate way of subjectively assessing pain along a continuous visual spectrum. VAS consists of a straight line on which the individual being assessed marks the level of pain. The ends of the straight line are the extreme limits of pain with 0 representing no pain and 10 representing the worst pain ever experienced. According to Myles (1999), the visual analog scale (VAS) is a tool widely used to measure pain and a change in the visual analog scale score represents a relative change in the magnitude of pain sensation.

Oswestry Disability Index (ODI): This is a set of questionnaire that has been designed to provide information regarding how the patient's back pain affects his/her ability to manage in everyday life. ODI contains 10 different sections of questions, each of which has 6 grades of defined statements. For each section the total possible score is 5: if the first statement is marked the section score = 0, if the last statement is marked the section score = 5. ODI consist of following: pain intensity, personal care, lifting, walking, sitting, standing, sleeping, sex life, social life and travelling. The total score is obtained by summing up the score of all sections giving a maximum of 50 points.

3.8.3 Data Collection Procedure

The researcher collected data through structured questionnaires, face to face interviews with closed ended question. Because structural questionnaire was helpful for the researcher to obtain all the required information at the same time giving freedom to the participants to responds and demonstrates the concept. A structured closed ended questionnaire was developed for socio-demographic indicators by the researcher himself to find out the actual information from every aspect of the participant. Others questionnaire was followed by individual questionnaire items and slightly changed for correlation with research topics. The interview contacted every session by face to face interviews after treatment sitting. Questionnaires used both English and Bangla for easy understanding of the participants. The patients were assessed by a qualified physiotherapist. 4 sessions of treatment were provided for every subject. 10 subjects were chosen for data collection according to the inclusion criteria.

3.9 Treatment Protocol

Manual lumbar Traction was applied by a graduate qualified physiotherapist who is expertized in Manual Lumbar Traction technique to the patients of experimental group.

Table -1: Experimental Group Treatment Protocol

Treatment option	Duration/Repetition
Manual lumbar Traction	15 minutes
Lumber Mobilization (Maitland mobilization)	5 minutes in each session
McKenzie Approach	10 repetition in each session
Soft tissue technique	3 minutes
IRR	10 minutes in each session

Table - 2: Control Group Treatment Protocol

Treatment option	Duration/Repetition
McKenzie Approach (Directional Preference)	10 repetition in each session
Lumber Mobilization (Maitland mobilization	5 minutes in each session
Soft tissue technique	3 minutes
IRR	10 minutes in each session

3.10 Data Analysis

Statistical analysis was performed by using Microsoft Office Excel 2013 and scientific calculator.

3.10.1 Statistical Test

Hypothesis test of mean difference between the experimental group and the control group, within groups and also between groups, assuming normal distribution of the parent population, two different and or independent variables, variables were quantitative by estimated predictor of paired t-test or unrelated t-test.

Paired t-test was used to compare difference between means of paired variables. Selection of test of hypothesis is mean difference under t distribution. The data was analyzed by unrelated t test as the study was a before-and-after observations on the same subjects and there was a comparison of two different methods of measurement or two different treatments where the measurements/treatments are applied to the same subjects.

According to Hicks (2009), experimental studies with the different subject design where two groups are used and each tested in two different conditions and the data is interval or ratio should be studied with unrelated t test. This test is used when' the experimental design compares two separate or different unmatched groups of subjects participating in different conditions. When calculating the unrelated t test, find the value called ‘t’ which then look up in the probability tables associated with the t test to find out whether the t value represents a significant difference between the results from two groups.

Hypothesis Test:

Paired t test

$$t = \frac{\bar{d}}{SE(\bar{d})} = \frac{\bar{d}}{\frac{SD}{\sqrt{n}}}$$

Where,

$\bar{d}$ = mean of difference (d) between paired values,

$SE(\bar{d})$ = Standard Error of the mean difference

SD = standard deviation of the differences d and

n = number of paired observations.

Calculation of paired t value of the general pain intensity as below-

$$t = \frac{\bar{d}}{SE(\bar{d})} = \frac{\bar{d}}{\frac{SD}{\sqrt{n}}} = \frac{\mathbf{3.38}}{\frac{\mathbf{2.913}}{\sqrt{\mathbf{5}}}} = \frac{\mathbf{3.38}}{\frac{\mathbf{2.913}}{\mathbf{2.24}}} = \frac{\mathbf{3.38}}{\mathbf{1.3}} = \mathbf{2.6}$$

Level of Significance

In order to find out the significance of the study, the "p" value was calculated. The p values refer to the probability of the results for experimental study. The word probability refers to the accuracy of the findings. A p value is called level of significance for an experiment and a p value of <0.05 was accepted as significant result for health service research. If the p value is equal or smaller than the significant level, the results are said to be significant.

Table-3: Dallas Questionnaire (Initial and Final assessment-paired t-test)

	Experimental group		Control Group		
	t	Sig. (2 tailed)	df	t	Sig. (2 tailed)
Pair 1 Pre how severe pain at your back? - Post how severe pain at your back?	6.862	.002	4	2.959	.042
Pair 2 Pre how severe pain during sitting? - Post how severe pain during sitting?	3.009	.040	4	2.939	.042
Pair 3 Pre how severe pain during standing? - Post how severe pain at standing?	5.782	.004	4	2.402	.074
Pair 4 Pre how severe pain during forward bending? - Post how severe pain during forward bending?	3.177	.034	4	2.488	.068
Pair 5 Pre how feel pain during twisting? - Post how feel pain during twisting?	5.612	.005	4	2.297	.083
Pair 6 Pre how severe pain at walking? - Post how severe pain at walking?	5.329	.006	4	3.330	.029
Pair 7 Pre how severe pain at sleep? - Post how severe pain at sleep?	3.692	.021	4	2.730	.052
Pair 8 Pre how feel pain during at rest? - Post how feel pain during at rest?	3.229	.032	4	2.785	.050
Pair 9 Pre how severe pain at lifting? - Post how severe pain at lifting?	8.719	.001	4	4.296	.013
Pair 10 Pre how severe pain during travelling? - Post how severe pain during travelling?	3.281	.030	4	3.269	.031
Pair 11 Pre how severe pain during coughing & sneezing? - Post how severe pain during coughing & sneezing?	3.371	.028	4	1.985	.118
Pair 12 Pre how severe pain at ADL? - Post how severe pain at ADL?	2.796	.049	4	3.047	.038

Table-4: Oswestry Disability Index (Initial and final paired t-test)

Experimental group				Control group		
Serial no	Variables	t	Sig. (2-tailed)	df	t	Sig. (2-tailed)
Pair 1	ODI(%) Initial-final	4.203	.014	4	5.371	.006

Unrelated t test:

Unrelated t test was used to compare difference between two means of independent variables.

Hypothesis

Variables were quantitative

Formula: test statistic t is follows:

$$t = \frac{\bar{x}_1 - \bar{x}_2}{s\sqrt{\left(\frac{1}{n_1}+\frac{1}{n_2}\right)}}$$

Where,

$\bar{x}_1$ = Mean of the Experimental Group,

$\bar{x}_2$ = Mean of the Control Group,

n_1 = Number of participants in the Experimental Group,

n_2 = Number of participants in the Control Group

S = Combined standard deviation of both groups

Table-5: Analysis of Pain Intensity

Subject	$\bar{x}_E$	$(\bar{x}_E - x_1)^2$	Subject	$\bar{x}_C$	$(\bar{x}_C - x_2)^2$
E1	2.6	0.19	C1	4.7	2.37
E2	4.0	0.92	C2	2.0	1.35
E3	2.1	0.88	C3	1.4	3.09
E4	0.9	4.58	C4	2.4	0.58
E5	5.6	6.55	C5	5.3	4.58
	$\sum\bar{x}_E = 15.2$	$\sum(\bar{x}_E - x_1)^2$ =13.12		$\sum\bar{x}_C$=15.8	$\sum(\bar{x}_C - x_2)^2$ =11.97

n_1 = 5 n_2 = 5

$x_1 = \frac{15.2}{5}$ = 3.04 $x_2 = \frac{15.8}{5}$ = 3.16

Calculating the degree of freedom from the formula:

df = (n_1 - 1) + (n_2 - 1) = (5 - 1) + (5 - 1) = 8

Calculation unrelated t value for general pain intensity:

Where,

$$S=\sqrt{\frac{\sum(\bar{x}_E-x_1)^2+\sum(\bar{x}_C-x_2)^2}{(n_1+n_2-2)}}=\sqrt{\frac{13.12+11.97}{(5+5-2)}}=\sqrt{\frac{25.09}{8}}=\sqrt{3.13624}=1.77$$

Here,

$\bar{x}_E$ = Mean of the experimental Group

$\bar{x}_C$ = Mean of the control group

x_1 = Individual value of the experimental group

x_2 = Individual value of the control group

n_1 =Number of participants in the Experimental Group

n_2 = Number of participants in the Control Group

$$t=\frac{\bar{x}_1-\bar{x}_2}{s\sqrt{\left(\frac{1}{n_1}+\frac{1}{n_2}\right)}}=\frac{3.04-3.16}{1.77\sqrt{\left(\frac{1}{5}+\frac{1}{5}\right)}}=\frac{0.12}{1.77\times0.633}=\frac{0.12}{1.12}=0.048=0.107$$

Table 6: Dallas Questionnaire (Final - Un-paired-t test)

	t	df	Sig.(2-tailed)
Severity of pain at back	0.107	8	0.917
Pain during sitting	0.532	8	0.609
At standing position	0.259	8	0.802
Pain during forward bending	0.631	8	0.546
Severity of pain during twisting	0.047	8	0.963
Severity of pain at walking	0.778	8	0.459
Severity of pain at sleep	2.171	8	0.062
Severity of pain during at rest	0.704	8	0.502
Severity of pain at lifting	0.367	8	0.723
Pain during travelling	0.149	8	0.885
Pain during coughing & sneezing	1.00	8	0.347
Pain at ADL	1.306	8	0.228

Oswestry Disability Questionnaire calculation

The score was expressed as a percentage with the following formula: (total score/ (5 × number of questions answered) × 100%. For example, if all 10 sections are completed the score is calculated as follows: 16 (total scored)/50 (total possible score) × 100 = 32%. If one section is missed (or not applicable) the score is calculated as follows: 16 (total scored)/45 (total possible score) × 100 = 35.5%. For every specific question, the patient marks the point on the scale which represents his/her condition.

3.11 Ethical Issues

The whole process of this research project was done by following the Bangladesh Medical Research Council (BMRC) guidelines and World Health Organization (WHO) Research guidelines. The proposal of the dissertation including methodology was submitted and approved by Institutional Review Board (IRB) of Bangladesh Health Professions Institute (BHPI). Again before the beginning of the data collection, the researcher obtained the permission ensuring the safety of the participants from the concerned authorities of the clinical setting and was allotted with a witness from the authority for the verification of the collected data. The researcher strictly maintained the confidentiality regarding participant's condition and treatments.

3.12 Informed Consent

The researcher obtained informed consent to participate from every subject. A signed informed consent form was received from each participant. The participants were informed that they have the right to meet with outdoor doctor if they think that the treatment is not enough to control the condition or if the condition become worsen. The participants were also informed that they are completely free to decline answering any question during the study and are free to withdraw their consent and terminate participation at any time. Withdrawal of participation from the study should not affect their treatment in the physiotherapy department and they should still get the same facilities. Every subject had the opportunity to discuss their problem with the senior authority or administration of CRP and have any questioned answer to their satisfaction.

CHAPTER – IV RESULTS

4.1 Socio-Demographical variables

For this study 10 patients with Low Back Pain were taken as sample from Musculoskeletal outpatient unit of Center for Rehabilitation of Paralyzed (CRP), Savar to explore the effectiveness of Manual lumber traction for the treatment of Low Back Pain. In this study the results which were found have been shown in different bar diagrams, pie charts and tables.

Table 7- Mean Age of Participants

Experimental Group		**Control Group**	
Subjects	**Age (Years)**	**Subjects**	**Age (Years)**
E1	28	C1	35
E2	30	C2	40
E3	26	C3	38
E4	34	C4	42
E5	40	C5	22
Mean Age	**31 years**	**Mean Age**	**35 years**

4.1.1 Age Range

Among the 10 participants, ages were in between 20-50 with mean age was 33.5 years where 20% (n=2) was 40 years, 10% (n=1) was 26 years, 10% (n=1) was 28 years, 10% (n=1) was 30 years, 10% (n=1) was 34 years, 10% (n=1) was 35 years, 10% (n=1) was 38 years and 10% (n=1) was 42 years. Among all of these age range 40-year age is more affected than other age group. (Figure-1)

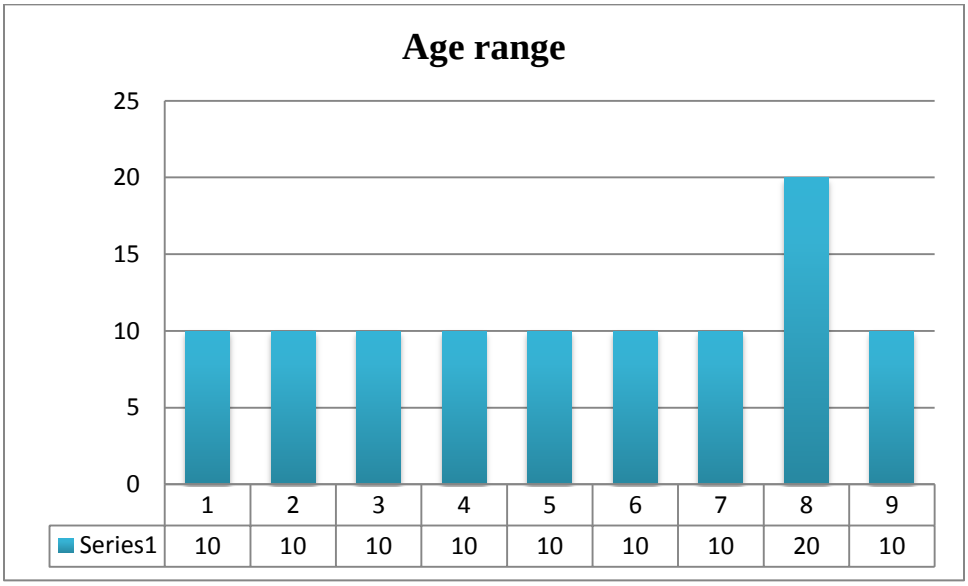


Figure 1- Age Range

4.1.2 Sex of the Participants

10 Patients with Low back pain were included as sample of the study, among them almost 20% (n=2) were male and about 80% (n=8) were female. So this study shoes that females are more vulnerable by Low back pain than male. (Figure-2)

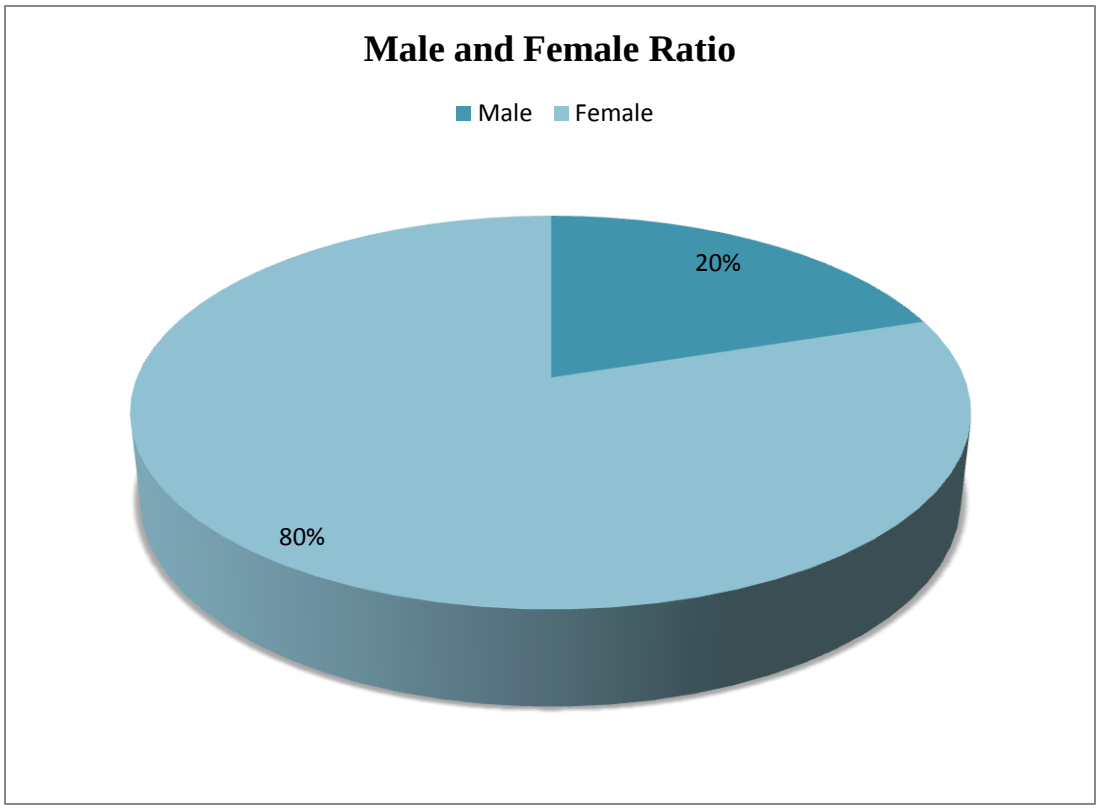


Figure 2- Gender Distribution

4.1.3 Occupation

Among the 10 participants 80 % participants were house wife, 10% participants were service holder, 10% participants were others occupation. So it is shows that according to individual occupation housewives were mostly affected part. But cluster of profession can experience Low back pain and occupation has great relation with Low back pain. (Figure-3)

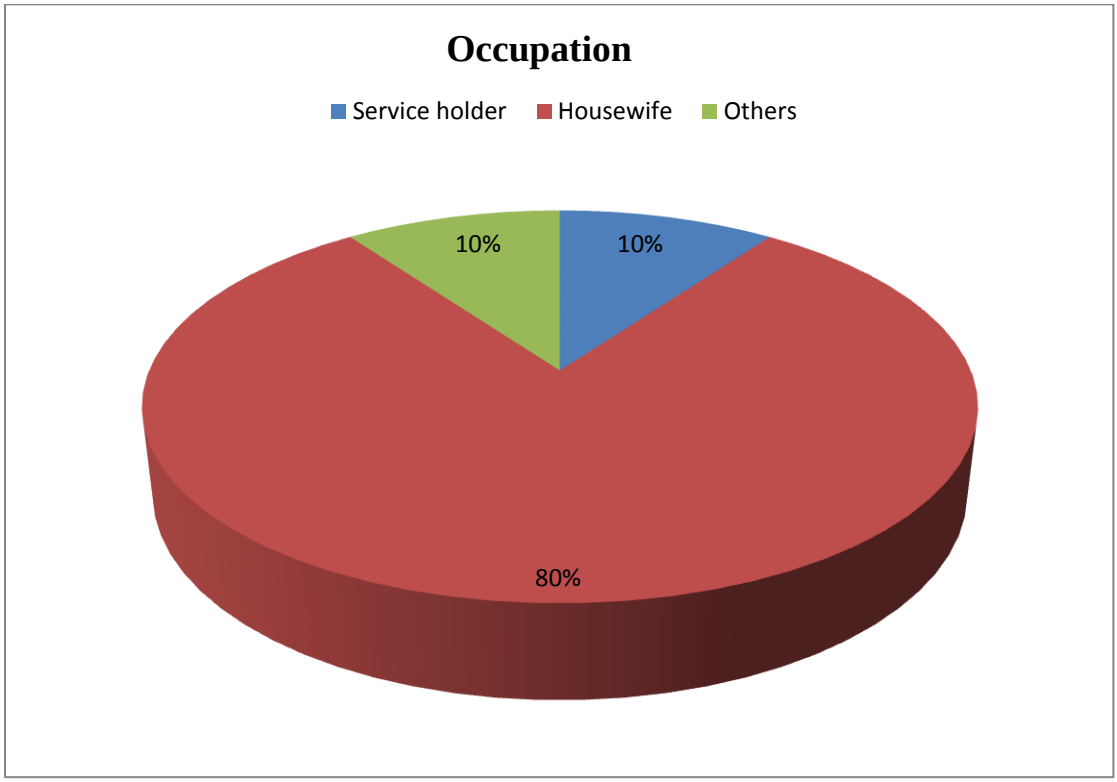


Figure-3: Occupation of the participants

4.1.4 Educational Status

Among the 10 participants 10% participants were illiterate, 10% participants had some primary level education, 40% participants completed secondary level education, 10% participants had some higher secondary level education, 20% participants completed graduation and 10% participant completed masters or above education. So we can conclude as that secondary level passed candidate were the most affected participant and it is not strongly related with Low back pain. (Figure-4)

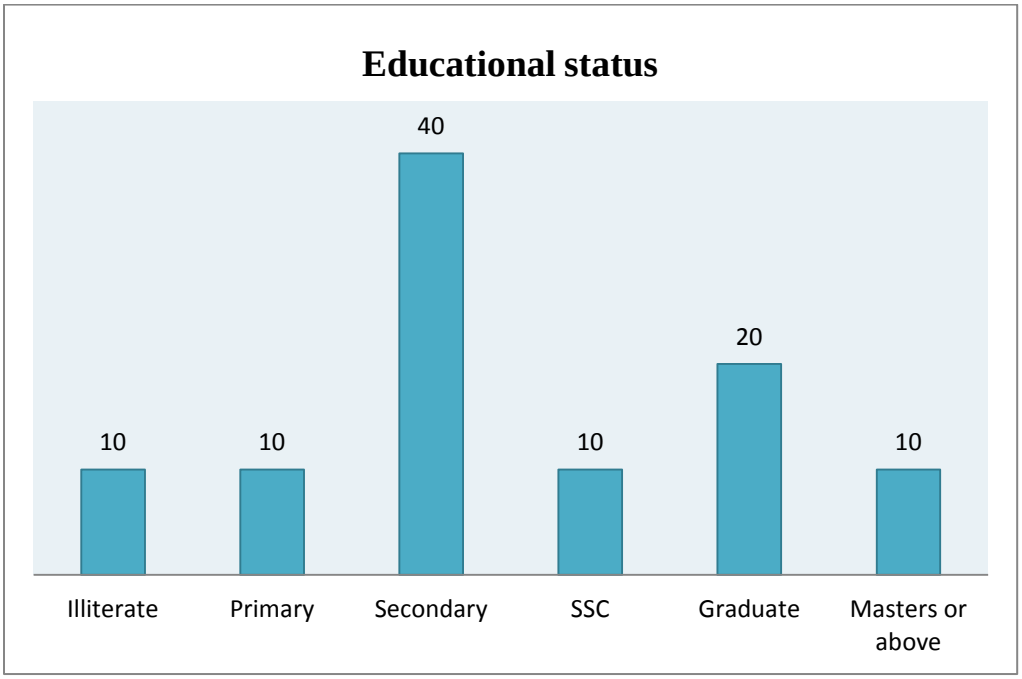


Figure – 4: Educational Status of the participants

4.1 5 Religion

Among the 10 participants 90% participants were Muslim and 10% participants were Hindu. So we can conclude that Muslim candidate were the most affected participant. (Figure-5)

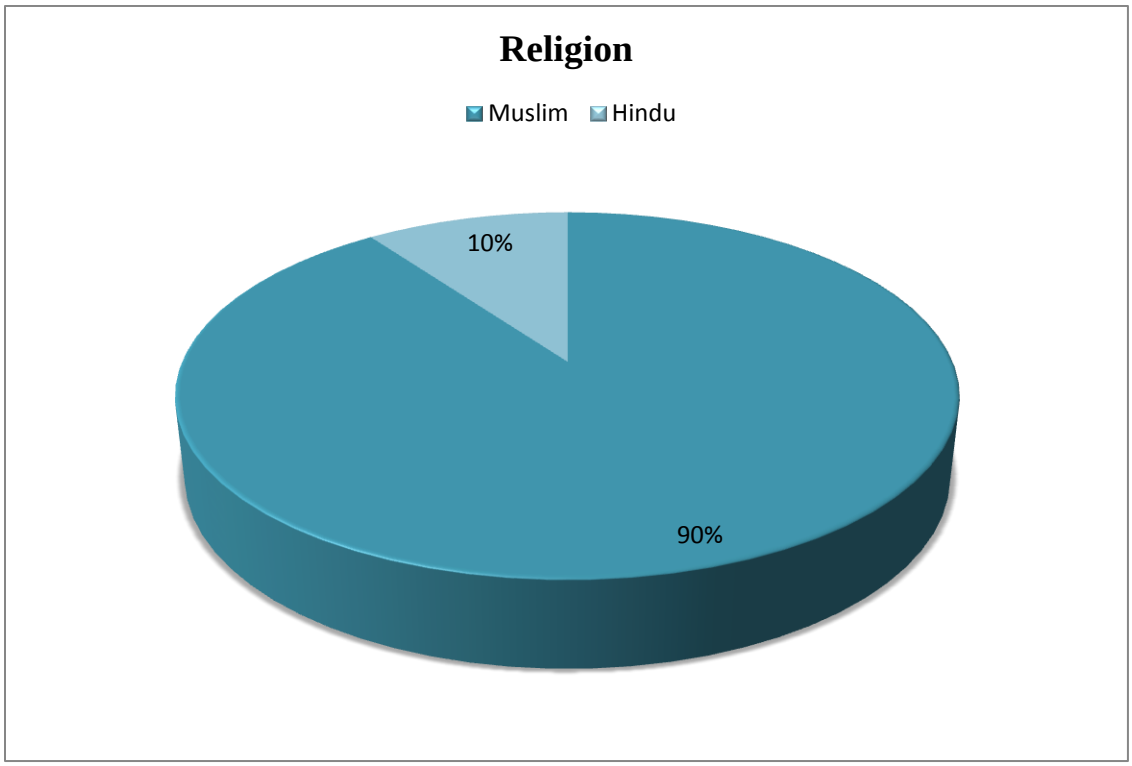


Figure – 5: Religion of the participants

4.1.6 Body Mass Index

Among the 10 participants 60% participants were normal in range (18.5-24.9) and 40% participants were overweight (25-29.9). So it indicates that excess weight is predisposing to Low back pain. (Figure-6)

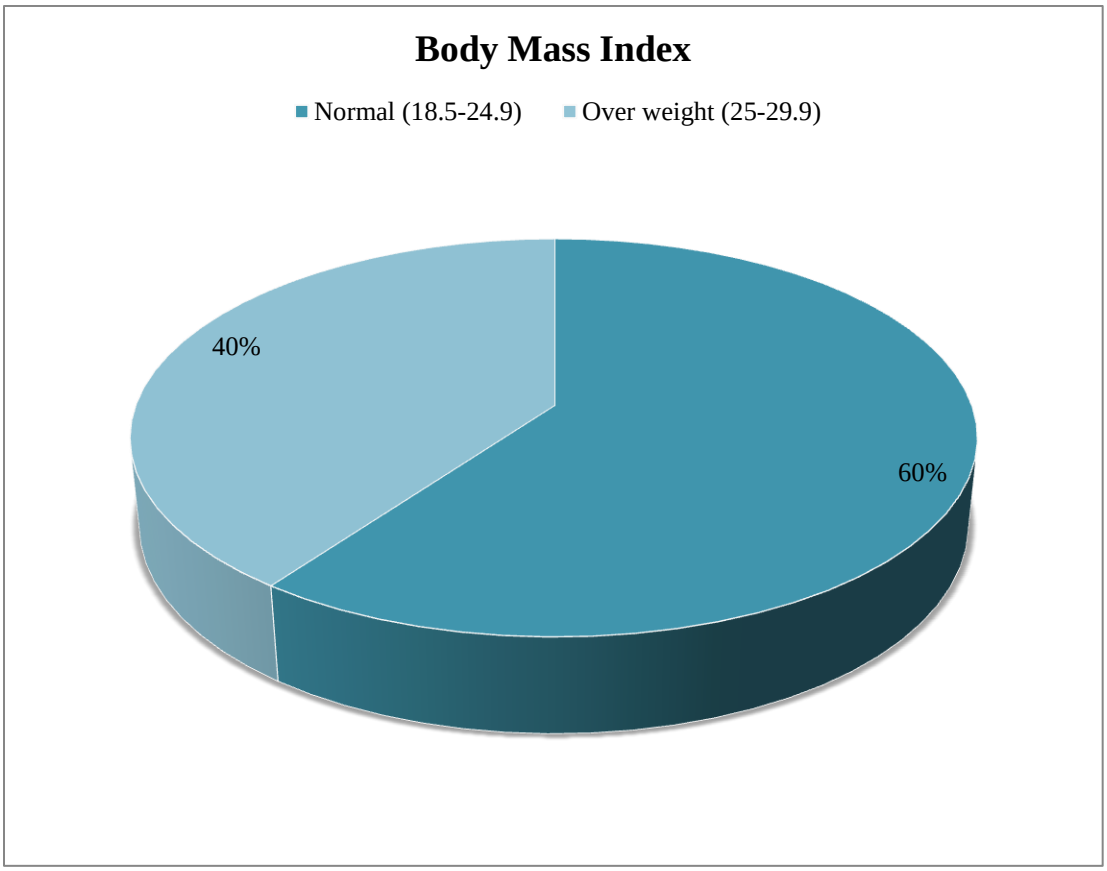


Figure – 6: Body Mass Index of the participant

4.2 Dallas Questionnaire

4.2.1 General pain intensity

This study found that in the general pain intensity, observed t value was 6.862 (5.0 ±1.6294) in the experimental group at two tailed paired t test while this same variable for control group observed value was 2.959 (3.2600±2.4633) in within group. 5% level of significant at 4 (four) degrees of freedom standard t value was 2.78 and observed t value in general pain intensity in both groups which were greater than standard t value that mean null hypothesis was rejected and alternative hypothesis was accepted in the within group. Both groups in aspect of general pain intensity were significant at .002% and .042% level, but the mean difference of the experimental group was greater than the control group mean that means Manual lumbar traction for Low back pain patients was more effective than basic physiotherapy treatment for reducing general pain intensity. The Unrelated/independent t test in between group at 5% level of significant and 8 degrees of freedom standard table value was 2.306 and at the same significant level and same degree of freedom observed t value was 0.107. The observed t value was less than the table value that indicates null hypothesis was accepted and alternative hypothesis was rejected which indicate there was no difference manual lumbar traction group and basic physiotherapy treatment group treatment in between group.

4.2.2 Pain intensity during Sitting

This study found that during sitting, observed t value was 3.009 (4.22±3.1356) in the experimental group at two tailed paired t test while this same variable for control group observed value was 2.939 (3.0±2.2825). 5% level of significant at 4 (four) degrees of freedom standard t value was 2.78 and observed t value during sitting pain intensity in both groups which were greater than standard t value that mean null hypothesis was rejected and alternative hypothesis was accepted in the within group. Both groups in aspect of general pain intensity were significant at .040% and .042% level, but the mean difference of the experimental group was greater than the control group mean that tends to Manual lumbar traction for Low back pain patients was more effective than basic physiotherapy treatment for reducing general pain intensity. The Unrelated/independent t

test in between group at 5% level of significant and 8 degrees of freedom standard table value was 2.306 and at the same significant level and same degree of freedom observed t value was 0.532. The observed t value was less than the table value that tends to null hypothesis was accepted and alternative hypothesis was rejected which indicate there was no difference between manual lumbar traction group and basic physiotherapy treatment group.

4.2.3 Pain intensity during Standing

This study found that during standing, observed t value was 5.782 (3.86 ±1.4926) in the experimental group at two tailed paired t test while this same variable for control group observed value was 2.402 (3.08±2.8674) in within group. 5% level of significant at 4 (four) degrees of freedom standard t value was 2.78 and the observed t value of experimental group was greater than standard t value that means null hypothesis was rejected and alternative hypothesis was accepted in the within group in experimental group and significant level was at .004%. So Manual lumbar traction was significantly reducing pain interfere with work for Low back pain patients. The Unrelated/independent t test in between group at 5% level of significant and 8 degrees of freedom standard table value was 2.306 and at the same significant level and same degree of freedom observed t value was 0.259. The observed t value was less than the table value that meant null hypothesis was accepted and alternative hypothesis was rejected which indicate there was no difference manual lumbar traction group and basic physiotherapy treatment group treatment in between group.

4.2.4 Pain at forward bending activity

This study found that in forward bending activity, observed t value was 3.177 (3.92±2.7590) in the experimental group at two tailed paired t test while this same variable for control group observed value was 2.488 (3.0±2.6963) in within group. 5% level of significant at 4 (four) degrees of freedom standard t value was 2.78 and the observed t value of experimental group was greater than standard t value that means null hypothesis was rejected and alternative hypothesis was accepted in the within group in experimental group and significant level was .034%. So Manual lumbar traction was

significantly reducing pain interfere with work for Low back pain patients. The Unrelated/independent t test in between group at 5% level of significant and 8 degrees of freedom standard table value was 2.306 and at the same significant level and same degree of freedom observed t value was 0.631. The observed t value was less than the table value that meant null hypothesis was accepted and alternative hypothesis was rejected which indicate there was no difference manual lumbar traction group and basic physiotherapy treatment group treatment in between group.

4.2.5 Pain intensity during twisting

This study found that during twisting, observed t value was 5.612 (4.46 ±1.7771) in the experimental group at two tailed paired t test while this same variable for control group observed value was 2.297 (3.54±3.4457) in within group. 5% level of significant at 4 (four) degrees of freedom standard t value was 2.78 and the observed t value of experimental group was greater than standard t value that means null hypothesis was rejected and alternative hypothesis was accepted in experimental group and significant level was at .005%. So Manual lumbar traction was significantly reducing pain interfere with work for Low back pain patients. The Unrelated/independent t test in between group at 5% level of significant and 8 degrees of freedom standard table value was 2.306 and at the same significant level and same degree of freedom observed t value was 0.047. The observed t value was less than the table value that meant null hypothesis was accepted and alternative hypothesis was rejected which indicate there was no difference manual lumbar traction group and basic physiotherapy treatment group treatment in between group.

4.2.6 Pain intensity during walking

This study found that during walking, observed t value was 5.329 (4.52±1.8966) in the experimental group at two tailed paired t test while this same variable for control group observed value was 3.330 (2.32±1.5579) in within group. 5% level of significant at 4 (four) degrees of freedom standard t value was 2.78 and observed t value in general pain intensity in both groups which were greater than standard t value that mean null hypothesis was rejected and alternative hypothesis was accepted in the within group.

Both groups in aspect of general pain intensity were significant at .006% and .029% level, but the mean difference of the experimental group was greater than the control group mean that means Manual lumbar traction for Low back pain patients was more effective than basic physiotherapy treatment for reducing general pain intensity during walking. Using Unrelated/independent t test in between group at 5% level of significant and 8 degrees of freedom standard table value was 2.306 and at the same significant level and same degree of freedom observed t value was 0.778. The observed t value was less than the table value that meant null hypothesis was accepted and alternative hypothesis was rejected which indicate there was no difference manual lumbar traction group and basic physiotherapy treatment group treatment in between group.

4.2.7 Pain intensity during sleeping

This study found that during sleeping, observed t value was 3.692 (3.34±2.0231) in the experimental group at two tailed paired t test while this same variable for control group observed value was 2.730 (4.1±3.3578) in within group. 5% level of significant at 4 (four) degrees of freedom standard t value was 2.78 and the observed t value of experimental group was greater than standard t value that means null hypothesis was rejected and alternative hypothesis was accepted in experimental group. So Manual lumbar traction was significantly reducing pain interfere with work for Low back pain patients and significant level was .021%. The Unrelated/independent t test in between group at 5% level of significant and 8 degrees of freedom standard table value was 2.306 and at the same significant level and same degree of freedom observed t value was 2.171. The observed t value was less than the table value that meant null hypothesis was accepted and alternative hypothesis was rejected which indicate there was no difference manual lumbar traction group and basic physiotherapy treatment group treatment in between group.

4.2.8 Pain intensity during rest

This study found that during rest, observed t value was 3.229 (3.24±2.2434) in the experimental group at two tailed paired t test while this same variable for control group observed value was 2.785 (3.38±2.7142) in within group. 5% level of significant at 4

(four) degrees of freedom standard t value was 2.78 and observed t value in general both groups which were greater than standard t value that mean null hypothesis was rejected and alternative hypothesis was accepted in the within group. Both groups in aspect of pain intensity were significant at .032% and .050% level, but the mean difference of the experimental group was less than the control group mean that means Manual lumbar traction for Low back pain patients was not effective than basic physiotherapy treatment for reducing general pain intensity. The Unrelated/independent t test in between group at 5% level of significant and 8 degrees of freedom standard table value was 2.306 and at the same significant level and same degree of freedom observed t value was 0.704. The observed t value was less than the table value that meant null hypothesis was accepted and alternative hypothesis was rejected which indicate there was no difference manual lumbar traction group and basic physiotherapy treatment group treatment in between group.

4.2.9 Pain intensity during lifting

This study found that during lifting, observed t value was 8.719 (5.22±1.3387) in the experimental group at two tailed paired t test while this same variable for control group observed value was 4.296 (3.58±1.8633) in within group. 5% level of significant at 4 (four) degrees of freedom standard t value was 2.78 and observed t value in general pain intensity in both groups which were greater than standard t value that mean null hypothesis was rejected and alternative hypothesis was accepted in the within group. Both groups in aspect of general pain intensity during lifting were significant at .001% and .013% level, but the mean difference of the experimental group was greater than the control group mean that means Manual lumbar traction for Low back pain patients was more effective than basic physiotherapy treatment for reducing general pain intensity. The Unrelated/independent t test in between group at 5% level of significant and 8 degrees of freedom standard table value was 2.306 and at the same significant level and same degree of freedom observed t value was 0.367. The observed t value was less than the table value that meant null hypothesis was accepted and alternative hypothesis was rejected which indicate there was no difference manual lumbar traction group and basic physiotherapy treatment group treatment in between group.

4.2.10 Pain intensity during travelling

This study found that during travelling, observed t value was 3.281 (3.78±2.5762) in the experimental group at two tailed paired t test while this same variable for control group observed value was 3.269 (3.26±2.2300) in within group. 5% level of significant at 4 (four) degrees of freedom standard t value was 2.78 and observed t value in general pain intensity in both groups which were greater than standard t value that mean null hypothesis was rejected and alternative hypothesis was accepted in the within group. Both groups in aspect of general pain intensity during travelling were significant at .030% and .031% level, but the mean difference of the experimental group was greater than the control group mean that means Manual lumbar traction for Low back pain patients was more effective than basic physiotherapy treatment for reducing general pain intensity. The Unrelated/independent t test in between group at 5% level of significant and 8 degrees of freedom standard table value was 2.306 and at the same significant level and same degree of freedom observed t value was 0.149. The observed t value was less than the table value that meant null hypothesis was accepted and alternative hypothesis was rejected which indicate there was no difference manual lumbar traction group and basic physiotherapy treatment group treatment in between group.

4.2.11 Pain intensity during coughing & sneezing

This study found that during coughing & sneezing, observed t value was 3.371 (4.88±3.2368) in the experimental group at two tailed paired t test while this same variable for control group observed value was 1.985 (1.04±1.1718) in within group. 5% level of significant at 4 (four) degrees of freedom standard t value was 2.78 and the observed t value of experimental group is greater than standard t value that means null hypothesis was rejected and alternative hypothesis was accepted in experimental group. So Manual lumbar traction was significantly reducing pain interfere with work for Low back pain patients and significant level was 0.028%.The Unrelated/independent t test in between group at 5% level of significant and 8 degrees of freedom standard table value was 2.306 and at the same significant level and same degree of freedom observed t value was 1.00. The observed t value was less than the table value that meant null hypothesis was accepted and alternative hypothesis was rejected which indicate there was no

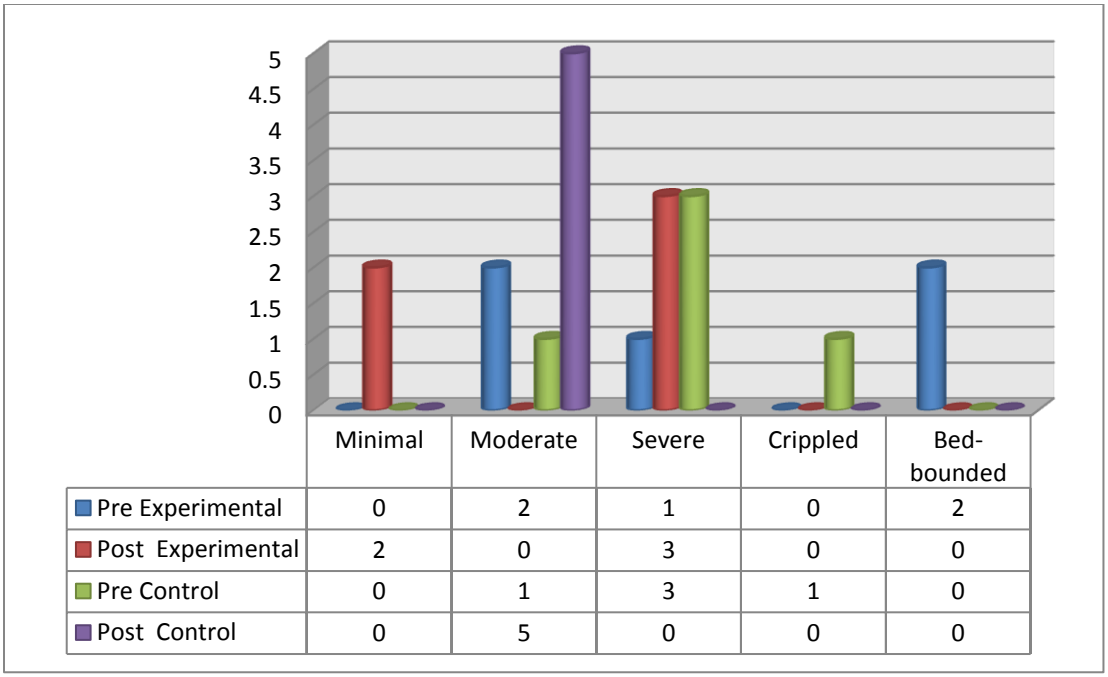
difference manual lumbar traction group and basic physiotherapy treatment group treatment in between group.

4.2.12 Pain intensity at ADL

This study found that at ADL, observed t value was 2.796 (3.48±2.7833) in the experimental group at two tailed paired t test while this same variable for control group observed value was 3.047 (3.3±2.4218) in within group. 5% level of significant at 4 (four) degrees of freedom standard t value was 2.78 and observed t value in general pain intensity in both groups which were greater than standard t value that mean null hypothesis was rejected and alternative hypothesis was accepted in the within group. Both groups in aspect of general pain intensity were significant at .049% and .038% level, but the mean difference of the experimental group was greater than the control group mean that means Manual lumbar traction for Low back pain patients was more effective than basic physiotherapy treatment for reducing pain intensity at ADL. The Unrelated/independent t test in between group at 5% level of significant and 8 degrees of freedom standard table value was 2.306 and at the same significant level and same degree of freedom observed t value was 1.306. The observed t value was less than the table value that meant null hypothesis was accepted and alternative hypothesis was rejected which indicate there was no difference manual lumbar traction group and basic physiotherapy treatment group treatment in between group.

4.3 Oswestry Low Back Pain Disability Questionnaire

In this study among the 10 participants (n=10). In experimental group (n=5), 2 participants had moderate disability, 1 participants had severe disability and 2 participants had bed bounded in initial examination and in post test (after receiving treatment) 2 participants had minimal disability, 3 participants had severe disability. It indicate that disability rate was gradually decrease from bed bounded to moderate disability and minimal disability. In control group (n=5), 1 participants had moderate disability, 3 participants had severe disability and 1 participants had crippled in initial examination and in post test (after receiving treatment) 5 participants had moderate disability. (Figure-7)



	Minimal	Moderate	Severe	Crippled	Bed-bounded
Pre Experimental	0	2	1	0	2
Post Experimental	2	0	3	0	0
Pre Control	0	1	3	1	0
Post Control	0	5	0	0	0

Figure -7: Disability among the participants

In Oswestry low back pain disability questionnaire, observed paired t test value was 4.203 (35.6±18.942) in experimental group and 5.371 (26.4±10.991) in control group and 4 degrees of freedom at 5% significant level standard table value was 2.78 which was lesser than the observed t value that null hypothesis was rejected and alternative hypothesis was accepted in within group. It indicated that Manual lumber traction was more effective than physiotherapy treatment approach for Low back pain patients.

CHAPTER – V DISCUSSION

The result of this study reported to find out the effectiveness of Manual Lumbar Traction for Low back pain patients compared with basic physiotherapy treatment. The different measurement tools were used to examine the hypothesis and test the hypothesis whether the null hypothesis were accepted or not based on the smaller or larger p. Self-oriented semi-structural questionnaire was used to find out the socio-demographical indicators. Significant improvements occurred in most of the measures that were recorded before and after treatment. The result found that the mean age of both group was 33.5 years (31 years in experimental group and 35 years in control group). The male was 20% and female was 80% in the both groups. 80 % participant's occupation were house wife, 10% participants were service holder, 10% participants were others occupation. Out of the total participants 10% participants were illiterate, 10% participants had some primary level education, 40% participants completed secondary level education, 10% participants had some higher secondary level education, 20% participants completed graduation and 10% participant completed masters or above education. Among the 10 participants 90% participants were Muslim and 10% participants were Hindu. Among the 10 participants 60% participants were normal in range (18.5-24.9) and 40% participants were overweight in range (25-29.9). No participants were with underweight and obesity.

The Visual Analog Scale was measured for measuring pain and discomfort in different working position like General pain intensity, Pain intensity during Sitting, Pain intensity during Standing, Pain at forward bending activity, Pain intensity during twisting, Pain intensity during walking, Pain intensity during sleeping, Pain intensity during rest, Pain intensity during lifting, Pain intensity during travelling, Pain intensity during coughing & sneezing and Pain intensity at ADL. General pain intensity of experimental group significant level was $p<0.002$ and control group significant level was $p<0.042$. But experimental group was highly significant in paired t test ($p<.05$ or more p value). So experimental group was more effective than control group. Pain intensity during Sitting of experimental group significant level was $p<0.040$ and control group significant level

was p<0.042. Here both experimental group and control group was significant in paired t test (p<.05 or more p value). But experimental group was more significant. So experimental group was more effective than control group. Pain intensity during Standing of experimental group significant level was p<0.004 but control group was not significant statistically was p>0.074. So experimental group was highly significant in paired t test (p<.05 or more p value). So experimental group was more effective than control group. Pain at forward bending activity of experimental group significant level was p<0.034 but control group was not significant statistically was p>0.068. Here experimental group was significant in paired t test (p<.05 or more p value). So experimental group was more effective than control group. Pain intensity during twisting of experimental group significant level was p<0.005 but control group was not significant statistically was p>0.083. So experimental group was highly significant in paired t test (p<.05 or more p value). So experimental group was more effective than control group. Pain intensity during walking of experimental group significant level was p<0.006 and control group significant level was p<0.029. But experimental group was highly significant in paired t test (p<.05 or more p value). So experimental group was more effective than control group. Pain intensity during sleeping of experimental group significant level was p<0.021 but control group was not significant statistically was p>0.052. Here experimental group was significant in paired t test (p<.05 or more p value). So experimental group was more effective than control group. Pain intensity during rest of experimental group significant level was p<0.032 and control group significant level was p<0.050. Here both experimental group and control group was significant in paired t test (p<.05 or more p value). But experimental group was more significant. So experimental group was more effective than control group. Pain intensity during lifting of experimental group significant level was p<0.001 and control group significant level was p<0.013. But experimental group was highly significant in paired t test (p<.05 or more p value). So experimental group was more effective than control group. Pain intensity during travelling of experimental group significant level was p<0.030 and control group significant level was p<0.031. Here both experimental group and control group was significant in paired t test (p<.05 or more p value). But experimental group was more significant. So experimental group was more effective than control group. Pain intensity

during coughing & sneezing of experimental group significant level was p<0.028 but control group was not significant statistically was p>0.118. Here experimental group was significant in paired t test (p<.05 or more p value). So experimental group was more effective than control group. Pain intensity at ADL of experimental group significant level was p<0.049 and control group significant level was p<0.038. Here both experimental group and control group was similarly significant in paired t test (p<.05 or more p value). So control group and experimental group both were similarly effective. In unrelated t test, all of the domains did not show any significance statistically (p>.05). Among the outcome measurements of this study, the Dallas questionnaire had used in evaluation of every session where the progression outline were improved in most of the indicators within the experimental group rather than control.

In this study, Oswestry disability index was used to evaluate the level of disability impacted by the Low back pain to the subjects. According to the classification criteria determined by ODI, In experimental group (n=5), 40% participants had moderate disability, 20% participants had severe disability and 40% participants had bed bounded in initial examination and in post test (after receiving treatment) 40% participants had minimal disability, 60% participants had severe disability. It indicates that disability rate was gradually decrease from bed bounded to moderate disability and minimal disability. In control group (n=5), 20% participants had moderate disability, 60% participants had severe disability and 20% participants had crippled in initial examination and in post test (after receiving treatment) 100% participants had moderate disability. It indicates that disability rate was gradually decrease from crippled to moderate disability. In Oswestry low back pain disability questionnaire, observed paired t test value was 4.203 (35.6±18.942) in experimental group and 5.371 (26.4±10.991) in control group and 4 degrees of freedom at 5% significant level standard table value was 2.78 which was lesser than the observed t value. Though the mean value of experimental group was greater than control group so it indicates that Manual lumbar traction is more effective than physiotherapy treatment approach for Low back pain patients.

Measurement tools were similar in the both study as the VAS scale and Oswestry disability questionnaire. The outcome was more significant in the study by Murtezani, et

al. (2015) whilst less in this study. In the outcome of the Dallas pain scale and Oswestry disability questionnaire were significant at most of the indicators within manual lumbar traction group in paired t test, but while comparing the between group, there was no statistical significance and indicate there was no difference manual lumbar traction group and basic physiotherapy treatment group treatment in between group. In the Oswestry disability questionnaire shows that participants of manual lumbar traction were better reduction their disability rather than physiotherapy treatment group.

Total 42 subjects with LBP of at least 6 weeks duration to physical therapy (hot pack, ultrasound, and active exercises) or physical therapy plus sustained traction (greater than 50% body weight). All patients completed the Oswestry disability index (ODI) to assess disability and the 10-cm visual analog scale (VAS) for evaluation of pain. Subjects were randomly assigned into group 1, receiving only standard physical therapy, or group 2, receiving standard physical therapy with conventional lumbar traction. After 10 treatment sessions over 2 weeks, they found no difference between the groups in regard to visual analog scale (VAS), Oswestry Disability Index score. There was a significant reduction in pain intensity and disability at the end of treatment in both groups. There was complete or mild improvement in 47.6% of group 1 and 40% of group 2. The satisfaction rate with both treatments was more than 70% immediately after the therapies. Pain and global improvement were also better in this group, but the difference was not statistically significant. In conclusion, no specific effect of traction on standard physical therapy was observed in our study group (Borman et al., 2003).

A total of 124 subjects completed the treatment protocol and noted significant improvements for all post-intervention outcome scores when compared with pre-intervention scores ($P<0.01$). Also found significant difference between 2 groups in favor of lumber traction ($P<0.01$). Traction applied in the prone position for 4 weeks was associated with improvements in pain intensity and ODI scores at discharge. Long time follow-up can imply a long lasting relationship between the traction and outcome (Beyki et al., 2007).

Study shows that 56 patients (93%) completed the 14-week follow-up evaluation. Three patients in the SHAM group failed to complete the graded activity program, two because

of physical problems and one because of lost of motivation and heavy emotional cost. One patient in the IDD group could not finish the graded activity program due to logistical problems. But, they all finished the traction sessions and a part of the graded activity program (complete data available until 6 weeks follow-up moment). General socio-demographic characteristics and mean values and standard deviations for the scores of the VAS, IDD, SHAM Therapy and ODI, both groups Evaluated that these variables showed no between group differences at baseline since all P values [0.05, implying a successful randomization. But, the participants in both groups reported a significant improvement in LBP, leg pain, daily function (ODI) and general health perception (Schimmel et al., 2009). The participants of experimental group have received lumber traction treatment 6 sessions consecutively. Pawar and Metgud, (2010) explored in the RCT where the number of treatment sessions was 4 sessions in this study. Lumbar traction has long been a preferred method for treating lumbar disc problems, but in light of the effectiveness of more active treatment, it is generally not recommended in the treatment of acute LBP (Revel, 2000).

Limitation of the study

The study was conducted with 10 patients of Low Back Pain, which was a very small number of samples in both groups and was not sufficient enough for the study to generalize the wider population of this condition. The study was conducted within short period which is the main limitation of this study. Sometimes treatment sessions were interrupted due to public holiday and recruit physiotherapists taken leave in the data collection that may interrupt the result. It is limited by the fact daily activities of the subject were not monitored which could have influenced. Researcher only explored the effect of Manual lumbar traction after 4 sessions of treatments, so the long term effect of Manual lumbar traction was not explored in this study. The research was carried out in CRP, Savar such a small environment, so it was difficult to keep confidential the aims of the study for blinding procedure. Therefore, single blind method was used in this study. 10% participants were illiterate; it may give data error way. There was no system of long term follow-up after the post-test of the study.

CHAPTER- VI CONCLUSION AND RECOMMENDATION

The study was an experimental design to examine the effectiveness of manual lumbar traction for the management of low back pain patient along with physiotherapy treatment, where the results of the study have demonstrated that the combination technique is significantly capable of producing beneficial effects on pain reduction and functional disability minimization. This study has found that manual lumbar traction is marginal effective rather than basic physiotherapy treatment.

The result also indicates that the significant changes in both groups are due to the selection of a well-defined population of mechanical Low back pain patients using specific inclusion and exclusion criteria. It may be helpful for patient with mechanical LBP to increase functional abilities for mechanical LBP.

The researcher did not diagnose specific nerve root involvement and did not apply manual lumbar traction specific vertebral segment. It is recommended to do further study with diagnosis of specific nerve root involvement and manual lumbar traction of specific vertebral segment.

These samples were selected between the age group of 20-50 years, but the researcher could not find out which age group was more effective. If the most effective age group were found then the study will be more effective.

Despite the limitations of the study particularly small sample size, the results of the study give further motivation to controlled clinical trials with sufficient time and sample size. It could be also suggested that for further future study can be carried out with comparable patient variables with emphasis on ergo metrics variables.

REFERENCES

Albright, J., Allman, R., Bonfiglio, R.P., Conill, A., Dobkin, B., Guccione, A.A., Hasson, S.M., Russo, R., Shekelle, P., Susman, J.L. and Brosseau, L., (2001). Philadelphia Panel evidence-based clinical practice guidelines on selected rehabilitation interventions for low back pain. Physical Therapy, 81(10):1641-1674.

Balague, F., Mannion, A.F., Pellise, F. and Cedraschi, C., (2012). Non-specific low back pain. The Lancet, 379(9814):482-491.

Beattie, P.F. and Silfies, S.P., (2015). Improving long-term outcomes for chronic low back pain: time for a new paradigm?. journal of orthopaedic & sports physical therapy, 45(4):236-239.

Beattie, P.F., Nelson, R.M., Michener, L.A., Cammarata, J. and Donley, J., (2008). Outcomes after a prone lumbar traction protocol for patients with activity-limiting low back pain: a prospective case series study. Archives of Physical Medicine And Rehabilitation, 89(2):269-274.

Beyki, M., Abedi, M., Soleimani, F., E Mousavi, M. and S Roghani, R., (2007). Efficacy of prone lumbar traction on chronic discogenic low back pain and disability. Iranian Rehabilitation Journal, 5(5):20-23.

Blomberg, S., (2005). A pragmatic management strategy for low-back pain-an integrated multimodal programme. Textbook of Musculoskeletal Medicine:4.

Bogduk, N., (2004). Management of chronic low back pain. Medical journal of Australia, 180(2):79-83.

Borenstein, D.G., Calin, A. and Calin, A., (2012). Fast Facts: Low Back Pain. Health Press.

Borman, P., Keskin, D. and Bodur, H., (2003). The efficacy of lumbar traction in the management of patients with low back pain. Rheumatology international, 23(2):82-86.

Bronfort, G., Haas, M., Evans, R., Kawchuk, G. and Dagenais, S., (2008). Evidence-informed management of chronic low back pain with spinal manipulation and mobilization. The Spine Journal, 8(1):213-225.

Carey, T.S. and Freburger, J., (2014). Physical therapy for low back pain: what is it, and when do we offer it to patients?. The Annals of Family Medicine, 12(2):99-101.

Cavagnaro, L., Basso, M., Mazzola, M.A. and Formica, M., (2014). Lumbar traction in the management of low back pain: a survey of latest results. Journal of Novel Physiotherapies.

Charoenchai, L., Chaikoolvatana, A.,and Chaiyakul, P., (2006). The relationship between health behavior and pain scale in patients with low back pain in Thailand. Department of Pharmaceutical Science, Ubon Ratchathani University, Ubon Ratchathani, Thailand 37(5):1040

Choi, J., Hwangbo, G., Park, J. and Lee, S., (2014). The effects of manual therapy using joint mobilization and flexion-distraction techniques on chronic low back pain and disc heights. Journal of physical therapy science, 26(8):1259.

Chou, R. and Huffman, L.H., (2007). Nonpharmacologic therapies for acute and chronic low back pain: a review of the evidence for an American Pain Society/American College of Physicians clinical practice guideline. Annals of internal medicine, 147(7):492-504.

Cohen, S.P., Argoff, C.H., and Carragee, E.J., (2009). Management of low back pain. British Medical Journal, 338:101-105.

Diab, A.A.M. and Moustafa, I.M., (2013). The efficacy of lumbar extension traction for sagittal alignment in mechanical low back pain: a randomized trial. Journal of back and musculoskeletal rehabilitation, 26(2):213-220.

Dunn KM, Jordan KP, Mancl L, Drangsholt MT, Resche LL. (2011).Trajectories of pain in adolescents: a prospective cohort study. Pain; 152: 66–73.

Dunsford, A., Kumar, S., and Clarkea, S., (2011). Integrating evidence into practice: use of McKenzie-based treatment for mechanical low back pain. Journal of Multidisciplinary Healthcare, 4: 393-402.

Feldman, D.E., Shrier, I., Rossignol, M. and Abenhaim, L., (2001). Risk factors for the development of low back pain in adolescence. American Journal of Epidemiology, 154(1):30-36.

Gracey, J.H., Mc Donough, S.M. and Baxter, G.D., (2002). Physiotherapy management of low back pain: a survey of current practice in Northern Ireland. Spine, 27(4):406-411.

Harte, A.A., Baxter, G.D. and Gracey, J.H., (2003). The efficacy of traction for back pain: a systematic review of randomized controlled trials. Archives of physical medicine and rehabilitation, 84(10):1542-1553.

Harte, A.A., Baxter, G.D. and Gracey, J.H., (2007). The effectiveness of motorized lumbar traction in the management of LBP with lumbo sacral nerve root involvement: a feasibility study. BMC musculoskeletal disorders, 8(1):1.

Harte, A.A., Gracey, J.H. and Baxter, G.D., (2005). Current use of lumbar traction in the management of low back pain: results of a survey of physiotherapists in the United Kingdom. Archives of physical medicine and rehabilitation, 86(6):1164-1169.

Hicks, C.M., (2009). Research Methods for Clinical Therapists: Applied Project Design and Analysis. Elsevier Health Sciences.

Hicks, G.E., Gaines, J.M., Shardell, M. and Simonsick, E.M., (2008). Associations of back and leg pain with health status and functional capacity of older adults: findings from the retirement community back pain study. Arthritis Care & Research, 59(9):1306-1313.

Jeffries, L.J., Milanese, S.F. and Grimmer-Somers, K.A., (2007). Epidemiology of adolescent spinal pain: a systematic overview of the research literature. Spine,

32(23):2630-2637.

Katz, J.N., (2006). Lumbar disc disorders and low-back pain: socioeconomic factors and consequences. J Bone Joint Surg Am, 88:21-24.

Krismer, M. and Van Tulder, M., (2007). Low back pain (non-specific). Best Practice & Research Clinical Rheumatology, 21(1):77-91.

Kumar, S., (2011). Efficacy of segmental stabilization exercise for lumbar segmental instability in patients with mechanical low back pain: A randomized placebo controlled crossover study. North American Journal of Medical Sciences, 3(3): 456-461.

Li, L.C. and Bombardier, C., (2001). Physical therapy management of low back pain: an exploratory survey of therapist approaches. Physical therapy, 81(4):1018-1028.

Louw, Q.A., Morris, L.D. and Grimmer-Somers, K., (2007). The prevalence of low back pain in Africa: a systematic review. BMC Musculoskeletal disorders, 8(1):1.

Luijsterburg, P.A., Verhagen, A.P., Ostelo, R.W., van Os, T.A., Peul, W.C. and Koes, B.W., (2007). Effectiveness of conservative treatments for the lumbosacral radicular syndrome: a systematic review. European Spine Journal, 16(7):881-899.

Macario, A. and Pergolizzi, J.V., (2006). Systematic literature review of spinal decompression via motorized traction for chronic discogenic low back pain. Pain Practice, 6(3):171-178.

Madson, T.J. and Hollman, J.H., (2015). Lumbar traction for managing low back pain: a survey of physical therapists in the United States. journal of orthopaedic &

sports physical therapy, 45(8):586-595.

Menzel, N., Feng, D. and Doolen, J., (2016). Low Back Pain in Student Nurses: Literature Review and Prospective Cohort Study. International journal of nursing education scholarship, 13(1).

Merskey, H., and Bogduk, N., (1994). Classification of chronic pain, IASP Task Force on Taxonomy. Seattle, WA: International Association for the Study of Pain Press. [Online]. Available < www. iasp-painorg>.

Meyer, T., Cooper, J. and Raspe, H., (2007). Disabling low back pain and depressive symptoms in the community-dwelling elderly: a prospective study. Spine, 32(21):2380-2386.

Middlekoop, M.V., Rubinstein, S.M., Kujipers, T., Verhage, A.P., Ostelo, R., Koes, B.W., and Tulder, M.W.V., (2011). A systematic review on the effectiveness of physical and rehabilitation interventions for chronic non-specific low back pain. European Spine Journal, 20(1):19-39.

Mousavi, S.J., Parnianpour, M., Mehdian, H., Montazeri, A. and Mobini, B., (2006). The Oswestry disability index, the Roland-Morris disability questionnaire, and the Quebec back pain disability scale: translation and validation studies of the Iranian versions. Spine, 31(14):454-459.

Murtezani, A., Govori, V., Meka, V.S., Ibraimi, Z., Rrecaj, S. and Gashi, S.,(2015). A comparison of mckenzie therapy with electrophysical agents for the treatment of work related low back pain: A randomized controlled trial. Journal of back and

musculoskeletal rehabilitation, 28(2):247-253.

Ozturk, B., Gunduz, O.H., Ozoran, K. and Bostanoglu, S., (2006). Effect of continuous lumbar traction on the size of herniated disc material in lumbar disc herniation. Rheumatology international, 26(7):622-626.

Pawar, A.H. and Metgud, S., (2010). "Comparative Effectiveness of Mulligan's Traction Straight Leg Raise and Bent Leg Raise in Low Back Ache with Radiculopathy"– A Randomized Clinical Trial (Doctoral dissertation, KLE University, Belgaum, Karnataka).

Pellise F, Balague F, Rajmil L, et al. (2009) Prevalence of low back pain and its effect on health-related quality of life in adolescents. Arch Pediatr Adolesc Med; 163: 65-71.

Phaner, V., Minon, I.F., Lequang, B., Chalet, E.V., and Calmels, P., (2009). Are there indications (other than scoliosis) for rigid orthopaedic brace treatment in chronic, mechanical low back pain?. Annals of Physical and Rehabilitation Medicine, 52(5): 382-393.

Picavet, H.S.J., and Schuit, A.J., (2003). Physical inactivity: a risk factor for low back pain in the general population. Journal of epidemiology and community health, 57(7):517-518.

Picavet, H.S.J., Struijs, J.N. and Westert, G.P., (2008). Utilization of health resources due to low back pain: survey and registered data compared. Spine, 33(4):436-444.

Plaza-Manzano, G., Molina, F., Lomas-Vega, R., Martínez-Amat, A., Achalandabaso, A. and Hita-Contreras, F., (2014). Changes in biochemical markers of pain perception and stress response after spinal manipulation. journal of orthopaedic & sports physical therapy, 44(4):231-239.

Poitras, S., Blais, R., Swaine, B. and Rossignol, M., (2005). Management of work-related low back pain: a population-based survey of physical therapists. Physical Therapy, 85(11):1168-1181.

Puts, M.T.E., Deeg, D.J.H., Hoeymans, N., Nusselder, W.J. and Schellevis, F.G., (2008). Changes in the prevalence of chronic disease and the association with disability in the older Dutch population between 1987 and 2001. Age and ageing, 37(2):187-193.

Rahman, M.S., Uddin, M.T. and Ahsanulla, M., (2007). Review on Efficacy of Lumber Traction on Low Back Pain. Journal of Medicine, 8(2):69-73.

Revel, M., (2000). Does traction still have a role in nonspecific low backdisorders?. Joint, bone, spine: revue du rhumatisme, 67(3):146.

Ricci, J.A., Stewart, W.F., Chee, E., Leotta, C., Foley, K. and Hochberg, M.C., (2006). Back pain exacerbations and lost productive time costs in United States workers. Spine, 31(26):3052-3060.

Santos, S. and Ribeiro, F., (2010). Acute effects of mechanical lumbar traction with different intensities on stature. Acta reumatologica portuguesa, 36(1):38-43.

Sari, H., Akarırmak, Ü., Karacan, I. and Akman, H., (2005). Computed tomographic evaluation of lumbar spinal structures during traction. Physiotherapy theory and practice, 21(1):3-11.

Savigny, P., Kuntze, S., Watson, P., Underwood, M., Ritchie, G., Cotterell, M., Hill, D., Browne, N., Buchanan, E., Coffey, P. and Dixon, P., (2009). Low back pain: early management of persistent non-specific low back pain. London: National Collaborating Centre for Primary Care and Royal College of General Practitioners, 14.

Schimmel, J.J., de Kleuver, M., Horsting, P.P., Spruit, M., Jacobs, W.C.H. and van Limbeek, J., (2009). No effect of traction in patients with low back pain: a single centre, single blind, randomized controlled trial of Intervertebral Differential Dynamics Therapy. European spine journal, 18(12):1843-1850.

Shambrook, J., McNee P., Harris, C.E., Kim, M., Sampson, M., Palmer, K., and Coggon, (2011). Clinical Presentation Of Low Back Pain And Association With Risk Factors According To Findings On Magnetic Resonance Imaging. Pain, 152(7):1659 – 1665.

Sharma, A., Alahmari, K. and Ahmed, I., (2015). Efficacy of Manual Therapy versus Conventional Physical Therapy in Chronic Low Back Pain Due to Lumbar Spondylosis. A Pilot Study. Medical Sciences, 3(3):55-63.

Sherry, E., Kitchener, P. and Smart, R., (2013). A prospective randomized controlled study of VAX-D and TENS for the treatment of chronic low back pain.

Neurological research.

Sikiru, L., and Hanifa, S., (2010). Prevalence and risk factors of low back pain among nurses in typical Nigerian hospital. African Health Science, 10:26-30.

Steenstra, I.A., Verbeek, J.H., Heymans, M.W. and Bongers, P.M., (2005). Prognostic factors for duration of sick leave in patients sick listed with acute low back pain: a systematic review of the literature. Occupational and environmental medicine, 62(12):851-860.

Stewart, W.F., Ricci, J.A., Chee, E.,Morganstein, D. and Lipton, R., (2003). Lost productive time and cost due to common pain conditions in the US workforce. Jama, 290(18):2443-2454.

Thelin, A., Holmberg, S. and Thelin, N., (2008). Functioning in neck and low back pain from a 12-year perspective: a prospective population-based study. Journal of Rehabilitation Medicine, 40(7):555-561.

Thiese, M.S., Hegmann, K.T., Wood, E.M., Garg, A., Moore, J.S., Kapellusch, J., Foster, J. and Ott, U., (2014). Prevalence of low back pain by anatomic location and intensity in an occupational population. BMC musculoskeletal disorders, 15(1):1.

Truumees, E., Majid, K., and Brkaric, M., (2008). Anterior lumbar interbody fusion in the treatment of mechanical low back pain. Seminars in Spine Surgery, 20(2):113-125.

Urquhart, D.M., Shortreed, S., Davis, S.R., Cicuttini, F.M. and Bell, R.J., (2009). Are low levels of low back pain intensity and disability associated with reduced well-being in community-based women?. Climacteric, 12(3):266-275.

Van Tulder, M., Becker, A., Bekkering, T., Breen, A., Gil del Real, M.T., Hutchinson, A., Koes, B., Laerum, E. and Malmivaara, A., (2006). Chapter 3 European guidelines for the management of acute nonspecific low back pain in primary care. European spine journal, 15:169-191.

Vingard, E., Mortimer, M., Wiktorin, C., Fredriksson, K., Németh, G., Alfredsson, L. and Musculoskeletal Intervention CenterNorrtalje Study Group, (2002). Seeking Care for Low Back Pain in the General Population: A Two-Year Follow-up Study: Results From the MUSIC–Norrtalje Study. Spine, 27(19):2159-2165.

Vos, T., Flaxman, A.D., Naghavi, M., Lozano, R., Michaud, C., Ezzati, M., Shibuya, K., Salomon, J.A., Abdalla, S., Aboyans, V. and Abraham, J., (2013). Years lived with disability (YLDs) for 1160 sequelae of 289 diseases and injuries 1990–2010: a systematic analysis for the Global Burden of Disease Study 2010. The Lancet, 380(9859):2163-2196.

Waddell, G. and Burton, A.K., (2005). Concepts of rehabilitation for the management of low back pain. Best Practice & Research Clinical Rheumatology, 19(4):655-670.

Wegner, I., Widyahening, I.S., van Tulder, M.W., Blomberg, S.E., de Vet, H.C., Brønfort, G., Bouter, L.M. and van der Heijden, G.J., (2013). Traction for low-back pain with or without sciatica. The Cochrane Library.

Wieser, S., Horisberger, B., Schmidhauser, S., Eisenring, C., Brugger, U., Ruckstuhl, A., Dietrich, J., Mannion, A.F., Elfering, A., Tamcan, O. and Muller, U., (2011). Cost of low back pain in Switzerland in 2005. The European Journal of Health Economics, 12(5):455-467.

ANNEXURE

Permission Letter

To

The Head of the Physiotherapy Department,
Center for the Rehabilitation of the Paralyzed (C.R.P.),
Savar, Dhaka.

Subject: Prayer for permission of data collection for the research project.

Sir,

I beg most respectfully to state that, I am a student of B Sc in Physiotherapy in Bangladesh Health Profession Institute (BHPI) under University of Dhaka. As a part of my curriculum, I have to conduct a research project. The area of my research project is musculoskeletal physiotherapy and title is "Effectiveness of manual lumber traction for the management of low back pain patient along with physiotherapy treatment". The samples of my research project are patient with back pain. The setting of the project is outdoor service physiotherapy department at CRP Savar Dhaka. So I need to collect data of those patients from your department. I will follow all the fact written in my consent form and will not do any harm for the patients.

I therefore, pray and hope that you would be kind enough to give me the permission to collect data and complete the research project successfully from your department.

Tanha Nosin Nanni
Yours faithfully
Tanha Nosin Nanni
4th professional B.Sc. in physiotherapy (B.H.P.I.)
C.R.P. Savar, Dhaka
Date: 20-08-2016

Approved
20/08/16
Mohammad Anwar Hossain
Associate Professor &
Head of Physiotherapy Dept.
CRP, Chapain, Savar, Dhaka-1343

Forwarded
25/08/16
Md. Obaidul Haque
Associate Professor & Head of the Department
Department of Physiotherapy
Bangladesh Health Professions Institute (BHPI)
CRP, Chapain, Savar, Dhaka-1343

বাংলাদেশ হেল্‌থ প্রফেশন্স ইনস্টিটিউট (বিএইচপিআই)
Bangladesh Health Professions Institute (BHPI)
(The Academic Institute of CRP)

Ref. CRP-BHPI/IRB/04/17/61

Date: 05/04/2017

To

Tanha Nosin Nanni
Bachelor of Science in Physiotherapy
Session: 2011-2012, DU Reg. No.: 1735
BHPI, CRP, Savar, Dhaka-1343, Bangladesh

Subject: Approval of the thesis proposal – Effectiveness of manual lumbar traction for the management of low back pain patient along with physiotherapy treatment.

Dear Tanha Nosin Nanni,

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,

Millathassain

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

সিআরপি-চাপাইন, সাভার, ঢাকা-১৩৪৩, বাংলাদেশ, ফোন ঃ ৭৭৪৫৪৬৪-৫, ৭৭৪১৪০৪ ফ্যাক্স ঃ ৭৭৪৫০৬৯
CRP-Chapain, Savar, Dhaka-1343, Tel : 7745464-5, 7741404, Fax : 7745069, E-mail : contact@crp-bangladesh.org, www.crp-bangladesh.org

Inform Consent

Assalamualaikum\ Namashker,

I am Tanha Nosin Nanni, 4th Professional, B.Sc. in Physiotherapy student at Bangladesh Health Professions Institute (BHPI) under the Faculty of Medicine, University of Dhaka. To obtain my Bachelor degree, I have to conduct a research project and it is a part of my study. My research title is "Effectiveness of manual lumbar traction for the management of low back pain patient along with physiotherapy treatment". I would like to know about some personal & other related questions about your back pain .To fulfill my research project I need to collect data. So, you can be a respected participant of this research and the conversation time will be two times 20-30 minutes. I would like to inform you that this is a purely academic study and will not to be used for any other purposes. I 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. You also have the rights to reject a particular question that you don't like.

If you have any query about the study, you may contact with my supervisor Mohammad Anwar Hossain, Associate professor, Head of Physiotherapy Dept, CRP, Savar, Dhaka-1343. 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 witness and Date…….

Signature of the researcher and Date…….

সম্মতিপত্র

আস্সালামুআলাইকুম/নমস্কার,

আমি তানহা নোসিন নান্নি, ৪র্থ পেশাগত, বাংলাদেশ হেলথ প্রফেশন ইন্সটিটিউট (বিএইচপিআই), ঢাকা বিশ্ববিদ্যালয়ের মেডিসিন অনুষদের একজন ছাত্রী। আমার ব্যাচেলর ডিগ্রী প্রাপ্তির জন্য আমার এটি একটি গবেষণা পরিকল্পনা এবং এটা আমার পড়াশোনার একটি অংশ। আমার গবেষণা প্রকল্পটি হচ্ছে "**Effectiveness of manual lumbar traction for the management of low back pain patient along with physiotherapy treatment**." আমার গবেষণা প্রকল্পটি পূরণে আমার কিছু তথ্য সংগ্রহ করা প্রয়োজন। সুতরাাং এই গবেষণার জন্য অংশগ্রহণকারীর সম্মতি প্রয়োজন এবং তথ্য সংগ্রহর জন্য গবেষক অংশগ্রহনকারীর কাছ থেকে দুই বার করে ২০-৩০ মিনিট সময় নিব। আমি আপনাকে অবহিত করছি যে এটি একটি একাডেমিক গবেষণা এবং অন্যকোন উদ্দেশ্য ব্যাবহার করা হবে না। আমি আশ্বস্ত করতে চাই যে, সব তথ্য গোপন রাখা হবে। অংশগ্রহণকারী যে কোন মুহূর্তে সম্মতি প্রত্যাহার করতে পারেন। এ ছাড়াও আপনি যে টি পছন্দ করেন না সেটি উত্তর না দেওয়ার অধিকার আছে।

সুতরাং আপনি কি রাজি ?

হ্যাঁ ☐

না ☐

অংশগ্রহণকারী স্বাক্ষর ও তারিখ.....

সাক্ষীর স্বাক্ষর ও তারিখ.....

গবেষকের স্বাক্ষর ও তারিখ.....

Data collection form (Research purpose only)

Code no:

Age:……..Sex:……..…

Adders:Village:……P.O.:……....

Thana:……District: ……

Date:……..Phone no:……..

How long have you had low back pain?

Years……..Months……Weeks……..

তথ্য সংগ্রহ পত্র

কোড নম্বরঃ

নামঃ.....আই.ডি.নংঃ.....

বয়সঃ.....লিঙ্গঃ.....

ঠিকানাঃ গ্রামঃ.....ডাকঘরঃ.....

থানাঃ.....জেলাঃ.....

তারিখঃ.....ফোন নংঃ.....

আপনার কত দিন যাবত কোমরে ব্যথা ?

বছর.....মাস.....দিন.....

Patient's Socio-demographic Information

(To be collected from Record/ Care provider)

Code no:

Questions	Responses	Code
Age (in years)	.....yrs	
Sex	Male	01
	Female	02
Occupation	Service holder	01
	Businessman	02
	Housewife	03
	Farmer	04
	Shopkeeper	05
	Teachers	06
	Others	07
Marital status	Married	01
	Un married	02
	Divorced	03
	Separated	04
	Widow	05
Religion	Muslim	01
	Hindu	02
	Christian	03
	Buddho	04
Educational level	Illiterate	01
	Primary	02
	Secondary	03
	SSC	04
	HSC	05
	Graduate	06
	Masters or above	07
Hobby	.....	
Monthly income	Taka…….	
Body weight	Kg…….	
Hight	cm.....	

আর্থ-সামাজিক অবস্থার তথ্যাবলী

(তথ্যাবলী মৌখিক অথবা নথি থেকে সংগৃহীত হতে হবে)

কোড নম্বর:

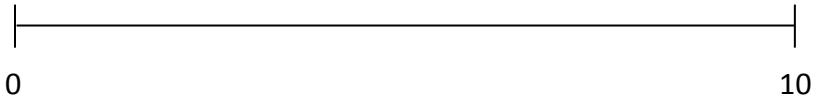
প্রশ্ন	উত্তর	কোড
বয়স	----------বছর	
লিঙ্গ	ছেলে	০১
	মেয়ে	০২
পেশা	চাকুরীজীবি	০১
	ব্যবসায়ি	০২
	গৃহিনী	০৩
	দোকানদার	০৪
	কৃষক	০৫
	শিক্ষক	০৬
	অন্যান্য	০৭
বৈবাহিক অবস্থা	বিবাহিত	০১
	অবিবাহিত	০২
	বিবাহ বিচ্ছেদ	০৩
	বিচ্ছেদ	০৪
	বিধবা	০৫
ধর্ম	মুসলমান	০১
	হিন্দু	০২
	খৃষ্টান	০৩
	বৌদ্ধ	০৪
শিক্ষাগত যোগ্যতা	অশিক্ষিত	০১
	প্রাইমারী	০২
	উচ্চ মাধ্যমিক	০৩
	এস এস সি	০৪
	এইচ এস সি	০৫
	স্নাতকত্তোর	০৬
	মাস্টার্স অথবা এর অধিক	০৭
শখ	----------	
আয়	-------টাকা	
ওজন	--------কেজি	
উচ্চতা	------- সেমি:	

Questionnaire for pre and post treatment session

Please a mark (X) on the line where you feel it shows how much pain you have.

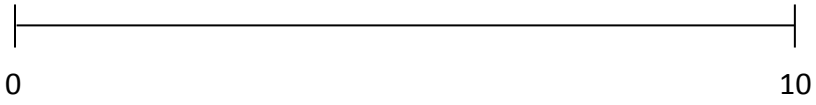
1. How severe is your back pain at present?

2. How severe is your Pain at back during sitting?

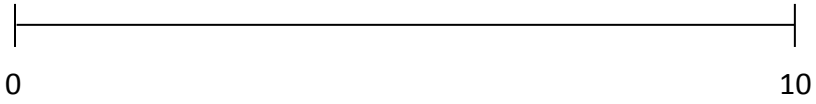


3. How severe is your Pain at back during standing?

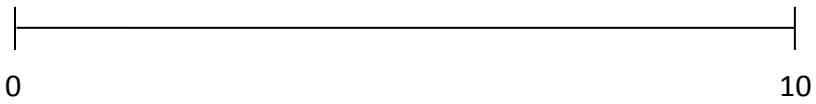
4. How severe is your Pain at back during forward bending?



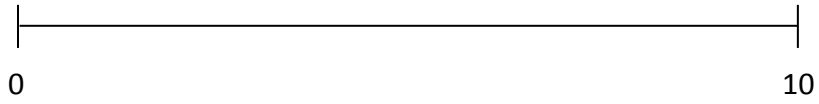
5. How severe is your Pain at back during twisting?



6. How severe is your Pain at back during walking?



7. How severe is your Pain at back during sleeping?



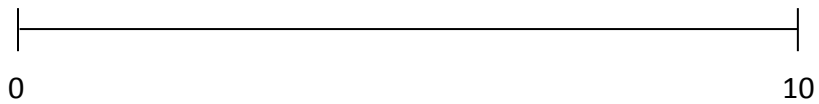
8. How severe is your Pain at back at rest?

9. How severe is your Pain at back during lifting?

10. How severe is your Pain at back during travelling?

11. How severe is your Pain at back during coughing/sneezing?

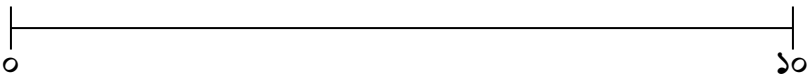
12. How severe is your Pain at back during during your ADLS?



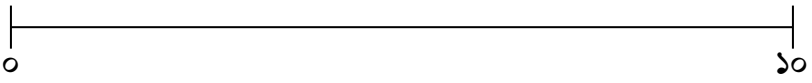
তথ্য সংগ্রহ পত্র (চিকিৎসার পূর্বে এবং পরে)

আপনি যে মুহূর্তে কোমড়ে ব্যথার প্রশ্নপত্র টি পূরণ করবেন সেই মুহূর্তে আপনার কোমড়ে ব্যথার প্রবনতা কোন সময়ে কেমন ঠিক জায়গায় কলম দিয়ে ক্রস (×) একটি দাগ দিন।

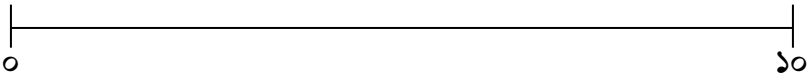
১) আপনার কোমড়ে ব্যথার তীব্রতা কতটুকু?



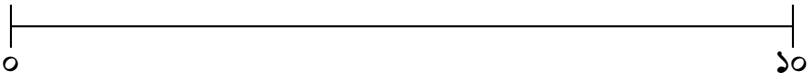
২) আপনি যখন বসে থাকেন আপনার কোমড়ে ব্যথার তীব্রতা কেমন থাকে?



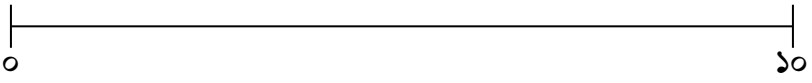
৩) আপনি যখন দাড়িয়ে থাকেন আপনার কোমড়ে ব্যথার তীব্রতা কেমন থাকে?



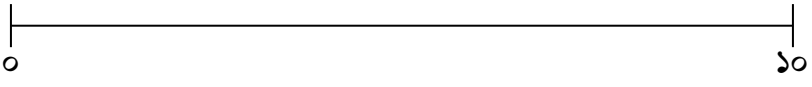
৪) আপনি যখন সামনের দিকে ঝুকেন আপনার কোমড়ে ব্যথার তীব্রতা কেমন থাকে?



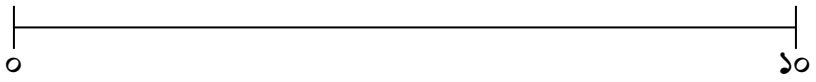
৫) আপনি যখন কোমড় ঘুরান আপনার কোমড়ে ব্যথার তীব্রতা কেমন থাকে?



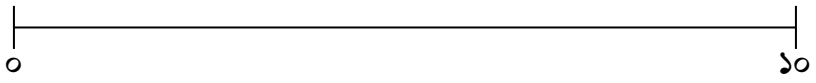
৬) হাটার সময় আপনার কোমড়ে ব্যথার তীব্রতা কেমন থাকে?



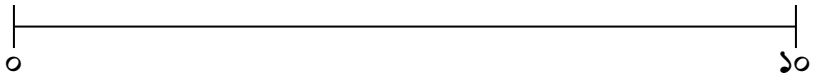
৭) আপনি যখন ঘুমান আপনার কোমড়ে ব্যথার তীব্রতা কেমন থাকে?



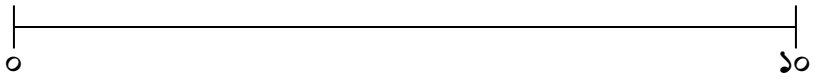
৮) আপনি যখন বিশ্রাম নেন আপনার কোমড়ে ব্যথার তীব্রতা কেমন থাকে?



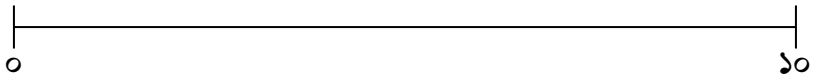
৯) আপনি যখন কিছু উঠান আপনার কোমড়ে ব্যথার তীব্রতা কেমন থাকে?



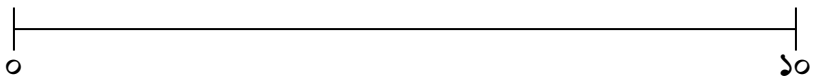
১০) আপনি যখন ভ্রমন করেন আপনার কোমড়ে ব্যথার তীব্রতা কেমন থাকে?



১১) আপনি যখন হাঁচি/কাশি দেন আপনার কোমড়ে ব্যথার তীব্রতা কেমন থাকে?



১২) আপনি যখন দৈনন্দিন কাজ করেন আপনার কোমড়ে ব্যথার তীব্রতা কেমন থাকে?



Low Back Pain Disability Questionnaire

This questionnaire has been designed to give us information as to how your back or leg pain is affecting your ability to manage in everyday life. Please answer by checking in each section for the statement which best applies to you. We realise you may consider that two or more statements in any one section apply but please just shade out the spot that indicates the statement which most clearly describes your problem.

1 – Pain intensity

- I have no pain at the moment
- The pain is very mild at the moment
- The pain is moderate at the moment
- The pain is fairly severe at the moment
- The pain is very severe at the moment
- The pain is the worst imaginable at the moment

2 – Personal care (washing, dressing etc)

- I can look after myself normally without causing extra pain
- I can look after myself normally but it causes extra pain
- It is painful to look after myself and I am slow and careful
- I need some help but manage most of my personal care
- I need help every day in most aspects of self-care
- I do not get dressed, I wash with difficulty and stay in bed

3 – Sitting

- I can sit in any chair as long as I like
- I can only sit in my favourite chair as long as I like
- Pain prevents me sitting more than one hour
- Pain prevents me from sitting more than 30 minutes
- Pain prevents me from sitting more than 10 minutes
- Pain prevents me from sitting at all

4 – Standing

- I can stand as long as I want without extra pain
- I can stand as long as I want but it gives me extra pain
- Pain prevents me from standing for more than 1 hour
- Pain prevents me from standing for more than 30 minutes
- Pain prevents me from standing for more than 10 minutes
- Pain prevents me from standing at all

5 – Walking

- Pain does not prevent me walking any distance
- Pain prevents me from walking more than 1 mile.
- Pain prevents me from walking more than 1/2.
- Pain prevents me from walking more than 100 yard.
- I can only walk using a stick or crutches
- I am in bed most of the time.

6 – Lifting

- I can lift heavy weights without extra pain
- I can lift heavy weights but it gives extra pain
- Pain prevents me from lifting heavy weights off the floor, but I can manage if they are conveniently placed eg. on a table
- Pain prevents me from lifting heavy weights, but I can manage light to medium weights if they are conveniently positioned
- I can lift very light weights
- I cannot lift or carry anything at all

7 – Sleeping

- My sleep is never disturbed by pain
- My sleep is occasionally disturbed by pain
- Because of pain I have less than 6 hours sleep
- Because of pain I have less than 4 hours sleep
- Because of pain I have less than 2 hours sleep
- Pain prevents me from sleeping at all

8 – Sex life (if applicable)

- My sex life is normal and causes no extra pain
- My sex life is normal but causes some extra pain
- My sex life is nearly normal but is very painful
- My sex life is severely restricted by pain
- My sex life is nearly absent because of pain
- Pain prevents any sex life at all

9– Travelling

- I can travel anywhere without pain
- I can travel anywhere but it gives me extra pain
- Pain is bad but I manage journeys over two hours
- Pain restricts me to journeys of less than one hour
- Pain restricts me to short necessary journeys under 30 minutes
- Pain prevents me from travelling except to receive treatment

10 – Social Life

- My social life is normal and gives me no extra pain.
- My social life is normal but increases the degree of pain.
- Pain has no significant effect on my social life apart from meting my more energetic interests, e.g. dancing.
- Pain has restricted my social life and I do not go out as often.
- Pain has restricted my social life to my home.
- I have no social life because of pain.

ঘাড়ের প্রতিবন্ধিতা সূচক বিবৃতি

আপনার ঘাড়ের ব্যথা কিভাবে প্রতিদিনের জীবন পরিচলনা করতে আপনার সামর্থকে প্রভাবিত করে তা জানার জন্য এই প্রশ্নচিত্রটি পরিকল্পনা করা হয়।অনুগ্রহ পূর্বক সবগুলো প্রশ্নের উত্তর দিন। প্রতিটি অংশে শুধুমাত্র এশটি বাক্স/ উত্তরঃ চিহ্নিত করুন যা আজ আপনার অবস্থাকে সর্বাপেক্ষা কাছাকাছি বর্ণনা করে।

অংশ- ১-ব্যাথার তীব্রতা

- এই মূহুর্তে আমার ব্যাথা নেই।
- এই মুহূর্তে ব্যাথা অত্যন্ত কম।
- এ মুহূর্তে ব্যাথা মোটামুটি।
- এ মুহূর্তে ব্যাথা যথেষ্ট পরিমান তীব্র ।
- এ মুহূর্তে ব্যাথা অত্যন্ত তীব্র।
- এ মুহূর্তে ব্যাথা এমন তীব্র যে তা কল্পনার সর্বোচ্চ খারাপ।

অংশ-২ ব্যক্তিগত যত্ন (ধৌতকরণ, পোশাক পরিধান ইত্যাদি)

- কোন ধরনের ব্যাথা ছাড়াই আমি আমার নিজের স্বাভাবিক যত্ন নিতে পারি।
- আমি আমার নিজের স্বাভাবিক যত্ন নিতে পারি, কিন্তু এটি অত্যান্ত ব্যাথাদায়ক।
- আমার নিজের যত্ন নেওয়া ব্যাথাদায়ক এবং এ জন্য আমি ধীর ও সতর্কতা অবলম্বন করি।
- আমার কিছু সাহায্যের দরকার হয়। কিন্তু আমি আমার অধিকাংশ ব্যক্তিগত কাজ নিজেই সম্পাদন করি।
- প্রতিদিন আমার নিজের অধিকাংশ কাজের জন্য অন্যের প্রয়োজন হয়।
- আমি আমার পোশাক পরিধান করতে পারি না, ধৌতকরন যথেষ্ট কষ্টদায়ক এবং আমি বিছানাতেই থাকি।

অংশ-৩ উত্তোলন

- আমি কোন বাড়তি ব্যাথা ছাড়াই ভারি ওজন উত্তোলন করতে পারি ।
- আমি ভাড়ি ওজন উত্তোলন করতে পারি, কিন্তু এঁত বাড়তি ব্যাথা সৃষ্টি করে।
- ব্যাথার কারনে আমি মেঝে থেকে ভারি ওৎন উত্তোলনে বাধার সম্মুখন হয় কিন্তু সুবিধাজনক অবস্থান যেমন টেবিলে রাখলে) সহজে উত্তোলন করতে পারি।
- ব্যাথা আমাকে ভারি ওজন উত্তালনে বাঁধা সৃষ্টি করে কিন্তু সুবিধাজনক অবস্থানে থাকলে হালকা থেকে মাঝারি ধরনের ওজন উত্তোলন করতে পারি।
- আমি কেবল অত্যন্ত হালকা ওজন উত্তোলন করতে পারি।
- আমি একেবারেই কোন কিছু উত্তোলন বা বহন করতে পারি না

অংশ- ৪ পড়া শোনা

- আমি কোন ঘাড়ে ব্যাথা ছাড়ার যতক্ষন ইচ্ছা পড়তে পারি
- আমি সামান্য ব্যাথা আসলেও যতক্ষণ ইচ্ছা পড়তে পারি।
- যতক্ষন ইচ্ছা পড়তে পারি কিন্তু বেশ মাঝারি ধরনের ব্যাথ্যা অনুভব করি।
- বেশ মুটামুটি ব্যাথার কারনে আমি অনেক বেশি সময় পড়তে পারি না।
- আমার অত্যাধিক ঘাড়ে ব্যাথার কারনে পড়তে কষ্ট হয়।
- আমি পড়তে পারি না।

অংশ- ৫: মাথা ব্যাথা

- আমার কোন মাথা ব্যাথা নেই
- আমার সামান্য মাথা ব্যাথা অনেকদিন পর পর আসে।
- আমার মুটামুটি বেশি মাথা ব্যাথা অনেক দিন পর পর আসে।
- আমার একটু বেশি মাথা ব্যাথা মাঝে মাঝে হয়।
- আমার মাঝে মাঝে অনেক বেশি মাথা ব্যাথা হয়।
- আমার সবসময় অনেক বেশী মাথা ব্যাথা করে।

অংশ- ৬ মনোযোগ

- আমি কোন সমস্যা ছাড়ার খুব ভাল মনোযোগ দিতে পারি।
- আমি যখন পুরোপুরি মনোযোগ নিই তখন সামান্য সমস্যার তৈরি হয়।
- পুরোপুরি মনোযোগ দেওয়ার সময় বেশ সমস্যা হয়।
- মনোযোগ দেওয়ার আমার অনেক সমস্যা হয়।
- সমস্যা এত বেশি হয় যে আমি ভালভাবে মনোযোগ দিতে পারি না।
- আমি কোন মনোযোগ দিতে পারি না।

অংশ -৭ কাজ

- আমি যেমন ইচ্ছা কাজ করতে পারি।
- আমি শুধু আমার দরকারি কাজগুলো করতে পারি তার বেশি না।
- আমি শুধু আমার খুব দরকারি কাজগুলো করতে পারি তার বেশি না।
- আমি আমার দরকারি কাজগুলো করতে পারি না।
- আমার যে কোন কাজ করতেই কষ্ট হয়।
- আমি এখন কোন কাজ্ই করতে পারি না।

অংশ -৮ গাড়ি চালানো

- আমি কোন ঘাড়ে ব্যাথা ছাড়াই গাড়ি চালাতে পারি।
- আমি যখন দীর্ঘ সময় গাড়ি চালাই তখন সামান্য ব্যাথা অনুভব করি।
- আমি যখন দীর্ঘ সময় গাড়ি চালাই মোটামুটি ব্যাথা অনুভব করি।
- আমি দীর্ঘ সময় গাড়ি চালাতে পারি না অনেক ঘাড়ের ব্যাথার জন্য।
- আমার গাড়ি চালাতে অনেক কষ্ট হয় অনেক বেশি ব্যাথা করে।
- আমি আমার গাড়ি চালাতে পারি না।

অংশ -৯ ঘুমানো

- ব্যাথার কারনে আমার ঘুম কখনো ব্যাহত হয় না।
- ব্যাথার কারনে আমার ঘুম মাঝে মাঝে ব্যাহত হয় ।
- ব্যাথার কারনে আমার ঘুম ছয় ঘন্টারও কম হয় ।
- ব্যাথার কারনে আমার ঘুম আট ঘন্টারও কম হয় ।
- ব্যাথার কারনে আমার ঘুম দুই ঘন্টারও কম হয় ।
- ব্যাথার কারনে আমি মোটেই ঘুমাতে পারি না ।

অংশ -১০ বিনোদন

- ব্যাথা ছাড়াই আমি সব ধরনের বিনোদনে অংশ নিতে পারি।
- সামান্য ব্যাথা নিয়ে আমি সব ধরনের বিনোদনে অংশ নিতে পারি।
- আমি প্রায় সব জাগাতেই পারি তবে কিছুকিছু সময় ব্যাথার জন্য অংশ নিতে পারি না।
- ব্যাথার জন্য আমি আমার সামান্য সংখ্যক বিনোদনে অংশ নিতে পারি।
- তীব্র ব্যাথার জন্য যে কোন বিনোদনে অংশ নিতেই কষ্ট হয়।
- আমি কোন বিনোদন কাজে অংশ নিতে পারি না।