Assessment of Stress Among the Patients with Chronic Low Back Pain

Faculty of Medicine

University of Dhaka

By

Mahmuda Maliha

Du Roll: 1269

Du Reg no: 10244

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Student of Bachelor of Science in physiotherapy

SAIC College of Medical Science and Technology

Department of Physiotherapy

SAIC Tower, Mirpur-14, Dhaka-1216

We the under signed certify that we have carefully read and recommended to the Faculty of Medicine, University of Dhaka, for acceptance of thesis entitled-

Assessment of Stress Among the Patients with Chronic Low Back Pain.

Submitted by **Mahmuda Maliha,** For the partial fulfilment of the requirements for the degree of Bachelor Science in Physiotherapy (B.sc in PT).

………………………………

Md. Shahidul Islam
Assistant Professor & Head
Outdoor Patient Service
Department of Physiotherapy
SCMST, Mirpur-14, Dhaka.
Supervisor

………………………………

Zahid Bin Sultan Nahid
Assistant Professor & Head
Department of Physiotherapy
SCMST, Mirpur-14, Dhaka.

………………………………

Abid Hasan Khan
Lecturer
Department of Physiotherapy
SCMST, Mirpur-14, Dhaka.

………………………………….

Md. Furatul Haque
Lecturer
Department of Physiotherapy
SCMST, Mirpur-14, Dhaka.

....
Zakia Rahman
Lecturer
Department of Physiotherapy
SCMST, Mirpur-14, Dhaka.

…………………………..
Dr. Abul Kasem Mohammad Enamul Haque
Principal
Saic College of Medical Science and Technology
SCMST, Mirpur-14, Dhaka.

DECLARATION

This work has not previously been accepted in substance for any degree and isn't concurrently submitted in candidature for any degree. This dissertation is being submitted in partial fulfillment of the requirements for the degree of B.Sc. in Physiotherapy.

I confirm that if anything identified in my work that I have done plagiarism or any form of cheating that will directly awarded me fail and I am subject to disciplinary actions of authority. I confirm that the electronic copy is identical to the bound copy of the thesis.

In case of dissemination the finding of this project for future publication, research supervisor will highly concern, it will be duly acknowledged as graduate thesis and consent will consent taken from the physiotherapy department of Saic College of Medical Science and Technology (SCMST).

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Signature   **Date**

Mahmuda Maliha

Registration No: 10244

DU Roll: 1269

Roll: 64

Session: 2017-2018

4th professional B.Sc in physiotherapy

Saic College of Medical Science and Technology

SAIC Tower, M-1/6, Mirpur -14, Dhaka, Bangladesh

CONTENTS

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Acronyms

SCMST: SAIC College of Medical Science and Technology

LBP: Low Back Pain.

CLBP: Chronic Low Back Pain

SMT: Spinal Manipulation Therapy

PSS: Perceived Stress Scale

QoL: Quality of Life

MSDs: Musculoskeletal Disorders

LBPP: Low Back or Pelvic Pain

LSS: Lumbar Spinal Stenosis

CBT: Cognitive Behavior Therapy

NP: Nucleus Pulposus

AF: Annulus Fibrosis

CEP: Cartilaginous Endplate

IVD: Intervertebral Disc degeneration

IVDD: Intervertebral Disc Disease

MBSR: Mindfulness-Based Stress Reduction

QST: Quantitative Sensory Testing

CPM: Continuous Passive Motion

HPA: Hypothalamus-Pituitary-Adrenal

SPSS: Statistical Package for Social Science

ERB: Ethical Review Board

CMRC: Bangladesh Medical Research Council

WHO: World Health Organization

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Abstract

Purpose: The purpose of this study to assess the level of stress among the patients with chronic low back pain.

Objectives: To find out the level of stress among the patients with chronic low back pain; To determine the level of stress by Perceived Stress Scale (PSS); To assess the duration of pain of the study population; To describe the socio-demographic information of the patients with chronic low back pain.

Methodology: Cross sectional type of descriptive study design was selected. Total 172 samples were chronic low back pain patients by purposive sampling from Dhaka city. Data was collected by the self-developed and Perceived Stress Questionnaire. Descriptive statistics using SPSS software version-25 were used for data analysis and the results were showed in pie chart, bar chart and table.

Results: In this research showed that, total 172 chronic low back pain patients were participants. Out of total patients 43% participants were male and 57% participants were female. This study 172 participants found that the low stress (lowest quartile) was 5.2%, Second quartile (Mild stress) was 31.4%, Third quartile (Moderate stress) was 52.3%, Upper quartile (severe stress) was 11.0%. Among them 41.3% were >12 month. 26.2% were 7 to 12 month and 32.6% respondents were 4-6 months suffering from chronic low back pain.

Conclusion: The term "low back pain" describes discomfort felt in the lower back. Stress is a state of stress, either emotionally or physically. In this study researcher showed that, Maximum Chronic low back pain Patient have Moderate stress. Female Chronic low back pain Patient are more stress more than Male patient.

Key words: Assessment, Stress, Chronic low back pain.

Chapter-I	INTRODUCTION

1.1 Background:

Around the world, low back pain (LBP) is regarded as a serious health issue. According to epidemiological research, 95% of the pain experienced by the 65–80% of people in the world who have this issue at any given moment in their lives is considered to be mechanical. The ability to stand, sit, move around, walk, participate in social activities, and engage in sexual activity is severely limited in people with chronic LBP. The other effects of chronic LBP include functional loss, health-related quality of life impairment, and incapacity in everyday activities (Bonab, et al., 2020).

LBP is one of the most prevalent illnesses that impact people. Mechanical or non-mechanical causes of back pain are also possible. Osteoarthritis and spinal stenosis are two mechanical disorders connected to chronic low back pain. Neoplastic, infectious, vascular, rheumatologic, and other numerous systemic disorders are examples of non-mechanical conditions (Waqqar, et al., 2016).

The most often identified risk factors for CLBP are increasing body weight, stress, carrying large loads at work, and greater intensity of pain. Furthermore, smoking, physical labor in particular, maladaptive behavior patterns, overall anxiety, and functional limitation during the episode were the primary predictors of chronicity. There are many different, intricate, and inadequately understood risk factors for LBP. Factors unrelated to the spine significantly impact the prognosis of lower back pain. The biopsychosocial model describes how a person's assessment of their symptoms is influenced by social and psychological factors. A purely mechanical nominal diagnosis and an overemphasis on pain alone may exacerbate impairment. Clinicians should thus treat the biomechanical, psychological, and psychosocial elements of LBP in their patients (Park, et al., 2023).

Low back pain (LBP) is still a significant health issue and a significant cause of incapacity in people under the age of 40, and most of the time there is no obvious underlying illness. Mechanical low back discomfort can be caused by a number of things, such as adding too much weight to the spine's natural structures. In addition to the strength of the muscles in the pelvic arch and lower extremities, posture, body mechanics, trunk strength, and flexibility all have an impact on the stresses transferred to the spine. (Fahmy, et al., 2019).

Low back pain (LBP) is a major issue in the medical community because of its impact on health, society, and finances. According to a survey, the risk of LBP increases quickly as physical and psychological strain increase. It has been noted that people with LBP frequently experience psychological anguish, and that LBP can have a significant negative influence on quality of life. There is proof that psychological issues and psychosocial challenges may be linked to LBP. Depression may manifest after treatment if pain is not relieved (Sathya, et al., 2015).

Frequency of weightlifting; sports activities (moderate exercises included brisk walking, golf, volleyball, cycling on level streets, recreational tennis, and softball, while vigorous exercises included lap swimming, aerobics, calisthenics, running, jogging, basketball, cycling on hills, and racquetball). Frequency and type of sport, past history of LBP, factors that aggravate and relieve LBP, frequency of wearing heels, past history of osteoporosis, past history of spine problems, whether LBP limits daily, strenuous, or social activities, whether LBP is aggravated by the number of study hours, past emotional depression, presence of monotony, satisfaction with current employment position, past history of spinal surgery, and whether LBP is limited by daily, strenuous, or social activities (Sudhir, et al., 2017).

Therapies for acute or chronic low-back pain were deemed to be ineffective or detrimental, but the effect sizes were tiny and therefore not clinically important. SMT was also discovered not to be any more beneficial than other conventional therapy (such as general practitioner care, analgesics, exercise, or back schools) at providing either short- or long-term pain alleviation or functional improvement for low back pain that is either acute or chronic (Sidney, et al., 2011).

The term " Low back pain" refers to any sort of back pain that is brought on by inappropriate stress and strain on the spinal column's muscles. Low back pain (LBP) is a disorder that is worsened by depression, a condition that is underdiagnosed and undertreated in primary care. Low back pain sufferers frequently experience depression, which is linked to higher pain levels, more physical and psychological impairment, increased drug use, and a higher risk of losing their jobs (Sathya, et al., 2015).

The prevalence figures the authors discovered, nevertheless, were based on research with a wide range of anatomical descriptions of the low back region. According to the definitions used in the included studies, low back pain therefore

comprised neck and/or back discomfort. This lack of uniformity ignores the cervical, thoracic, and lumbar spine's unique characteristics as well as attempts made in the literature to standardize studies on low back pain (Hoy, et al., 2012).

Persistent or recurrent pain that lasts more than three months is referred to as chronic pain. When people use healthcare resources, this is the most common symptomatic cause. After rheumatism or arthritis, chronic low back pain (CLBP) is the most frequent chronic pain syndrome and the second leading cause of disability in the United States. Over the past few decades, significant resources have been allocated to enhancing workplace ergonomics and other preventive measures; yet, the number of individuals afflicted with CLBP has not diminished. An independent lifestyle, walking, and doing home tasks are among the everyday activities severely impacted by back pain, according to 43.2% of patients with moderate to severe back pain. Increased tiredness linked to CLBP may make these restrictions worse. Loneliness is a key risk factor for depression and can result from fewer social activities (Muller, et al., 2017).

Low back discomfort has long been associated with mechanical reasons. However, many reviews using the Bradford-Hill causation criteria came to the conclusion that the populations of workers studied were unlikely to experience low back pain as a direct result of occupational sitting, awkward postures, standing and walking, manual handling or patient assistance, pushing or pulling, bending and twisting, lifting, or carrying (Balague, et al., 2012).

1.2 Justification of this study:

Now a days, Low back pain (LBP) is one of the most common musculoskeletal conditions in countries. Chronic low back pain patients are becoming more and more prevalent every day. As a result, stress levels are rising. Men and women both are suffer from the chronic low back pain, everyone claims they are worried. It's important to recognize who is more stressed out.

Among the few studies that were found locally not sufficient to present the real picture of this situation. Studies were undertaken a few years ago due to a lack of information, however they do not accurately reflect the current situation.

One of the main elements affecting a country's status is chronic low back pain. Through my research, I want to learn how many patients experience stress and how their stress level. I also want to know that whether occupational causes are increasing chronic low back pain and stress. In giving physiotherapy treatment, it is important to know the physical condition of the patient as well as the state of mental stress. By doing this it is possible to be more aware in the counseling along with the treatment of the patient. Which will play a helpful role for the patients.

The title is physiotherapy based which is suitable for me to study and this thesis project helps to earn huge knowledge that helps the competence for higher study. The purpose of this study is conduct in assessment of stress among the patients with chronic low back pain. In this research, I want to know the stress level due to chronic low back pain patients.

There have been many studies on chronic low back pain in our country. But, there are lack of information previous research in stress level among the patients with chronic low back pain. For this reason i am interested in this topic.

In future someone want to doing this topic related research, this research will help for better information.

1.3 Research Question:

What is the level of stress among the patients with chronic low back pain?

1.4 Objectives of this study:

1.4.1 General objective:

- To assess the level of stress among the patients with chronic low back pain attending outdoor.

1.4.2 Specific objectives:

- To determine the level of stress among the patients attending outdoor of chronic low back pain by Perceived Stress Scale (PSS).
- To assess the duration of pain of the study population by asking question.
- To explore the socio-demographic information.
- To examine the association between level of stress and duration of pain, gender and pain duration, socio-demographic characteristics of the participants.

1.5 Conceptual frame work:

Independent variable	Dependent variable

Sociodemographic factor: Age, Gender, Education level, monthly income, Marital status, Religion.

Chronic low back pain

Level of stress
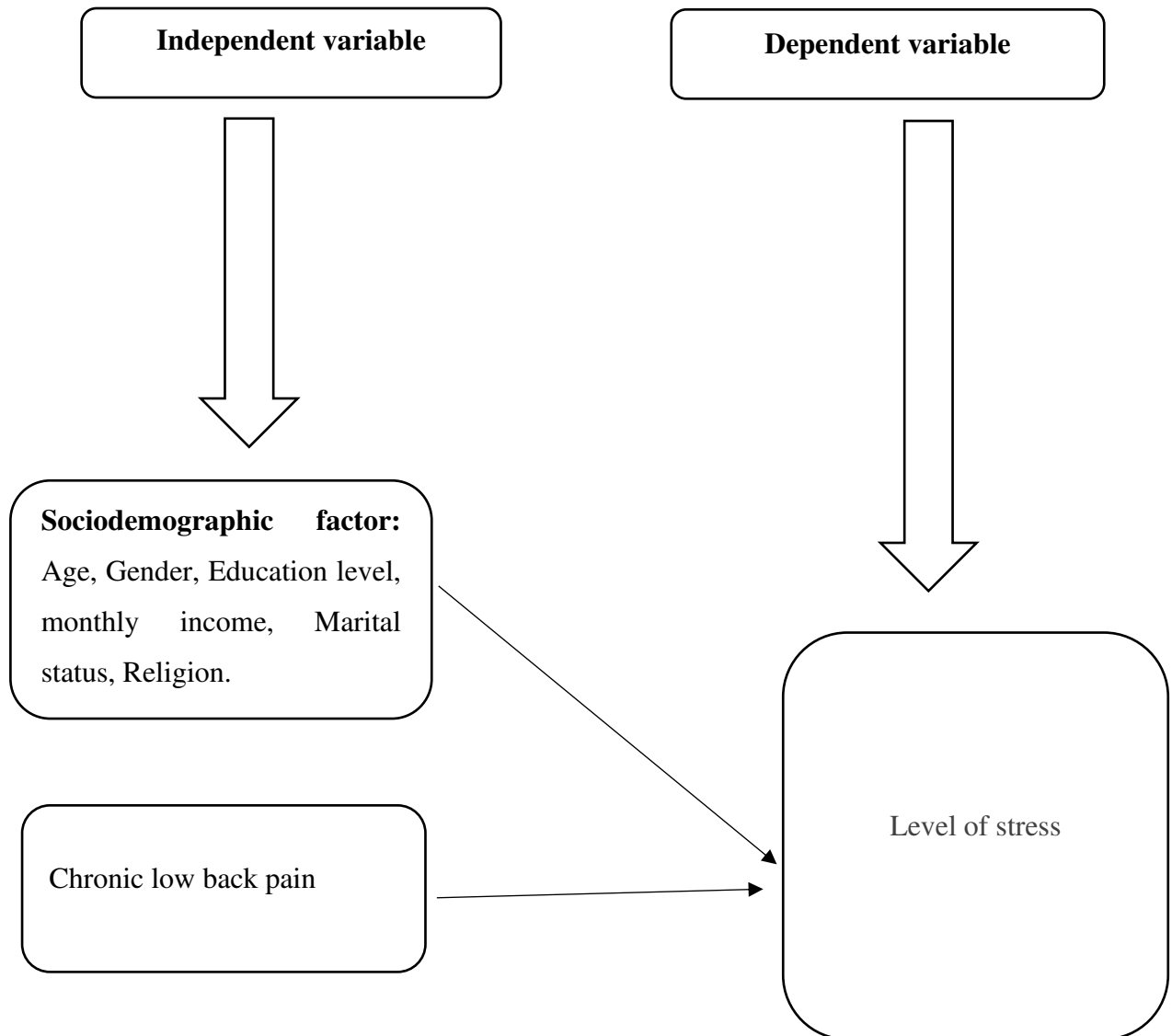
1.6 Operational Definition:

Stress: Any kind of change that puts physical, mental, or psychological strain on a person is considered to be stressful.

Assessment: The phrase "assessment" in education refers to the vast range of techniques or instruments that teachers employ to assess, gauge, and record pupils' academic preparedness, learning progress, skill development, or educational requirements.

Low back pain: A common condition affecting the muscles, nerves, and bones of the back that occurs between the lower edge of the ribcage and the lower fold of the buttocks is low back pain (LBP), also known as lumbago.

Chronic low back pain: Chronic low back pain is defined as pain that continues for 12 weeks or longer, even after an initial injury or underlying cause of acute low back pain has been treated.

Perceived stress scale: The most popular psychological tool for assessing stress perception is the Perceived Stress Scale (PSS). It is a gauge of how stressful a person perceives their life's circumstances to be. The questions were created to get a sense of how unpredictably chaotic and overburdened respondents believe their lives to be.

According to estimates, up to 70% of adults experience low back discomfort at some point in their lives. The mechanism of the pain is poorly understood in up to 85% of all cases of low back pain and is categorized as non-specific, or of uncertain origin. However, it is now known that low back pain has a multifaceted etiology, with factors such as age and physical fitness as well as psychosocial (stress, anxiety, and depression) and occupational (hard physical labor, bends and twists, and vibration) aspects all contributing to its occurrence (Searle, et al., 2015).

In adults in the US, low back pain (LBP) ranks as the second most prevalent cause of disability, a frequent cause of lost workdays. The projected annual loss of productivity due to LBP is 149 million working days. Two-thirds of the annual costs associated with the condition—between $100 and $200 billion—are attributable to a decline in wages and productivity. A LBP episode will occur in more than 80% of people at some point in their lives. The clinical course is often benign, and 95% of those affected recover within a few months of the disease's beginning (Freburger, et al., 2009). Back surrounding soft tissues is referred to as mechanical low back pain. This comprises spinal compression fractures, acute or long-term traumatic damage, disk herniation, lumbar spondylosis, spondylolisthesis, spondylolysis, lumbosacral muscular tension, and so forth (Patrick, et al., 2014).

Up to 23% of people worldwide suffer from chronic low back pain, and 24% to 80% of patients experience a relapse within a year (Balague., et al. 2012). discomfort that originates intrinsically from the spine, intervertebral disks, or Pain and discomfort below the costal border and above the inferior gluteal folds, with or without referred leg pain, are referred to as low-back pain. Usually, low back discomfort that lasts longer than 12 weeks is considered chronic. Low-back discomfort with no identifiable, known specific pathology is another term for nonspecific low-back pain (e.g., infection, tumor, fracture, or radicular syndrome) (Rubinstein, et al., 2011).

However, some people won't get better and will develop persistent LBP (ie, pain that lasts for 3 months or longer). Recurrences of LBP are also prevalent, with lifetime recurrence rates of up to 85% and proportion of recurrent LBP episodes

ranging from 20% to 44% within 1 year for working populations (Tulder, et al., 2002). Based on occupational loads, dieticians are a category that has received less research when it comes to musculoskeletal system problems. The studies that have been done so far examine this group under healthcare professionals in terms of low back pain, and no information about dieticians alone has been shared (Genevay, et al., 2011). There are a number of predictors that have been proposed to indicate changes in CLBP, and among them, pain, disability, and quality of life (QoL) factors are relevant predictors (Kell, et al., 2011). Risk factors such pain catastrophizing, fear of movement, and distress have been suggested to be early recognized and targeted in programs particularly created to lessen pain catastrophizing and fear (Fernands, et al., 2012).

Although there is a substantial corpus of research devoted to understanding the connection between chronic stress and pain, stress is rarely addressed in pain rehabilitation. One could elicit a physiological stress response. The release of sympathetic catecholamines (epinephrine and norepinephrine) and neuroendocrine hormones (cortisol) to promote survival and inspire success is triggered by fear or a perceived danger to safety, status, or well-being. Although it is commonly known that low back pain is a very common health issue, its burden is frequently brushed off. In many parts of the world, low back pain is the most common reason for activity restriction and work absence, and it places a significant financial burden on individuals, families, communities, business, and governments. Up until ten years ago, it was primarily believed to be a condition exclusive to the West. However, since then, a growing body of research has shown that low back pain is also a significant issue in low- and middle-income countries (Searle, et al., 2015).

A pain-induced stress response is brought on by a heightened perception of pain as hazardous or frightening, (Catastrophizing) and frequently shows up as fear and aversion to stimuli that make us feel pain (Luccehetti, et al., 2012). The risk factors for LBP are frequently complex and include elements pertaining to the musculoskeletal system, the neurological system, and both. They can also be split into individual and occupational factors and be both adjustable and non-modifiable. Sex, age, a history of neck or low back injuries, and psychological issues (such as mental stress, anxiety, depression, and a lack of social support) are just a few examples of personal characteristics that might contribute to LBP (Noormohammadpour, et al., 2016).

Awkward working positions, repeated motions, and extended periods of standing can harm blood vessels, muscles, joints, bones, ligaments, tendons, and nerves, which can cause pain, exhaustion, and a variety of MSDs. There are different types of pain, from a stiff sensation to a sharp agony (Gaowgzeh, et al., 2015). Prevalence estimates for low back pain (LBP) during pregnancy range between 55% and 78%. LBP negatively affects women's everyday activities, quality of life, and capacity for employment, which also has an impact on national output (Mota, et al., 2015).

There have been proved to be several LBPP-related variables. Age and LBPP have a contentious relationship. The age of women without lumbopelvic discomfort in the second trimester was reportedly significantly higher than that of women with the condition. However, it has been shown that older pregnant women are more prone to experience third-trimester lower back, pelvic, and buttock pain (Brown, et al., 2013). Regarding this prevalent and frustrating ailment, one thing is for sure: physicians and patients will persistently encounter the difficulty of selecting from a vast range of potential treatment and management alternatives, all while trying to maximize results and lessen the toll that low back pain takes on both individuals and society. Despite this, the medical community should be heartened by the amount of knowledge we now possess regarding this enigmatic illness, which is influenced by a wide range of environmental, cultural, genetic, physical, psychological, and socioeconomic factors (Balague, et al., 2012).

There is a dearth of knowledge regarding injectable therapy for lower back pain, particularly among the elderly. A thorough analysis of the published literature on injectable therapy revealed a dearth of data on older people with degenerative LSS (Briggs, et al., 2010). Research on back pain was frequently restricted to people in the workforce. However, the aging population, particularly in industrialized nations, introduces new considerations and challenges. The long-term prognosis of back pain in elderly persons is poorly understood. Not all back pain patients visit their general practitioner again, according to a 2012 systematic review (Scheele, et al., 2012).

According to estimates, between 5.0% and 10.0% of instances will progress to chronic low back pain (CLBP), which is to blame for significant medical expenses, lost workdays, and personal misery (Lio, et al., 2009). of the 246 respondents whose

data were gathered, 192 (78%) reported having LBP over the previous 12 months that lasted longer than a day. 83% of those who experienced LBP had to take a day off work, and 80% of them said their symptoms persisted throughout the course of the previous month (Nahar, et al., 2012).

Managing chronic pain in older persons is difficult since it is not always possible to administer drugs. Although cognitive behavior therapy (CBT) is a well-researched strategy to treating chronic pain in adults, there are few CBT studies on the treatment of chronic pain in older persons. Contrary to popular belief, persistent low back pain affects older persons more frequently than other types of chronic pain, is poorly understood, and has the potential to be disabling. Additionally, there haven't been many attempts to adapt CBT for senior citizens (Andersson, et al., 2012). According to estimates, almost a quarter of North Americans have had an LBP episode during the last three months. Despite the fact that 80% to 90% of persons with chronic low back pain (CLBP) have improvement after 12 weeks, 6% to 11% still report symptoms after three months (Chaparro, et al., 2014).

Stress is characterized as the body's physiological response to actual or hypothetical life-threatening situations, which is accompanied by alterations in the related immune, endocrinological, and neurological systems (Crettaz, et al., 2013). The central gelatinous nucleus pulposus (NP), the outer annulus fibrosis (AF), and the cartilaginous endplate (CEP), which attaches to the vertebral body, make up an IVD that is youthful and typical. Currently, it is understood that IVDD includes both aging-related alterations and tissue damage brought on by numerous stresses (Risbud, et al., 2014).

The idea that NP cells express HIF-1a and tolerate hypoxia on a constitutive basis is supported by mounting evidence. Human disc cells kept under oxidative stress. Xing et al. showed that mechanical stressors could cause and promote cellular senescence in a new IVDD model created by amputating the forelegs. A third of the population is thought to experience chronic pain, which is typically accompanied by significant levels of psychological distress and a decline in health-related quality of life. The enhanced p16INK4a expression and the accelerated senescence accumulation may be explained by the increased axial compressions since these forelimb-amputated rats were kept in prolonged upright positions (wang, et al., 2016).

Stress is defined as a threat to a person's bodily, psychological, or emotional well-being. The "stress response," or the activation of central and peripheral neuroendocrine processes responsible for a variety of adaptive reactions and behaviors, is brought on by a disruption of homeostasis. Modern scientists use three methods to gauge stress because there is no gold standard for doing so: (1) The environmental approach, which refers to the occurrence of demanding events (stressors), (2) The psychological approach, which refers to how stressful each stressor is perceived by the individual, and (3) The biological approach, which concentrates on the biological components of the stress response.

Although support from co-workers or superiors may lessen their impacts on stress, stress can also result from bad interactions with coworkers or superiors, including disagreements or unjust treatment, ambiguous or conflicting job demands, role overload, or under stimulation (Rosenthal., and Alter. 2012). A third of the population is thought to experience chronic pain, which is typically accompanied by significant levels of psychological distress and a decline in health-related quality of life (Rosenzweig, et al., 2010).

The two main causes of sick days, which cost British industry an estimated £17 billion annually, are stress and back discomfort. even though there the Health and Safety Executive reported that in 2011, 10.8 million working days were lost due to work-related stress and 7.6 million working days were lost due to musculoskeletal disorders, of which 40% were related to back pain. These factors include environmental, psychological, and physical factors. A group intervention called mindfulness-based stress reduction (MBSR) looks to be a viable addition to the treatment of chronic pain and the resulting decline in physical and psychological well-being. The main focus of MBSR is rigorous instruction in mindfulness meditation and how to use it to manage stress, disease, and pain (Rosenzweig, et al., 2010).

In the US, low back pain is one of the main causes of disability, which created stress. The functional status of people with back pain in the United States has declined despite a wide range of treatment options and significantly expanded medical care resources allocated to this issue (Cherkin, et al., 2016). Publications with titles that made it possible to identify studies done with particular populations, such as students, occupational groups, or people with certain conditions, as well as literature reviews, were removed from the study (Andersson, et al., 2012).

The next step is reading the abstracts. Studies employing convenience samples and those that made it possible to identify literature reviews or studies examining musculoskeletal outcomes other than persistent low back pain were also eliminated (Meucci, et al., 2015). All participants filled out questionnaires that collected data on age, sex, years of formal education, marital status (including whether they lived with their partner or someone else), and employment status. The criteria of Goldthorpe and Hope were used to classify socioeconomic status, which was then dichotomized into high and low socio-economic status based on whether the subjects were employed in manual or non-manual work, respectively. We felt that this was especially important for people with disabilities who have chronic low back pain. Research has frequently employed the Goldthorpe and Hope classification, which makes it easier to compare findings with those of earlier investigations (Keeley, et al., 2008).

The main objectives were to help patients develop better physical and mental coping mechanisms and to support their independence from medical treatment recommendations. Analyzing personal psychosocial issues and conflicts that contribute to recurrent LBP was a part of the treatment. For instances in which pain and tension were felt, stress behavior was examined. Problem-solving, stress reduction, and behavioral treatment were also included in psychotherapeutic group sessions. Individual physiotherapy, cognitive-behavioral therapy, and daily sessions with doctors and psychologists made up the additional individual therapy (Moradi, et al., 2012).

These factors must be taken into account when interpreting data in the context of potential mechanisms causing somatosensory characteristics: Similar sensory characteristics may exist despite divergent mechanisms; numerous interacting mechanisms may produce similar clinical signs; genetic and epigenetic factors influence CLBP intensity, nociception, and QST; psychosocial factors influence pain sensitivity; and nociception and its relationship to attention are constantly changing. The lack of normative data for our test sites and the different methodologies make comparisons with other studies more difficult (Çidem, et al., 2012).

In this investigation, bedside and lab QST were combined. In contrast to the pressure and set temperatures utilized in the STEP, we were able to distinguish between subgroups more easily using pressure and thermal pain thresholds. Subgroup

derivation was facilitated by these measures. using bedside sensory assessments was critical to facilitating the translation of results into practice and reducing participant burden, even if alternative more sensitive methods exist for assessment of CPM, pinprick hyperalgesia, temporal summation, and vibration, which may have influenced subgrouping (Nahman, et al., 2013).

Studies on stress reactions have shown that diverse chronic pain syndromes and experimental pain lead to different activations of the HPA axis. Conceptually, an allostatic load model of disease has been integrated with pain-related activation of the HPA axis. This model makes the assumption that a variety of physiological processes may be triggered in response to acute stress to aid an organism's adaptation to environmental changes. Additionally, it has been suggested that acute pain-induced cortisol rise may lessen the unpleasantness of pain and enhance pain tolerance, providing strong support for the temporary analgesia brought on by stress (Shan, et al., 2013).

However, a few studies discovered that individuals with specific chronic pain syndromes, such as fibromyalgia and chronic back pain, have raised cortisol levels, aberrant cortisol diurnal changes, and heightened feedback sensitivity of the HPA axis. The profiles of cortisol secretion in patients with fibromyalgia, chronic back pain, or chronic temporomandibular problems, on the other hand, did not differ from those in healthy controls, according to various investigations. Although further research is necessary to confirm this concept, it is plausible to hypothesize that the HPA axis plays a role in the emergence of chronic pain (Nijho, et al., 2014).

In this sense, communication strategies are those that strive to maximize the exchange of information and ideas between healthcare professionals and patients in order to strengthen the therapeutic alliance and boost adherence to the prescribed course of action. Conversely, ergonomics-based and biomechanical-based therapies, such as back exercises and postural therapy, or traditional manual therapy techniques, contrast with communicative and educational strategies that are based on biopsychosocial visions of care and more in line with the advancements in pain neuroscience regarding CLBP (Barbari, et al., 2020).

Major stress and chronic pain frequently co-occur and may have similar neuroanatomical pathways and neurobiological bases. Chronic pain and depression have been linked to altered hypothalamus-pituitary-adrenal (HPA) axis activity, which

may be crucial to the onset and progression of both diseases. Interestingly, reduced cortisol secretion was observed in individuals with chronic pain syndromes like fibromyalgia, whiplash-associated illness, and persistent pelvic pain whereas high cortisol was frequently detected in depressed people. There are only a few studies that reveal decreased or unaffected cortisol levels in patients with chronic back pain compared to healthy subjects (Muhtz, et al., 2013).

Doctors must so effectively convey the biopsychosocial character of chronic pain, the significance of its psychological component, and the data showing that managing the underlying ailment typically reduces suffering. The possibility of establishing a shared knowledge of the patient's condition and reasonable expectations for treatment is jeopardized by the issue of inadequate communication between the doctor and the patient. In spite of the fact that effective communication is crucial when discussing pain severity, only 48% of primary care physicians in European nations surveyed their patients using pain assessment instruments, mainly visual analogue scales and numerical rating scales. The outcomes are frequently not recorded in the patient records, even when these technologies are employed. Along with the provision of support programs, there is also a need for more involvement from patients' family and caregivers (Kress, et al., 2015).

3.1 Study design:

It was a cross sectional type of descriptive study.

3.2 Study area:

Study area was Dhaka (SCMST outdoor, NITOR, Lab Science Diagnostic Centre, Unique Pain and Paralysis Centre and Raipura Diagnostic Centre, Narsingdi city).

3.3 Study period:

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

3.4 Study population:

The lower back pain patients of SCMST outdoor, NITOR, Lab Science Diagnostic Centre, Unique Pain and Paralysis Centre and Raipura Diagnostic Centre, Narsdingdi city constituted the study population of the present study.

3.5 Sample size:

The required sample size for the proposed study was calculated by using the following statistical formula-

We know that;

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

Here,

n= Required sample size.

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

P = P is the prevalence taken as 15.8% or 0.158 (Park, H.J., et al., 2023).

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

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

$$n = \frac{(1.96)^2 \times 0.158(1-0.158)}{(0.05)^2}$$

$$= \frac{3.84 \times 0.158 \times 0.842}{0.0025}$$

$$= \frac{0.5109}{0.0025}$$

$$= 204$$

So, sample size 204.

So, the researcher aim to focus his study by 204 sample following the calculation above initially.

3.6 Sampling technique:

Convenience sampling technique was applied to collect data.

3.7 Eligibility criteria:

3.7.1 Inclusion criteria:

- Who were willingly participate.
- Both male female were include in this study.
- Age Between 20 to 65 are included in this study. (Meucci, RD et al. 2015)

3.7.2 Exclusion Criteria:

- Mentally unstable.
- Low back pain due to acute injuries, spinal tuberculosis, spinal tumor or cancer.

3.8 Method of data collection:

Data was collected from the chronic low back pain patients by face to face formal interview.

3.9 Instruments of data collection-

- A pre-tested structured questionnaire was used as an instrument of data collection for the present study.
- To assess the level of stress of the chronic low back pain patients by perceived stress scale.
- Both open and close ended questionnaire were included in the questionnaire.

3.10 Data collection Tools:

For collecting data some other materials were also used-

- Weighing machine and
- Measuring tape.

3.11 Data collection procedure:

At first, researcher took permission from the participants. Before collecting data, the objectives of this study and purpose were explained to all participants. All the participants were given consent form for taking permission from them to participate in this study and they were given opportunity to ask any types of study related questions. The participants who could not read the consent form, researcher read the consent form in front of the participants. After getting written consent, researcher started to collect data. At first, the researcher collected general information using self-developed socio-demographic questionnaire and also collect about low back pain related information by self- developed questions. Structured questions named perceived stress scale were used in this study to assess the stress of chronic low back pain patients. The interview was conducted in Bengali as though they can understand the questions easily. Face to face interview was conducted because this may provide higher response then other data collection methods. Every interview lasted 15-20 minutes. Each data was collected carefully and confidentially was maintained. After successfully collecting data, researcher leaves the participants by giving thanks to all participants to be a part of study willingly.

3.12 Data Management:

After collection of the questionnaire from the participants, those were checked for any error and inconsistency in the responses. Necessary correction were done accordingly. The responses were coded for the entry into the computer program.

3.13 Data analysis:

Data was analyzed by according to objectives and variable of this study by Microsoft excel and using SPSS (Statistical package for social science) (25 version), And use some statistical test (eg: Chi-Square test).

3.14 Presentation of results:

The findings of the study have been presented by frequency tabulation of the characteristics. The results were also presented by various charts, graphs and description of the variables.

3.15 Ethical consideration:

- The Research proposal was submitted to the Ethical Review Board (ERB) of SCMST and approval was obtained from the Board.

- The investigator will obtain written permission from ethical review board (SCMST).

- Bangladesh Medical Research Council (BMRC) and World Health Organization (WHO) guideline also were followed to conduct the study.

- Ethical review board informed by written document about aims and objectives of the study and that the Participate of the study will not harmed.

- The clients name, address and personal information will be kept confidential by the investigator mentally and the dates will not be shared with others.

Chapter-IV   RESULT

This was a cross sectional study. The main objective of the study was to assess the level of stress among the patients with chronic low back pain. Data were collected from 172 patients with low back pain from the district of Narsingdi and Dhaka. Data were numerically coded and captured in Microsoft Excel, using an SPSS 25.0 version software program.

4.1. Socio- demographic information:

Variable Name		Frequency	Percentage
Age group in years (Mean and SD)		Mean ($\bar{x}$) = 38.92, Standard deviation (σ) = ±13.148	
BMI Group (Mean and SD)		Mean, ($\bar{x}$) = 23.95, Standard deviation, (σ) = ±3.478	
Gender	Male	74	43.0%
	Female	98	57.0%
Religion	Islam	163	94.8%
	Hindu	9	5.2%
Education	No-formal education	11	32.6%
	Primary level	26	23.8%
	High school	38	22.1%
	Higher secondary	41	15.1%
	Graduation	56	6.4%
Professional status	Service holder	20	11.6%
	Farmer	8	4.7%
	Teacher	7	4.1%
	Garments worker	5	2.9%
	Student	43	25.0%
	Housewife	73	42.4%
	Others	16	9.3%
Marital Status	Married	116	67.4%
	Unmarried	50	29.1%
	Others	6	3.5%

Living Area	Urban	75	43.6%
	Semi-urban	16	47.1%
	Rural	81	9.35%
Family Type	Single family	126	73.3%
	Joint Family	46	26.7%
Monthly Income	0 – 9000	118	68.6%
	10000- 30000	37	21.5%
	30000 -60000	12	7.0%
	>60000	5	2.9%

4.1.1. Age group of the participants

Table no-1: Frequency distribution of the respondents by age group in years.

Age Group in years	Frequency	
	N	**%**
20-24	29	16.9
25-29	31	18.0
30-34	15	8.7
35-39	20	11.6
40-44	11	6.4
45-49	18	10.5
50-54	20	11.6
55-59	10	5.8
60-64	12	7.0
65-69	6	3.5
Total	172	100.0

Mean ($\bar{x}$) = 38.92, Standard deviation (σ) = ±13.148

Regarding frequency distribution of the respondents by age, out of 172, 31(18.0%) participants belonged to the group of 25-29 years. It was also found that 29(16.9%), 20(11.6%), 18(10.5%) respondents were in the age group of (20-24), (35-39), (45-49) years. The mean of the participants age is 38.92 and SD is $\pm$ 13.148 (Table no.1).

4.1.2 BMI of the participants.

Table-2: Frequency distribution of the participants by BMI.

BMI Group	Frequency	
	N	%
Under weight (<18.5)	6	3.5
Normal weight (18.5-24.9)	102	59.3
Over weight (25-29.9)	54	31.4
Obese (>30)	10	5.8
Total	172	100.0

Mean, ($\bar{x}$) = 23.95,

Standard deviation, (σ) = ±3.478

It was revealed that 102 (59.3%) participants had normal weight. It was also found that 6 (3.5%) participants were underweight. The number of overweight participants was 54 (31.4%) and 5.8% participants were obese. The mean BMI of the participants was 23.95 and SD: ±3.478 (Table.no 2).

4.1.3 Gender of the participants.
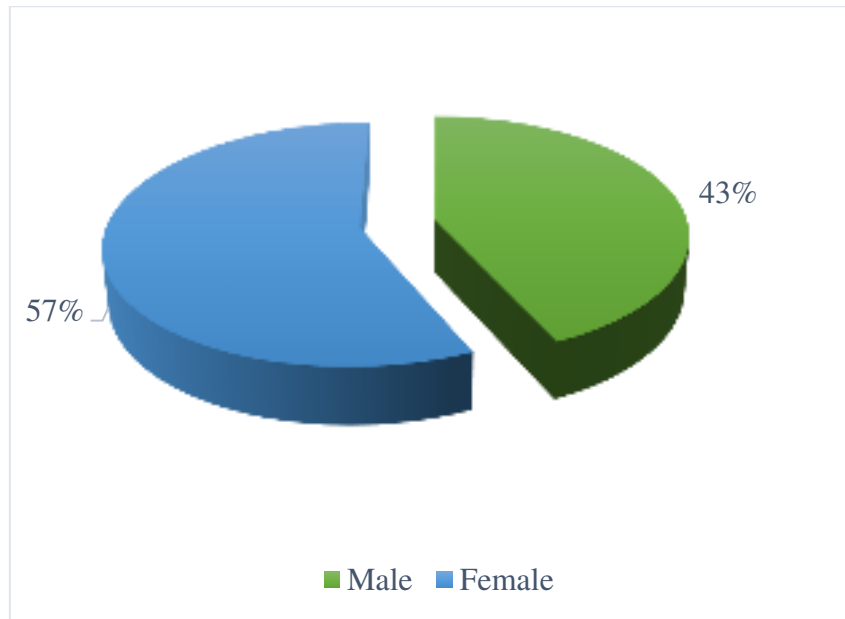
Figure-1: Gender of the participants

Out of 172, 74 (43.0%) participants were male and 98 (57.0%) participants were female (Figure no.1).

4.1.4. Religion of the participants.

Table no. 3: Frequency distribution of the respondents by religion.

Religion	Frequency	
	N	%
Islam	163	94.8
Hindu	9	5.2
Total	172	100.0

The study showed that the religion of the most of the participants 163(94.8%) was Islam and 9 (5.2%) respondents were Hindu (Table no.3).

4.1.5 Educational status of the participants.
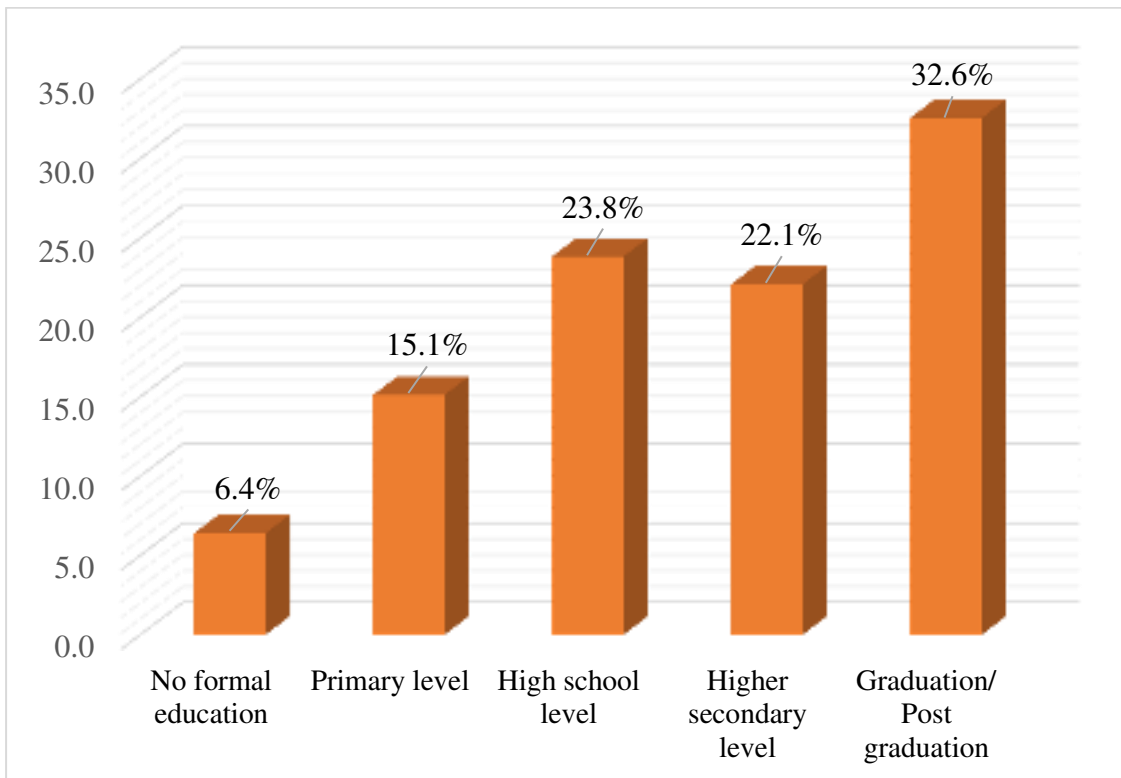
Figure-2: Educational status of the participants

About educational level of the participants, 56 (32.6%) participants completed their graduation. It was also found that 41 (23.8%) participants passed high school level. The study showed that 38 (22.1%) participants were completed higher secondary level. It was also showed that, 26 (15.1%) participants passed primary level and 11(6.4%) were no formal education level (Figure.no 2).

4.1.6 Professional status.

Table-4: Frequency distribution of the respondents by Professional status.

Professional status of the participants	Frequency	
	N	**%**
Service holder	20	11.6
Farmer	8	4.7
Teacher	7	4.1
Garments worker	5	2.9
Student	43	25.0
Housewife	73	42.4
Others	16	9.3
Total	172	100.0

The study revealed that 73(42.4%) of the participants were housewife. It was also showed that, 43(25.0%) were student, 20(11.6%) were service holder, 8 (4.7%) were farmer, 7 (4.1%) were teacher, 5 (2.9%) were garments worker, 16 (9.3%) were others professional status (Table.no. 4).

4.1.7 Marital status of the participants.
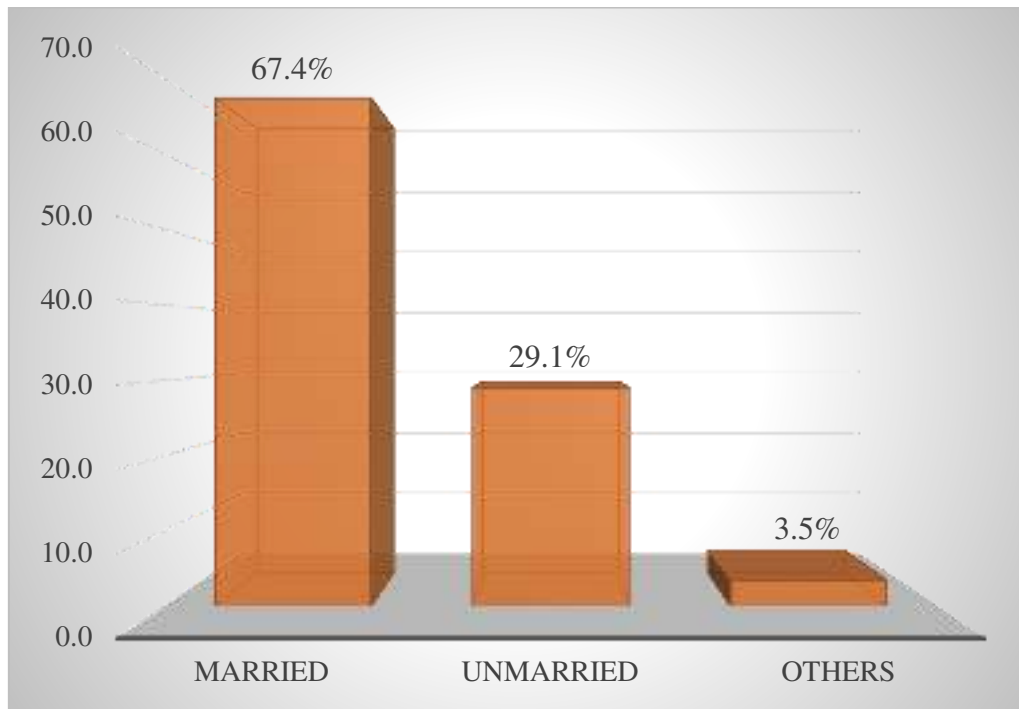
Figure–3: Marital status of the participants.

Regarding marital status, it was found that 116 (67.4%) were married, 50(29.1%) were unmarried and 6 (3.5%) were others marital status (Figure no.3).

4.1.8 Living area of the participants.
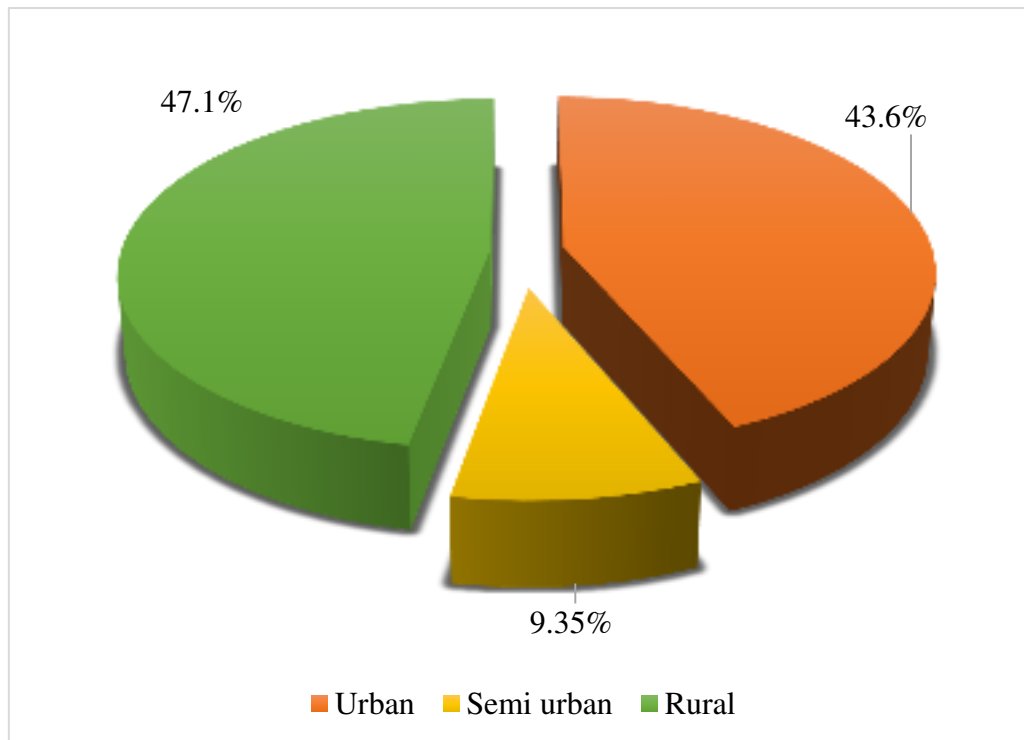
Figure-4: Living area of the participants.

The survey showed that 81(47.1%) participants were living in rural area, 75(43.6%) were living in urban area, 16 (9.35%) were living in semi urban area (Figure no.4).

4.1.9 Family type of the participants.

26.7%

73.3%

■ Single Family   ■ Joint Family
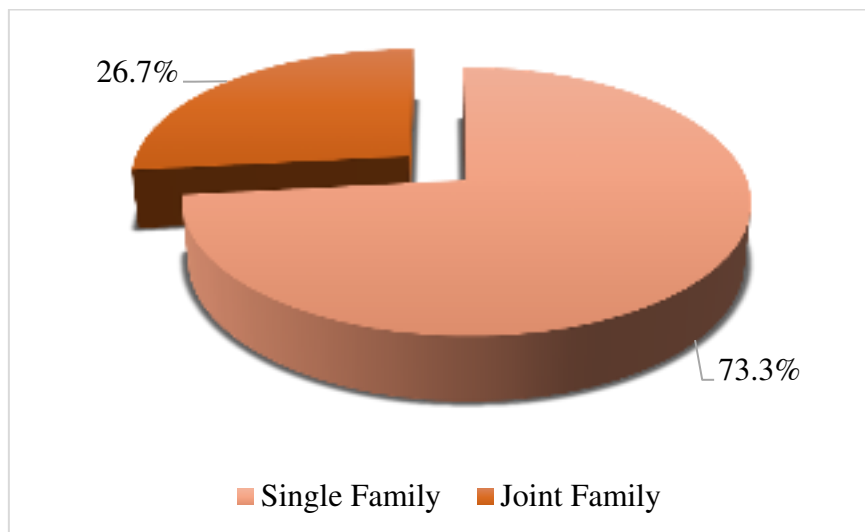
Figure-5: Family type of the participants.

In this study showed that 126 (73.3%) participants were single family and 46 (26.7%) participants were joint family (Figure no.5).

4.1.10 Monthly Income of the participants.

Table-5: Frequency distribution of the respondents by monthly income.

Monthly income	Frequency	
	N	**%**
0-9000 BDT	118	68.6
10000-30000 BDT	37	21.5
30000-60000 BDT	12	7.0
>60000 BDT	5	2.9
Total	172	100.0

In the study reveal that out of the 172 participants, 118(68.6%) patient's monthly income was less than 10000 BDT, 37 (21.5%) was 10000-30000 BDT, 12(7.0%) were between 30000- 60000 BDT and 5(2.9%) were above 60000 BDT (Table no.5).

4.2 Low Back Pain Related Information.

4.2.1 Duration of the low back pain
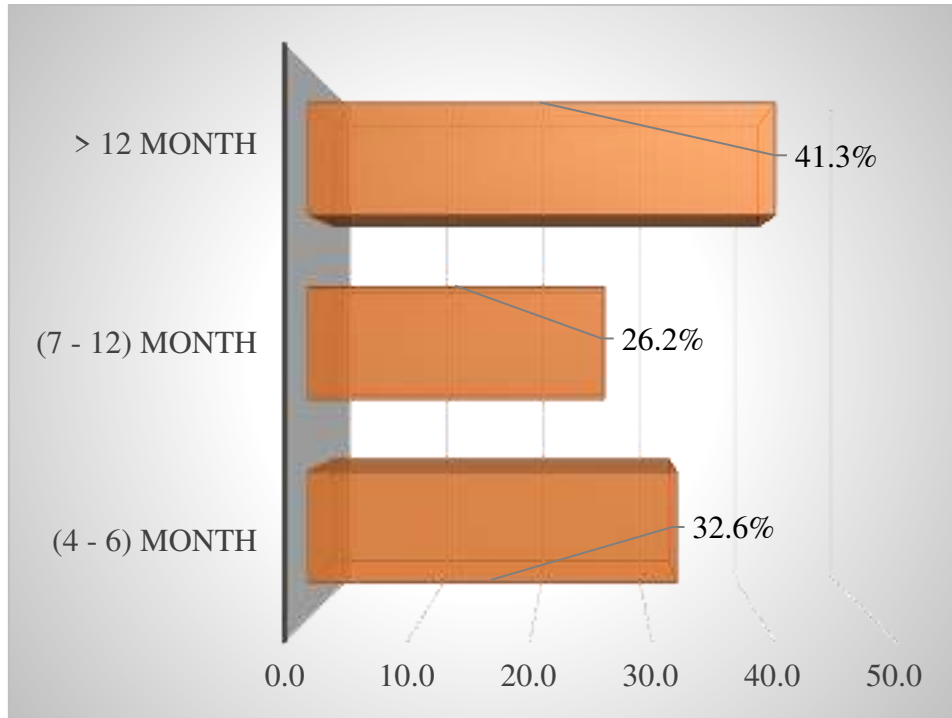
Figure-6: Duration of the Low Back Pain.

The study showed that the low back pain duration most of the participants 71 (41.3%) was >12 month, 45 (26.2%) participants were 7 to 12 month and 56(32.6%) respondents were 4-6 months (Figure no.6).

4.2.2 Pain during movement.

No Pain, 34.9%

Pain, 65.1%
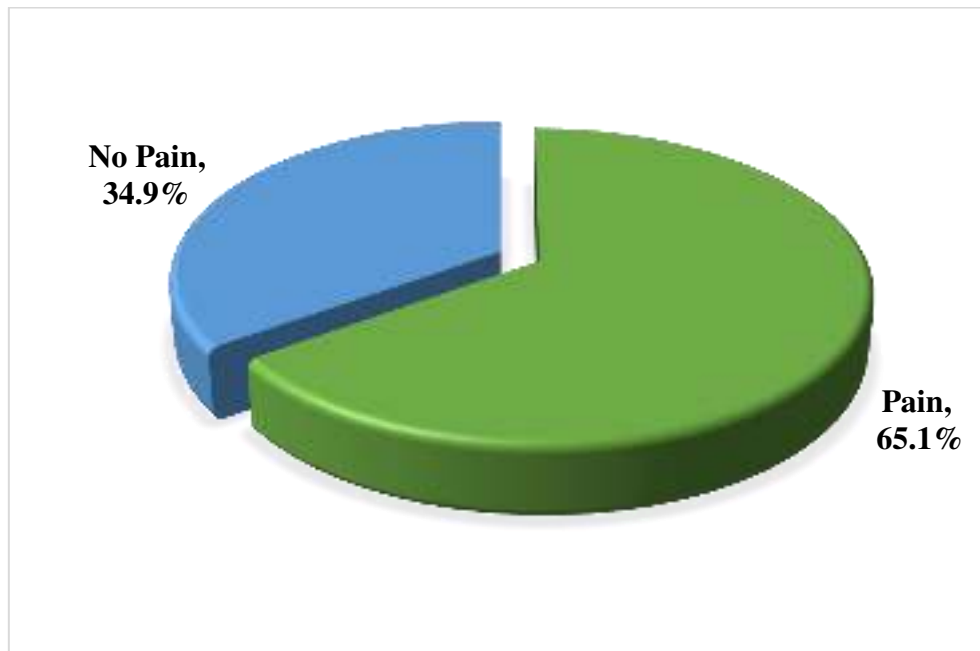
Figure-7: Frequency of pain during movement.

The study revealed that 60 (34.9%) were no pain in during movement and 112 (65.1%) were feeling pain during movement (Figure no.7).

4.2.3 Low back pain with radiculopathy.

48.8%
LBP without
radiculopathy

51.2%
LBP with
radiculopathy

■ Yes ■ No
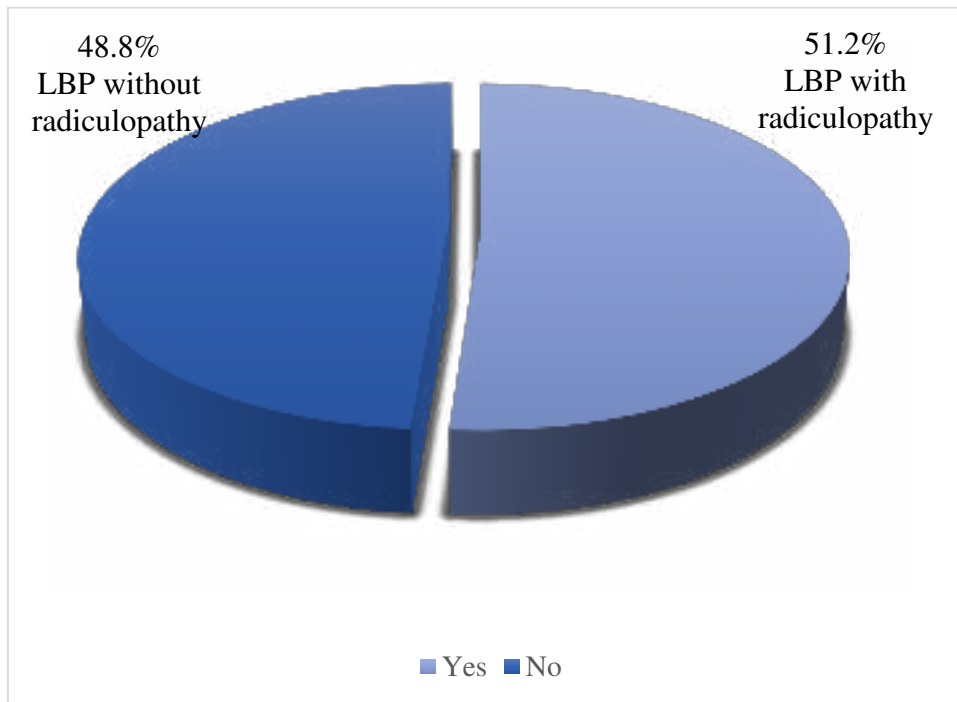
Figure no-8: Frequency distribution of low back pain with radiculopathy.

This study was conducted on 172 chronic low back pain patients. Among them 88 (51.2%) patients had low back pain with radiculopathy and also found that 84 (48.8%) patients had low back pain without radicular pain (Figure no.8).

4.3 Level of stress by Perceived Stress Scale.

Table no. 6: Frequency distribution of participants by level of stress.

Score category	Frequency	
	N	**%**
Lowest quartile/low stress (0.23-0.32)	9	5.2
Second quartile/ Mild stress (0.32-0.42)	54	31.4
Third quartile / Moderate stress (0.42-0.52)	90	52.3
Upper quartile/ Severe stress (> 0.52)	19	11.0
Total	172	100.0

Mean, $(\bar{x}) = 0.437$,

Standard deviation, $(\sigma) = 0.0740$

A total of 172 low back pain patients were participants. Among them the low stress (lowest quartile was 9(5.2%), Second quartile (Mild stress) was 54(31.4%), Third quartile (Moderate stress) was 90(52.3%), Upper quartile (severe stress) was 19(11.0%). The mean perceived stress of the respondents (N=172) was $\bar{x}$=0.437, Standard deviation (SD: ±0.0740). Most vulnerable third quartile was moderate stress 0.42-0.52 quartile, 90 (52.3%) [Table no.6].

Table no. 7: Frequency distribution of the participants by level of stress and gender.

Gender	Stress				Total
	Low stress	**Mild stress**	**Moderate stress**	**Severe stress**	
Male	5 (2.9%)	25 (14.5%)	39 (22.7%)	5 (2.9%)	74 (43.0%)
Female	4 (2.3%)	29 (16.9%)	51 (29.7%)	14 (7.8%)	98 (57.0%)
Total	9 (5.2%)	54 (31.4%)	90 (52.3%)	19 (11.0%)	172 (100.0%)

$\chi^2 = 2.980$, df= 3, $p = 0.395$

Out of 172 patients with chronic low back pain, it was 74 patients were male. Among them 39 (22.7%) patients had moderate stress, 25 (14.5%) patients had mild stress, 2.9% patients had low and 2.9% patients had severe stress. In case of female, 51 (29.7%) patients had moderate stress, 29 (16.9%) patients had mild stress, 2.3% patients had low and 7.8% patients had severe stress. There is no significant of association between gender of the respondents and level of Stress ($\chi^2 = 2.980$, df= 3, $p = 0.395$) [Table no.7].

Table no. 8: Frequency distribution of the participants by marital status and level of stress.

marital status	Stress				Total
	Low stress	Mild stress	Moderate stress	Severe stress	
Married	4 (2.3%)	36 (20.9%)	63 (36.6%)	13 (7.6%)	116 (67.4%)
Unmarried	5 (2.9%)	15 (8.9%)	25 (14.5%)	5 (2.9%)	50 (29.1%)
Others	0 (0.0%)	3 (1.7%)	2 (1.2%)	1 (0.6%)	6 (3.5%)
Total	9 (5.2%)	54 (31.4%)	90 (52.3%)	19 (11.0%)	172 (100.0%)

$\chi^2 = 4.665$, df= 6, $p = 0.587$

The study revealed that out of 172, 116 (67.4%) were married. Among them 63 (36.6%) patients had moderate stress, 36 (20.9%) patients had mild stress, 4(2.3%) patients had low and 13 (7.6%) patients had severe stress. It also found that 50(29.1%) patients were unmarried. Among them 25 (14.5%) patients had moderate stress, 15 (8.9%) patients had mild stress, 5(2.9%) patients had low and 5 (2.9%) patients had severe stress.

The association between marital status and level of stress was not statistically significant ($\chi^2 = 4.665$, df= 6, $p = 0.587$) [Table no.8].

Table no. 9: Frequency distribution of the participants by living area and level of stress.

Area	Stress				Total
	Low stress	Mild stress	Moderate stress	Severe stress	
Urban	5 (2.9%)	25 (14.5%)	38 (22.1%)	7 (4.1%)	75 (43.6%)
Semi urban	3 (1.7%)	6 (3.5%)	5 (2.9%)	2 (1.2%)	16 (9.3%)
Rural	1 (0.6%)	23 (13.4%)	47 (27.3%)	10 (5.8%)	81 (47.1%)
Total	9 (5.2%)	54 (31.4%)	90 (52.3%)	19 (11.0%)	172 (100.0%)

$\chi^2 = 11.122$, df= 6, $p = 0.085$

The study showed that out of 172, 75(43.6%) were living urban area. Among them 5 (2.9%) respondents had stress level of low, 25(14.5%) had mild stress, 38(22.1%) had moderate stress and 7(4.1%) had severe stress. It also found that 81(47.1%) were living rural area. Among them 1(0.6%) patients had stress level of low, 23(13.4%) had mild stress, 47(27.3%) had moderate stress and 10(5.8%) had severe stress.

The association between level of stress and living area was not statistically significant ($\chi^2 = 11.122$, df= 6, $p = 0.085$) [Table no. 9].

Table no. 10: Frequency distribution of the participants by level of stress and duration of pain.

Duration of pain	Stress				Total
	Low stress	Mild stress	Moderate stress	Severe stress	
(4 - 6) month	2 (1.2%)	21 (12.2%)	28 (16.3%)	5 (2.9%)	56 (32.6%)
(7 - 12) month	1 (0.6%)	11 (6.4%)	30 (17.4%)	3 (1.7%)	45 (26.2%)
> 12 month	6 (3.5%)	22 (12.8%)	32 (18.6%)	11 (6.4%)	71 (41.3%)
Total	9 (5.2%)	54 (31.4%)	90 (52.3%)	19 (11.0%)	172 (100.0%)

$\chi^2 = 8.661$, df= 6, $p = 0.194$

The study showed that out of 172, 56 (32.6%) were pain duration (4-6) month. Among them 2 (1.2%) respondents had stress level of low, 21(12.2%) had mild stress, 28 (16.3%) had moderate stress and 5 (2.9%) had severe stress. It also found that 71(41.3%) were the duration of pain group >12 month. Among them 6 (3.5%) patients had stress level of low, 22 (12.8%) had mild stress, 32 (18.6%) had moderate stress and 11 (6.4%) had severe stress.

The association between level of stress and pain duration was not statistically significant ($\chi^2 = 8.661$, df= 6, $p = 0.194$) [Table no 10].

Table no. 11: Frequency distribution of the participants by gender and duration of pain

Gender	duration of pain			Total
	4 -6 month	**7–12month**	**>12 month**	
Male	33 (19.2%)	20 (11.6%)	21 (12.2%)	74 (43.0%)
Female	23 (13.4%)	25 (14.5%)	50 (29.1%)	98 (57.0%)
Total	56 (32.6%)	45 (26.2%)	71 (41.3%)	172 (100.0%)

$\chi^2 = 11.053$, df= 2, $p = 0.004$

The study revealed that out of 172, 74 (43.0%) participants were male. Among them 33(19.2%) respondents had pain duration in (4-6) month, 20 (11.6%) had 7-12 month and 21(12.2%) had > 12month duration of pain. It also found that 98(57.0%) participants were female. Among them 23(13.4%) respondents had pain duration in (4-6) month, 25 (14.5%) had 7-12 month and 50 (29.1%) had > 12month duration of pain.

This table showed that the Pearson chi square was 11.053 and the P value was 0.004. So, there were strong significant of association between gender of the respondents and pain duration (Table no.11).

The aim of the study was to assess the level of stress among the patients with chronic low back pain. A cross sectional type of descriptive study design was used to conduct the research. 172 chronic low back pain patients were participants in this study. The samples were selected by convenience sampling method. The data were collected by using a self-developed and structured questionnaire form.

About age distribution the study revealed that the highest age of the participants was 67 and lowest age was 23. Most vulnerable age group was 25-29 years 31(18.0%). The mean age of the respondents was 38.92 years and standard deviation, SD: ±13.148 (Table no.1). Most of the participants were young. In other study showed that, 265 people were participate in their study and the mean age and Standard deviation was 43.9 years and (SD: ±8.2) (Latina, et al.,2020).

The study revealed that, the mean BMI of the respondents was 23.95 Standard deviation (SD: ±3.478) and also found that Underweight was 3.5%, Normal weight was 59.3%, Over weight was 31.4%, and Obese was 5.8% (Table no.2). In other conduct in Italy found that, 265 people were participate in this 2.7% was underweight, Normal weight was 65.5%, Pre obesity was 23.4%, Obesity Class I and Class II was 5.7%, and Obesity Class III was 2.7% (Latina, et al.,2020). In other study conduct in Dhaka, Bangladesh showed that, according to BMI, 88 employees were classified as obese, 92 employees were overweight, 46 employees were underweight. Obese (30) and overweight (25–29.9) individuals are more likely to experience low back pain (LBP) ((kamal, et al., 2023).

In this study showed that, 43.0% participants were male and 57.0% participants were female. The result indicated that the proportion of female participants were higher than that of male counterpart (Figure no.1). In other study researcher found that, 265 people were participants, female was 74.7% and male was 25.3% (Latina, et al.,2020). In other study showed that, 349 low back pain patients were participants, male was 231 (66.2%) and female was 118 (33.8%) (kamal, et al., 2023). In Iranian population prevalence of LBP was male 18.3% and female 37.5% (Biglarian, et al., 2012).

The study showed that 94.8% respondents were Muslim and 5.2% respondents were Hindu. It indicated that most of the participants were Muslim (Table no.3). Bangladesh is a country where Muslims are majority. In other study showed that Only 0.9% of the participants were Christians, while 6.9% were Hindus and 92.3% were Muslims (Waqqar, et al., 2016).

In this study showed that, 6.4% were no formal education 15.1% were passed primary level, 23.8% were complete high school level, 22.1% were complete higher secondary level, 32.6% were complete their graduation. In this study the investigator found that the persons with suffering from LBP majority of participants completed their secondary level education (28.1%), 8% participants completed S.S.C. level and 19.3% affected participants completed their graduation level and most affected group were secondary passed (Figure.no 2). Other study found that the persons with LBP most of participant 39 were housewives 23.42%, office worker were 17.31%, students were 17.92% and businessmen were 6.72% (Ullah, et al., 2006). Another study found in Iran that showed that among the participant 33.9% completed their basic educational level, 20.2% completed moderate educational level and 15% completed their higher education. Where most affected group completed their basic educational level (Biglarian, et al., 2012). In other researcher found that, Bachelor degree was 28.3%, University Diploma, 15.2%, Diploma was 56.6%, and Masters degree was 29.7% participants were suffering from low back pain (Latina, et al., 2020).

The study showed that, 11.6% of the participants were service holder, 4.7% were farmer, 4.1% were teacher, 2.9% were garments worker, 25.0% were student, 42.4% were housewife, 9.3% were other professional status (Table.no 4). In another study conduct in Dhaka, Bangladesh, According to occupation, 45.27% of MPOs were in that position, followed by 13.47% Area managers, 9.74% Regional managers, 29% Deputy Managers, 6.02% Assistant General Managers, 3.15% General Managers, 1.7% Managing Directors, 8.30% Executives, and 3.43% in other occupations (kamal, et al., 2023).

Regarding marital status, it was found that 67.4% were married, 29.1% were unmarried and 3.5% were others marital status (Figure no.3). Another study found that 24(12.1%) were divorced, 116(58.3%) were married, 11(5.5%) were married but separated, 16(3.0%) were single, and 32(16.1%) were low back pain patients

widowed, according to their marital status (Edit, v., et all., 2013). And another study also found that when examining the relationship between marital status and low back pain, the unadjusted incidence rate was 38.1 for single people, 41.3 for married people, and 56.4 for other military personnel (Knox, et al., 2011).

In the study found that 43.6% were living in rural area, 9.3% were living in semi urban and 47.1% were living in urban (Figure no.4). Most of them participants living in semi-urban areas suffered from chronic low back pain. In study we found that, 73.3% were live in single family and 26.7% were live in joint family (Figure no.5). In other study showed that, only 0.9% of the low back pain participants were Christians, while 6.9% were Hindus and 92.3% were Muslims. Most of them 169, or 48.4% have three to four family members, while 107, or 30.7%, have one to three family members or single family. (kamal, et al., 2023).

The study showed that, duration of low back pain most of the participants 41.3% was >12 month. 26.2% were 7 to 12 month and 32.6% respondents were 4-6 months (Figure no.6). The other study showed that 184 to 681 people with long-term LBP. Just 50 patients made up the subset of chronic patients from the larger trial. The length of the disease varied from 90 to 580 days. Three perceived measures unrelated to work were examined in two trials along with work-related outcomes. For 6 to 12 months, patients were monitored in chronic low pain (Wertli, et al., 2014).

The study revealed that, 34.9% were no pain in during movement and 65.1% were feeling pain during movement (Figure no.7) and also showed that, Among them 51.2% (n = 88) were low back pain with radiculopathy and 48.8% (n = 84) were low back pain without radiculopathy (Figure no.8). The other study showed that few patients with lumbar radiculopathy, all of the other investigations included individuals with persistent non-radicular LBP. On an 11-point pain scale, the average patient age throughout the studies was 51, and their average pain level was 6.7. These averages were consistent between the research. The length of discomfort, which was around 11 years, was only recorded in the investigations by Katz et al. (Leite, et al 2014).

In this study found that, 172 low back pain patients were participants. According to levenstein, et all 1993. In this present study found that, out of 172, the low stress (lowest quartile) was 5.2%, Second quartile (Mild stress) was 31.4%, Third quartile (Moderate stress) was 52.3%, Upper quartile (severe stress) was 11.0%. The

mean perceived stress of the respondents (N=172) was x̄=0.437, Standard deviation (SD: ±0.0740). Most vulnerable third quartile was moderate stress 0.42-0.52 quartile, (52.3%) [Table no.6]. In another study showed that, The PSQ had a mean score of 0.30 and an SD of ± 0.15. The estimated cut-off score for high level felt stress was 0.60, while for moderate level it was > 0.45 to 0.60. The prevalence of felt stress at a moderate level was calculated to be 14.5% using the cut-off scores listed below. 3.1% of people reported experiencing high levels of felt stress (Kocalevent, et al., 2011).

Out of 172 patients with chronic low back pain, it was 74 patients were male. Among them (22.7%) patients had moderate stress, (14.5%) patients had mild stress, 2.9% patients had low and 2.9% patients had severe stress. In case of female, 51 (29.7%) patients had moderate stress, (16.9%) patients had mild stress, 2.3% patients had low and 7.8% patients had severe stress. There is no significant of association between gender of the respondents and level of Stress ($\chi^2 = 2.980$, df= 3, $p = 0.395$) [Table no.7]. In another study showed that, Males demonstrated a significantly higher than females in all stress levels in the sex-stratified logistic regression analysis: mild stress (1.34%-1.85%), moderate stress (3.32%) and severe stress 4.43% (Choi, et al., 2021).

In this study researcher found that, female (57.0%) are more stress in chronic low back pain patient more than male (43.0%).

| Chapter – VI | CONCLUSION AND RECOMMENDATION |

6.1 Conclusion:

The term "low back pain" describes discomfort felt in the lower back. Additionally, you can experience back stiffness, restricted lower back motion, and trouble standing upright. Chronic low back pain is a term used to describe persistent low back discomfort. LBP is one of the most prevalent illnesses that impact people. Mechanical or non-mechanical causes of back pain are also possible.

Stress is a state of stress, either emotionally or physically. Any circumstance or idea that gives you cause for annoyance, rage, or anxiety can trigger it. Your body's response to a demand or challenge is stress. The aim of the study was to assess the level of stress among the patients with chronic low back pain. A cross sectional type of descriptive study design was used to conduct the research. 172 chronic low back pain patients were participants in this study. The samples were selected convenience sampling method. The data were collected by using a self-developed and structured questionnaire form.

Out of 172 individuals, this study revealed that 98 were female and 74 were male. Thirty-one of them were in the twenty-five to thirty-year age range. Based on the study, the majority of participants 163 were Muslims, whereas 9 respondents identified as Hindu. According to the study, 112 people experienced pain when moving, while 60 people felt no pain at all. In this study reveal that, nine participants low stress (lowest quartile) was 5.2%, Fifty-four participants were Second quartile (Mild stress), Most of the participants were Third quartile (Moderate stress) was 52.3% and nineteen participants were Upper quartile (severe stress). The mean perceived stress of the respondents was $\bar{x}$=0.437, Standard deviation (SD: ±0.0740). Most vulnerable third quartile was moderate stress (0.42-0.52) group of quartile, ninety participants (52.3%).

According to this study, women (98) experience higher levels of stress than men (74), among the patients with chronic low back pain.

6.2 Recommendation:

The aim of the study was to assess the level of stress among the patients with chronic low back pain. The following recommendations are made on the basis of the findings of the present study:

1. Educating women about 'stress management' is recommended by the researcher of this study.
2. Regular counseling, exercise, yoga, a good relationship, family supports are mandatorily recommended to reduce the level of stress of chronic low back pain patients.
3. Deep breathing exercise, medication are recommended of stress management.
4. Relaxation is suggested for the patients with chronic low back pain manage the stress level.
5. Seminar, talk show should be arranged to make social awareness of assessment of stress among the patients with chronic low back pain.
6. In future someone want to doing this topic related research, this research will help for better information.

Chapter- VII	**LIMITATION**

Limitation of this study:

Every study has its own set of limitations. There were some situational limitation While Considering the Study. Those are as follows:

- Required sample size for the present study was 204. But researcher collected data from 172 chronic low back pain patients. Due to shortage of time data could not collected from the calculated sample size.

- In this study researcher used only one tool, Perceived stress scale to measure the level of stress among chronic low back pain patients. But, to do a perfect study, more tools could be used.

- Some chromic low back pain patients are not comfortable with this Questionnaire.

- The study was carried out Dhaka and Narsingdi city. It would be better to include different districts from 8 divisions of the country.

- Due to financial limitation.

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Appendix - A

Institutional Review Board (IRB) Permission Letter

SAIC COLLEGE OF MEDICAL SCIENCE AND TECHNOLOGY

Approved by Ministry of Health and Family Welfare

Affiliated with Dhaka University

Ref :

Ref.No: SCMST/PT/ERB-2617-18/1-2023/37

Date : ....

3rd January'2023

To

Mahmuda Maliha

4th Professional B.Sc. in Physiotherapy

Saic College of Medical Science and Technology (SCMST)

Mirpur-14, Dhaka-1216.

Sub: Permission to collect data

Dear Maliha,

Ethical review board (ERB) of SCMST pleased to inform you that your proposal has been reviewed by ERB of SCMST and we are giving you the permission to conduct study entitled "Assessment of stress in chronic mechanical low back pain" and for successful completion of this study you can start data collection from now.

Wishing you all the best.

Thanking You,

Head of ERB

Ethical Review Board

Saic College of Medical Science and Technology

Principal

Saic College of Medical Science and Technology

Mirpur-14, Dhaka-1216

Address: Saic Tower, M-1/6, Mirpur-14, Dhaka-1216. Mobile: 01936005804

E-mail: simt140@gmail.com, Web: www.saicmedical.edu.bd

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Appendix - B

Permission letter for data collection

SAIC COLLEGE OF MEDICAL SCIENCE AND TECHNOLOGY
Approved by Ministry of Health and Family Welfare
Affiliated to Dhaka University

Ref.No: SCMS/PT/ERB-2023/37(a)

25th February'2023

To

1. The Director, National Institute of Traumatology and Orthopedic Rehabilitation, Sher-e-Bangla Nagar, Dhaka-1207.

2. The Managing Director, Lab Science Diagnostic Centre, 153, Green road, Dhaka-1205.
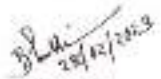
Sub: Permission to collect data.
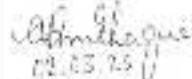
Dear Sir/Mam,
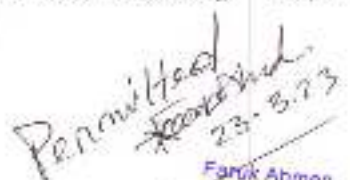
Ethical review board (ERB) of SCMS I pleased to inform you that Mahmuda Mulika of final year B.Sc. in Physiotherapy student from Saic College of Medical Science and Technology doing a thesis entitle of "Assessment of stress in chronic mechanical low back pain" which has been reviewed by ERB of SCMS I and we are giving permission to her to conduct this study. Her data collection area is in Dhaka, so she wants to take data from your department.

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

Thanking You,

Head of ERB
Ethical Review Board
Saic College of Medical Science and Technology

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

Faruk Ahmed
Managing Director
Lab Science Diagnostics.

Address: Saic Tower, M-1/6, Mirpur-14, Dhaka-1206. Mobile: 01936005804
E-mail: simt140@gmail.com, Web:www.saicmedical.edu.bd

সম্মতিপত্র

প্রিয় অংশগ্রহণকারী,

আমি মাহমুদা মালিহা, ঢাকা বিশ্বদ্যিালয় দ্বারা অনুমোদিত "সাইক কলেজ অফ মেডিকেল সায়েন্স এন্ড টেকনোলজি" (এস সি এম এস টি) ফিজিওথেরাপী বিভাগে ব্যাচেলর অফ ফিজিওথেরাপি প্রোগ্রামের ছাত্রী। শিরোনামের অধ্যয়ন পরিচালনা করা হল-

"দীর্ঘ মেয়াদী কোমর ব্যাথার রোগীদের মাসনিক বিষন্নতা মূল্যায়ন।"

এখানে সামাজিক জনসংখ্যা সংক্রান্ত তথ্য, স্বাস্থ্যগত আরচরণ এবং আর্থ সামাজিক অবস্থা অন্তর্ভূক্ত করে এমন প্রশ্নের একটি তালিকা রয়েছে যা আপনাকে পূরণ করতে হবে। এটি প্রায় ১৮-২৫ মিনিট সময় নেবে সম্পূর্ণ তথ্য সংগ্রহ করার জন্য আমাকে একবার আপনার সাথে সাক্ষাৎ করতে হবে। আমি আপনাকে জানাতে চাই যে, এটি সম্পূর্ণ একটি একাডেমিক অধ্যয়ন এবং তথ্য প্রাপ্ত করার জন্য অন্য কোন উদ্দেশ্যে ব্যবহার করা হবে না। আপনার দ্বারা প্রাপ্ত সমস্ত তথ্য গোপন রাখা হবে এবং তথ্যের উৎসও বেনামী থাকবে, এই গবেষণায় আপনার অংশগ্রহণ স্বেচ্ছায় এবং সেই সাথে সাক্ষাৎকারের সময় আপনি পছন্দ করেন না বা উত্তর দিতে চান না এমন প্রশ্নের উত্তর না দেওয়ার অধিকার রয়েছে।

আমি শুরু করার আগে আপনার কোন প্রশ্ন আছে ?

তাহলে, সাক্ষাৎকার নিয়ে এগিয়ে যেতে আমি কি আপনার সম্মতি পেতে পারি ?

- হ্যা   - না

অংশগ্রহণকারীর স্বাক্ষর;   তারিখ:

ঠিকানা:

মোবাইল:

গবেষকের স্বাক্ষর;

তারিখ;

CONSENT FORM (ENGLISH)

Dear participate,

I am Mahmuda Maliha, Student of Bachelor of Physiotherapy program in the Department of Physiotherapy, SAIC College of Medical Science and Technology (SCMST) affiliated by "UNIVERSITY OF DHAKA". Conducting the study entitled- **Assessment Of Stress Among the Patients with Chronic Low Back Pain.**

There is a list of Question you need to fill up which is include socio-demographic information, health seeking behave and socioeconomic status. This will take approximately 15-20 minutes. I need to meet you just once to collect entire information. I would like to inform you that this is a purely academic study and obtain information will not be used for any other purpose. All information provided by you will be kept confidential and also source of information will remain anonymous, your participation in this study voluntarily and also the right not to answer a particular question that you don't like or do not want to answer during interview.

Do you have any question before I start?

So, may I have your consent to proceed with the interview?

Yes ☐   ☐ No

Signature of the Participant…………………………. Witness Signature……………...

Address:…………………………………………….. Date……………………………

Mobile Number……………………………………...

Signature of the Researcher………………………….

Date…………………………

Appendix- D

Questionnaire (English)

Assessment of Stress among the Patients with Chronic Low Back Pain.

Date:……………………..

Code no:

Participate Name: ……………………………………………………………

Address: ……………………………………………………………….

Mobile No: ………………………………………………………

Section1: Socio-demographic information (kindly tick √ question)

Q.N	Question	Answer	Code no
1	What is your age?	(…………………) year	
2	What is your gender?	1. Male 2. Female 3. Other	
3	What is your religion?	1. Muslim 2. Hindu 3. Buddhist 4. Christian 5. Others	
4	What is your education level?	1.No formal education 2.Primary level 3.High school level 4.High-secondary level 5.Graduation/ Post graduation	

5	Occupation	1. Service holder	59
		2. Farmer	
		3. Teacher	
		4. Garments worker	
		5. Students	
		6.House wife	
		7. Others	
6	Marital status	1. Married	
		2. Unmarried	
		3. Others	
7	Your residential area	1. Urban	
		2. Semi urban	
		3. Rural	
8	Type of family	1. Single Family	
		2. Joint Family	
9	Monthly Income	1.0 – 9000	
		2.10000 – 30000	
		3. 310000 – 60000	
		4. >600000	
10	BMI-		
	Height of the participate (Feet)		
	Weight of the participate. (kg)		

Section 2: General health related information

Q.N	Question	Answer	Code No
1	Low back pain duration	1. 4 – 6 Month 2. 7 – 12 Month 3. >12 Month	
2	Do you feel pain during movement?	1. Yes 2. No	
3	Do you have associated problem with low back pain ?	1.Yes 2. No	

Section 3: Stress related information

- Perceived Stress Scale

Serial NO		Almost	Sometimes	Often	Usually
1	You feel rested	1	2	3	4
2	You feel that too many demands are being made on you	1	2	3	4
3	You are irritability or grouchy	1	2	3	4
4	You have too many things to do	1	2	3	4
5	You feel lonely or isolated	1	2	3	4
6	You find yourself in situations of conflict	1	2	3	4
7	You feel you 're doing things you really like	1	2	3	4
8	You feel tired	1	2	3	4
9	You fear you may not manage to attain your goals	1	2	3	4
10	You feel calm	1	2	3	4

11	You have too many decisions to make	1	2	3	4
12	You feel frustrated	1	2	3	4
13	You are full of energy	1	2	3	4
14	You feel tense	1	2	3	4
15	Your problems seem to be pilling up	1	2	3	4
16	You feel you're in a hurry	1	2	3	4
17	You feel safe and protected	1	2	3	4
18	You have many worries	1	2	3	4
19	You are under pressure from other people	1	2	3	4
20	You feel discouraged	1	2	3	4
21	You enjoy yourself	1	2	3	4
22	You are afraid for the future	1	2	3	4
23	You feel you're doing things because you have to not because you want to	1	2	3	4
24	You feel criticized or judged	1	2	3	4
25	You are lighthearted	1	2	3	4
26	You feel mentally exhausted	1	2	3	4
27	You have trouble relaxing	1	2	3	4
28	You feel loaded down with responsibility	1	2	3	4
29	You have enough time for yourself	1	2	3	4
30	You feel under pressure from deadlines	1	2	3	4

<div align="center">

প্রশ্নপত্র

</div>

দীর্ঘস্থায়ী কোমর ব্যাথার রোগীদের মধ্যে মানসিক চাপের মূল্যায়ন।

কোড নং ঃ [   ]   তারিখ ঃ

অংশগ্রহণকারীর নাম:...

ঠিকানা:...

মোবাইল নম্বর:...

<div align="center">

বিভাগ-১ ঃ সামাজিক জনসংখ্যা সংক্রান্ত তথ্য

(দয়া করে সঠিক উত্তরে টিক √ চিহ্ন দিন)

</div>

ক্রমিক নম্বর	প্রশ্ন	উত্তর	কোড নং
১.	আপনার বয়স কত ?	....	
২.	আপনার লিঙ্গ কি ?	১। পুরুষ ২। মহিলা ৩। অন্যান্য	
৩.	আপনার ধর্ম কি ?	১। ইসলাম ২। হিন্দু ৩। বৌদ্ধ ৪। খ্রিষ্টান ৫। অন্যান্য	
৪.	আপনার শিক্ষাগত যোগ্যতা কি ?	১। প্রাতিষ্ঠানিক শিক্ষা নেই ২। প্রাথমিক স্তর ৩। উচ্চ বিদ্যালয় স্তর ৪। উচ্চ মাধ্যমিক স্তর ৫। স্নাতক/ স্নাতকোত্তর	
৫.	আপনার পেশা কি ?	১। পরিষেবা ধারক ২। কৃষক ৩। শিক্ষক ৪। গার্মেন্টস কর্মী	

		৫ । ছাত্র/ ছাত্রী	
		৬ । গৃহিনী	
		৭ । অন্যান্য	
৬.	বৈবাহিক অবস্থা ?	১ । বিবাহিত	
		২ । অবিবাহিত	
		৩ । অন্যান্য	
৭.	আপনার আবাসিক এলাকা ?	১ । শহর	
		২ । উপশহর	
		৩ । গ্রামীণ	
৮.	পরিবারের ধরণ কী ?	১ । অণু পরিবার	
		২ । যৌথ পরিবার	
৯.	মাসিক আয় কত ?	১. ০- ৯০০০	
		২. ১০০০০ - ৩০০০০	
		৩. ৩১০০০ - ৬০০০০	
		৪. > ৬০০০০	
১০.	বি.এম.আই-		
	অংশগ্রহণকারীর উচ্চতা (ফুট)		
	অংশগ্রহণকারীর ওজন (কেজি)		

বিভাগ-২ ঃ সাধারণ স্বাস্থ্য সম্পর্কিত তথ্য

ক্রমিক নম্বর	প্রশ্ন	উত্তর	কোড নং
১.	আপনার কোমর ব্যাথার সময়কাল ?	১. ৪ - ৬ মাস	
		২. ৭ - ১২ মাস	
		৩. >১২ মাস	
২.	আপনি কি চলাফেরার সময় ব্যাথা অনুভব করেন ?	১ । হ্যাঁ	
		২ । না	
৩.	আপনার কি আনুসঙ্গিক সমস্যা আছে, কোমর ব্যাথার সাথে ?	১ । হ্যাঁ	
		২ । না	

বিভাগ-৩ ঃ মানসিক বিষন্নতা সম্পর্কিত তথ্য

পারসিভড় স্ট্রেস স্কেল ঃ

ক্রমিক নম্বর	প্রশ্ন	প্রায়	মাঝে মাঝে	প্রায়ই	সাধারণত
১.	আপনি কি বিশ্রাম অনুভব করেন ?	১	২	৩	৪
২.	আপনি মনে করেন যে অনেক চাহিদা আপনার উপর তৈরি করা হচ্ছে ?	১	২	৩	৪
৩.	আপনি বিরক্ত বা খিটখিটে ?	১	২	৩	৪
৪.	আপনার কি অনেক কিছু করার আছে ?	১	২	৩	৪
৫.	আপনি একাকী বা বিচ্ছিন্ন বোধ করেন ?	১	২	৩	৪
৬.	আপনি নিজেকে ছন্দময় পরিস্থিতিতে খুঁজে পান ?	১	২	৩	৪
৭.	আপনি মনে করেন যে আপনি তাই করছেন যা আপনি সত্যিই পছন্দ করেন ?	১	২	৩	৪
৮.	আপনি ক্লান্ত বোধ করেন ?	১	২	৩	৪
৯.	আপনি ভয় পান যে, আপনি আপনার লক্ষ্য অর্জন পরিচালনা করতে পারবেন না ?	১	২	৩	৪
১০.	আপনি শান্ত বোধ করেন ?	১	২	৩	৪
১১.	আপনার কি অনেক সিদ্ধান্ত নিতে হয় ?	১	২	৩	৪
১২.	আপনি কি হতাশ বোধ করেন ?	১	২	৩	৪
১৩.	আপনি কি শক্তিতে পূর্ণ ?	১	২	৩	৪
১৪.	আপনি টেনশন অনুভব করেন ?	১	২	৩	৪
১৫.	ঔষধ সেবনে আপনার সমস্যা মনে হচ্ছে ?	১	২	৩	৪
১৬.	আপনার মনে হয় আপনি তাড়াহুড়া করছেন ?	১	২	৩	৪
১৭.	আপনি নিরাপদ এবং সুরক্ষিত বোধ করেন ?	১	২	৩	৪
১৮.	আপনার কি অনেক দুশ্চিন্তা আছে ?	১	২	৩	৪
১৯.	অন্য মানুষের থেকে আপনি চাপে আছেন ?	১	২	৩	৪
২০.	আপনি কি নিরুৎসাহিত বোধ করেন ?	১	২	৩	৪
২১.	আপনি কি নিজেকে উপভোগ করেন ?	১	২	৩	৪
২২.	আপনি কি ভবিষ্যতের জন্য ভয় পান ?	১	২	৩	৪
২৩.	আপনি কি মনে করেন আপনি কিছু করছেন কারন আপনি চান/কারন আপনি চান না ?	১	২	৩	৪

২৪.	আপনি কি সমালোচিত বা বিচার বোধ করেন ?	১	২	৩	8
২৫.	আপনি কি হালকা মনের মানুষ ?	১	২	৩	8
২৬.	আপনি কি মানসিকভাবে ক্লান্ত বোধ করেন ?	১	২	৩	8
২৭.	আপনার আরাম করতে সমস্যা হচ্ছে ?	১	২	৩	8
২৮.	আপনি কি দায়িত্ব নিতে অক্ষম বোধ করেন ?	১	২	৩	8
২৯.	আপনার নিজের জন্য যথেষ্ট সময় আছে ?	১	২	৩	8
৩০.	আপনি নির্দিষ্ট সময়সীমার চাপ বোধ করেন ?	১	২	৩	8

Appendix- E   **Grant Chart**

Activities/ Month	July 22	Aug 22	Sep 22	Oct 22	Nov 22	Dec 22	Jan 23	Feb 23	Mar 23	Apr 23	May 23	Jun 23
Proposal Presentation	██ (red)											
Introduction	██ (blue)	██ (blue)										
Literature Review	██	██	██	██	██	██	██	██	██	██	██	██ (green)
Methodology			██ (yellow)	██ (yellow)								
Data collection							██ (grey)	██ (orange)	██ (orange)	██ (orange)		
Data Analysis										██ (blue)		
Result										██ (navy)		
1st progress presentation										██ (purple)		
Discussion											██ (olive)	
Conclusion and Recommendation											██ (red)	
2nd progress presentation										██ (cyan)		
Communication with supervision	██	██	██	██	██	██	██	██	██	██	██	██ (dark grey)
Final Submission												██ (blue)