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Quality of Life among the Patients having Low Back Pain attending National institute of Traumatology and Orthopedic Rehabilitation (NITOR)

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

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This work has never before been approved in full for a degree, nor is it presently being presented as a candidate for one. A portion of the criteria for the B.Sc. in Physiotherapy degree are being met by submitting this dissertation.

I confirm that I will receive an inadequate rating and be subject to disciplinary action from the appropriate authorities if it is found in my work that I have plagiarized or otherwise cheated. I guarantee that the bound copy of the thesis and the electronic version are the same.

If the results of this project are published in the future, the research supervisor will be very concerned. The physiotherapy department of SAIC College of Medical Science and Technology (SCMST) will provide consent, and the project will be properly recognized as a graduate thesis.

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LIST OF ACRONYMS

Acronym	Full Form
BMI:	Body Mass Index
CBT:	Cognitive Behavioral Therapy
CIOMS:	Council for International Organizations of Medical Sciences
CRP:	Centre for the Rehabilitation of the Paralysed
DALYs:	Disability Adjusted Life Years
EQ-5D-5L:	EuroQol Five Dimensions Five Levels
EQ-VAS:	EuroQol Visual Analogue Scale
GBD:	Global Burden of Disease
HRQoL;	Health-Related Quality of Life
HSC:	Higher Secondary Certificate
IRB:	Institutional Review Board
LBP:	Low Back Pain
LMICs:	Low- and Middle-Income Countries
NITOR:	National Institute of Traumatology and Orthopedic Rehabilitation
NSAIDs:	Non-Steroidal Anti-Inflammatory Drugs
QoL:	Quality of Life
SCMST:	SAIC College of Medical Science and Technology
SPSS:	Statistical Package for the Social Sciences
WHO:	World Health Organization
WHOQOL-BREF:	World Health Organization Quality of Life-BREF
YLDs:	Years Lived with Disability

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ABSTRACT

Introduction: Low back pain (LBP) is one of the most common musculoskeletal disorders worldwide and a leading cause of disability, significantly impacting physical functioning, psychological health, and overall quality of life. Patients with chronic LBP often experience limitations in mobility, reduced work capacity, and social restrictions, making it a major public health concern. **Objectives:** The study aimed to assess the quality of life among patients with low back pain attending the National Institute of Traumatology and Orthopaedic Rehabilitation (NITOR), with a focus on identifying socio-demographic associations and functional outcomes. **Methodology:** A cross-sectional study was conducted among 105 patients with low back pain attending NITOR. Data were collected using a structured questionnaire, including socio-demographic variables and the World Health Organization Quality of Life-BREF (WHOQOL-BREF) scale. Statistical analyses included descriptive statistics, chi-square tests, and correlation analyses to determine associations between demographic factors and quality of life domains. **Results:** The study revealed that the majority of participants experienced moderate levels of impairment in physical and psychological domains of quality of life. Age, gender, occupation, and duration of pain were significantly associated with reduced quality of life scores ($p < 0.05$). Patients reported lower satisfaction in physical health and social relationships, while environmental and psychological domains were comparatively better. **Conclusion:** Low back pain considerably affects the quality of life of patients attending NITOR, with physical and psychological health being the most impacted domains. Early diagnosis, comprehensive rehabilitation, and psychosocial support are essential to improve patient outcomes. Targeted interventions addressing socio-demographic risk factors may enhance overall quality of life and reduce the burden of disability caused by LBP.

Key words: *Low Back Pain, Quality of Life (QoL), Physiotherapy, Rehabilitation.*

CHAPTER-I: INTRODUCTION

1.1 Background:

LBP is loosely defined as pain or discomfort located between the costal margin and inferior gluteal folds, with or without lower limb radiation, which is estimated to plague nearly all people during some point in their life. Symptoms can then be classified as acute; less than six weeks duration, sub-acute; six to twelve weeks or chronic; over twelve weeks (Wallwork et al. 2024, pp. 1-14). It may be biological, or psychological, or social factors that are alone responsible for determine who among patients with LBP will suffer from long-lasting symptoms (Nicholas et al. 2021, p. 51). While the World health organization (WHO) defined "chronic primary LBP as persistent pain for at least three months without any recognizable underlying disease would be acknowledge. Categorizing them is also important from a clinical perspective, not only for making those critical treatment decisions and for prognosis, but as well to target rehabilitation strategies (Oliveira et al. 2018, p. 27).

Epidemiological data consistently shows LBP to be the leading contributor to disability and health care utilization. LBP is also the leading cause of years lived with disability (YLDs) world-wide as confirmed by the Global Burden of Disease (GBD) 2021 study exceeding major disorders such as depression and arthritic conditions (GBD 2021 Disease and Injury Burden Collaborators et al. 2024, pp. 1234-1259). It is estimated that up to 80% of people will suffer from one or more episodes of LBP over a lifetime and recurrence rates are high (Hartvigsen et al. 2018, pp. 256). In their Cochrane systematic analysis, It also forecasted a continued increase in the global burden of LBP, with prevalence rising to over 800 million people worldwide by 2050 due mainly to an ageing population and more sedentary lives (Ferreira et al. 2023, pp. 316).

The determinants of LBP are numerous: they include demographic (generational), occupational, lifestyle and psychosocial aspects. As previous research has shown more often occurrence and worse prognosis among older age, as well as females, obese or smoking participants (Shiri & Falah-Hassani et al. 2019 pp. 877). Heavy

physical work, repetitive bending and lifting, prolonged sitting are the occupational factors which substantially contributing towards the onset and chronicity of LBP ; especially in low & middle income countries (Hoy et al. 2018, pp. 968-974).

In addition, psychosocial stressors such as depression, anxiety and low work satisfaction are well-known predictors of pain that may be persistent and disabling. The bio-psychosocial nature of migraine as well as the multifactorial contributory factors underscore the necessity for a comprehensive assessment and management (Pinheiro et al. 2020, pp. 46).

LBP has significant impact on health-related quality of life (QoL), not only in a physical, but also in the psychological, social and economic aspects. From a functional perspective, patients might use decreased autonomy to improve mobility, manage activities of daily living and overall well-being (Bevan et al. 2020, pp.115). In fact, persistent pain has been shown to be highly related to depression and anxiety, sleep disorders and decreased quality of life (Pinheiro et al. 2020, pp. 46). With regard to socioeconomic burden, LBP generates high costs of absence, presenteeism and productivity lost at work that add to the few billion dollars annual indirect cost per country in both low- and high-income countries. Quality-of-life measures should therefore be considered as primary outcomes in studies of LBP interventions, given that quality of life is the central node for more distal consequences (Fatoye et al. 2023, p. 390).

Although musculoskeletal disorders especially LBP are emerging as a global public health concern in Bangladesh, there is also little systematic research evidences to quantify the burden and potential impact of this problem. Due to quick urbanization of the country along with increased occupational hazards and low accessibility for ergonomic interventions, LBP appear with high prevalence both in urban and rural populations (Rahman et al. 2022, pp. 490-498).

Low back pain (LBP) is the most common musculoskeletal condition prevalent across the globe and a major cause of physical disability affecting all age groups, but its burden increases disproportionately among middle-aged to older individuals (Wu et al. 2020, p.299). Internationally, lifetime prevalence is

approximately 60–80%, and the point prevalence is 12–30% of adults reporting LBP at any given time (Hoy at al. 2018, pp. 968-974). The global burden of LBP has been well described by the Global Burden of Disease (GBD) 2021 and LBP has consistently ranked as a number one cause of YLDs since 1990, causing millions of DALYs every year (GBD 2021 Disease and Injury Burden Collaborators et al. 2024, pp. 1234-1259).

It is extremely common in the population between the fifth and seventh decades of life, a population that significantly contributes to economic productivity and hence corresponds to not only a clinical, but also a significant social problem (Wu et al. 2020, p. 299).

The global burden of LBP was estimated to over 619 million in 2020, and is projected to increase to 843 million by the end of this century largely as a result of population ageing combined with increased exposure to occupational and lifestyle risk factors (Ferreira et al. 2023, pp. 316-329). Compounding the burden of MSDs in the industrial world is a rapidly rising burden in low and middle income countries (LMICs) (Fatoye et al. 2023, p. 390). Even more impressively, the issue is not limited to older adults as teens and young people experience LBP frequently too, which further demonstrates how this pandemic of pain extends down through generations (Swain et al. 2020, p. 15).

A consistent feature of LBP is its episodic, long-term course. Even though subjective recovery is frequently achieved within weeks after treatment have been implemented, 1 year recurrence rates raise concerns, and are estimated to vary between 24% and 80% after a first episode (Steffens et al. 2016. pp. 199-208). It was reported to occur in 20% of patients and has been linked with its considerable functional impairment, reduced work capacity, as well their quality of life in addition to increasing the burden of disability, chronic LBP has been shown to result in higher levels of health service use and also indirect costs associated with being off work or less able to do your job (Shiri et al. 2019, pp. 282-290)

LBP has serious implications on the socio-economic aspects. In developed countries, LBP ranks among the five high-cost conditions with billions of dollars

annually expended on imaging, physiotherapy, consultations, surgery, and other interventions. Although direct health care costs may be relatively lower in LMICs as patients have limited access to care, indirect costs associated with inability to work (cost of absence and disability) are many times higher, impoverishing those affected (Fatoye et al. 2023, p. 390). As a result, The World Health Organization (WHO), recently considered LBP as a global public health problem that calls for more preventions, earlier interventions and provision of non-surgical treatment . These results highlight the fact that LBP is no longer a short-lived condition, but rather that it has developed into a chronic worldwide health concern with extensive clinical, social and economic impact. As the wide spread, frequent recurrence together with high disability association of this condition necessitates population-specific studies, especially in regions such as Bangladesh where organized data are rare. LBP is a multifactorial condition that is largely influenced by the interaction of demographic, lifestyle, occupational, psychological and social factors. Age, gender or occupations are important demographic characteristics which have a major effect on LBP onset and its progression. The prevalence of disc herniation also increases with age, peaking in middle adulthood, usually around 40-69 years due to high functional demand and prominence of age-related degenerative changes (Wu et al. 2020, p. 299). Women tend to report more LBP than men, a pattern that is likely due to hormonal factors, lower muscle mass and differences in pain perception and has been well documented (Shiri et al. 2019, pp. 282-290). Occupational status is a major determinant, so people with manual occupations are any individuals at high risk of repeating bending and heavy lifting or long hours in standing/sitting positions (Hoy et al. 2018, pp. 968-974).

Lifestyle variables also play a significant role in the incidence and prevalence of LBP. A fundamental risk factor is physical inactivity, as a lack of core trunk muscle strength will lead to insufficient spinal stability and vulnerability to strain (Steffens et al. 2016, pp. 199-208). Obesity is significantly correlated with LBP by the excessive mechanical loading around the lumbar spines and to some extent, through systemic inflammation induced by adipokines (Shiri and Falah-Hassani et al. 2019, pp. 106-115). Nicotine, one of the most widely researched substances in cigarettes, reduces blood flow to spinal tissues and interferes with healing and is

associated with high rates of chronic pain. Modifiable lifestyle factors have been shown to demonstrate the ubiquitous need for preventative efforts, which may be mitigated through exercise, weight control and smoking cessation (Shiri et al., 2010, pp. 282–290).

LBP is one of the most common occupational disorders with an estimated global prevalence between 25 and 30%, however, the etiology particularly in relation to the working environment and its importance has not been clearly defined. Workers in occupations that involve repetitive heavy lifting, awkward postures or prolonged sitting, particularly with poor ergonomics are at higher risk of both acute and chronic LBP (Coenen et al. 2019, pp. 883-889).
Urbanized societies have seen the ubiquitous rise of sedentary desk jobs that are now well recognized as major determinants of spinal pain particularly when combined with inadequate leisure time physical activity (Oakman and Neupane et al. 2016, pp. 328-337).

There is also an important interplay between psychological and social determined risk factors that contribute to the onset and progression of LBP as well. Stress, anxiety and depression are incessantly reported as predictors of greater early vulnerability to developing LBP and poorer recovery outcomes (Pinheiro et al. 2020, pp. 34-46). The bio psychosocial model of LBP allows that psychosocial stressors may increase pain perception, maladaptive response to coping (such as fear-avoidance behaviour) and the transition to chronic disability (Pincus et al. 2013, pp. 218-223). This can also predict higher risks sick of presenteeism, low job satisfaction, social isolation and lack of work-place support (Bevan et al. 2020, pp. 101-115).

Collectively, these risk factors and features imply that LBP is not a disorder of a mechanical or structural nature alone but rather a musculoskeletal–systemic health condition with dimensions across biological, behavioral, occupational, and psychosocial domains. Furthermore, the importance of these contributors needs to be considered when interventions are being developed, and rehabilitation programs executed especially in high burden. Low back pain (LBP) has a major impact on quality of life (QoL), for which physical functioning is limited,

participation in daily activities is restricted and psychological distress increases. Individual with LBP are often less mobile, unable to independently perform self-care and household/occupational tasks compromising independence and overall health (Wong et al. 2022. pp. 1-12). Many also experience pain-related sleep difficulties, which can cause fatigue, affect health and exacerbate the impact of the condition (Alsaadi et al. 2014. Pp, 1637-1646).

LBP not only has a negative effect on physical capabilities, but also imposes a considerable burden in terms of psychosocial consequences. It is well documented in the literature that LBP has strong associations with stress, anxiety and depression driven by many emotional factors which have been shown to predict disability and a poor response to treatment (Mourad et al. 2019, pp. 1-9). Persistent pain generates high rates of absenteeism from work and early retirement, which in turn results in financial distress and decreased social interaction. The resultant social withdrawal and impaired relationships additionally reduce QoL, creating a cycle of physical and emotional decline (Bevan et al. 2020 pp. 101-115).

LBP thus impacts the physical and mental domains of health, underlining its multidimensional nature. LBP impact negatively over physical aspects, such as decreased mobility, exercise capacity and self-care activities as well psychological aspects like hopelessness, fear-avoidance behaviors and depressive symptoms. These combined effects highlight the multifaceted etiology of LBP and suggest that pain management should include more than clinical interventions targeting pain reduction; they involve comprehensive treatments as well, including those directed toward mental health and social function (Pinheiro et al. 2020, pp. 34-46). Consequently, the detrimental effects of LBP on QoL are wide-ranging and well established, necessitating research examining its respective impacts in varied populations. Within Bangladesh, where heavy manual work is widespread and rehabilitation services imbreachable this may be an important issue to explore in order to provide adequate recommendations for management strategies and health policies. The causes and consequences of low back pain (LBP) are diverse and multifaceted which results in an interdisciplinary approach for LBP therapy. The goals of treatment are pain relief, restoration of function, and improvement in

quality of life. Initially, conservative treatment is used with aims of pain relief and functional complaint improvement. To pain management and reduction of the inflammation, if necessary pharmacological interventions as an example ibuprofen or acetaminophen (non-steroidal anti-inflammatory drugs- NSAIDs) are recommended, especially in acute patients. Opioids may be prescribed for a short time in some cases of more severe pain, but it is not used as often because you can become dependent. Furthermore, muscle relaxants and corticosteroid injections may be employed for muscle spasms and inflammation associated with nerve compression or herniated discs (Buchbinder et al. 2018, p. 843). In the presence of specific pharmacological treatments, they also teach patients strategies like activity modification to decrease pain producing activities and gradual movement to mitigate stiffness and deconditioning (Qassem et al. 2017, p. 166).

In the clinical management of LBP, one of the mainstays is physiotherapy, which targets the preservation and improvement of mobility and strength within muscles in addition to pain relief. Spinal manipulation and mobilization, a type of manual therapy, reduce stiffness in the joints and increase their range of motion. As I mentioned before therapeutic exercises are necessary and some of the programs are to strengthen the core muscles that will give stability on the spine, low back muscles which improves posture lessening for a further events. They can also aid in reducing muscle tightness, and enhancing flexibility and overall mobility. Physical instruction in proper postures and ergonomics is nevertheless an essential part of the spine education in teaching patients how to walk, sit, bending over correctly as well as lifting objects to avoid unnecessary strain on the back. Other treatment options may include modalities like heat therapy, cold packs, electrical stimulation or ultrasound to help with muscle spasms, inflammation and pain (Buchbinder et al. 2018, p. 843).

Typically treating chronic LBP or non-responsive to initial treatment, those show stringent rehabilitation protocols. These are multi-modal protocols combining physical therapy with psychological support and patient education. For example, Cognitive Behavioral Therapy (CBT) helps to manage the psychological components of chronic pain such as depression, anxiety and stress which accompanies pain (Shiri et al. pp. 13-21). It addresses more than half a dozen

factors including teaching positive coping strategies, pain perception management, and reducing fear-avoidance behaviors. Rehabilitation: rehabilitation programs may include aquatic therapy, yoga or Pilates aimed at improving strength, flexibility and balance with minimal risk of injury. Focusing on self-management strategies such as relaxation techniques and activity pacing encourages patients to be actively involved in their recovery (Mihaylova et al. 2015, pp. 563-572).

Patients with structural issues, such as herniated discs, spinal stenosis or severe spinal instability that do not respond to conservative measures and rehabilitation protocols may be candidates for surgical intervention. More extensive spine surgeries such as discectomy (removal of part of a herniated disc) or laminectomy (removal of a portion of the vertebra to take pressure off nerves) are saved for cases in which pain is severe, disabling and doesn't respond to other treatments. There may occur significant spinal instability so there is also a need for the performance of stationary spine fusion which is to fix two or more vertebrae together. The fusion process reduces exercise levels between these rooms and also increases stress along with each other so it is weak, its popularity surgery is generally considered as the last resort to treat LBP, considering it bears risks and recovery time but instead many of the LBP cases improve with nun-surgical interventions (Buchbinder et al. 2018, p. 843).

Global significance of LBP as a public health challenge: Several studies worldwide have shown that Low back pain (LBP) adversely affects quality of life (QoL), prompting us to suggest its global importance in Public Health. Research consistently demonstrates that people with LBP report poorer physical functioning, activity limitations and psychological wellbeing than healthy populations (Froud et al. 2014, pp. 1-14), internationally. Meucci et al. carried out a larger study. Reinforced this, stating that in places with limited access to rehabilitation and pain management either due to a shortage of resources or the absence of adequate infrastructure, like various low- and middle-income countries, problems resulting from LBP are further exacerbated by concomitants negative effects on health-related QoL (Meucci et al. 2015, pp. 1-10)

In South Asia, the high percentage of LBP severity and its impact on QoL have also been reported. In India, a study reported that patients with chronic LBP have decreased health-related quality of life (HRQOL) and higher levels of disability (Bindra et al. 2015, pp. 166-179). Research conducted in medical colleges of Pakistan on LBP patients expressed that the physical role functioning and bodily pain dimension was greatly affected with lower scores as produced by SF-36 QoL scale (Shahid et al. 2016, pp. 620-623). A hospital-based study in Nepal reported that LBP resulted in diminished productivity and major barriers to social engagement. These findings suggest that the QoL impact appears to be more severe in the South Asian region, where occupational risk factors such as heavy manual labor are prevalent (Shrestha et al. 2017, pp. 552-558).

Despite the increasing amount of evidence to support this, literature on research related to MERS appears necessary especially in Bangladesh landscape. LBP is a well-known common health problem in the country, though regarding its effects on QoL for Bangladeshi patients few studies had been conducted. There has been little research on psychosocial and functional outcomes compared with prevalence and risk factors. With a large proportion of manual laborers, coupled with on the ground limited access to specialized rehabilitation services these findings are significant in understanding socio-demographic and clinical determinants of LBP through its QoL consequences. This kind of research will offer evidence applicable to practice, aid rehabilitation work and also provide information that could influence future policy direction (Hasan et al. 2018, pp. 95-100).

Bangladesh having a large population with fast-increasing workforce and means the burden of musculoskeletal disorders namely, low back pain (LBP) is high. Musculoskeletal conditions have been identified as one of the commonest reasons for morbidity in the nation and produced an enormous impact on productivity and healthcare utilization. Worker with greater anterior trunk flexion angle have 2.6 times higher odds to develop LBP, and in Bangladesh a substantial proportion of the working people are manual workers such as agricultural, garments and rickshaw pulling, construction jobs which are proven to put at risk of suffering from LBP All the factors jointly arise putting an adverse effect on low back pain. These socio-occupational patterns might be enabling the increased prevalence of

LBP and disability associated with it among Bangladeshi population (Khan et al. 2015, p.1).

National Institute of Traumatology and Orthopedic Rehabilitation (NITOR) is the country's largest referral center for trauma, orthopedics and rehabilitation services; it is located in Dhaka. Because it serves a geographically diverse group of patients across Bangladesh, including both urban and rural populations, this hospital is an optimal location to investigate the socio-demographic and quality of life characteristics of patients with LBP. NITOR is "a one-stop center for all musculoskeletal conditions" as it offers the complete spectrum of services such as diagnosis, surgical and non-surgical interventions and physiotherapy. Thus, it provides a unique clinical setting into which to investigate how low back pain affects physical and psychosocial well-being in those with chronic disease like AS (Rahman et al. 2017, pp. 21-25).

Out of the increasing burden of LBP in Bangladesh, very little have been conducted or developed about quality of life regarding it. The majority of previous studies have examined either the prevalence or occupational risk factors and so little has been written about how LBP affects the function and psychology in daily life of a patient. However, published papers have been sparse on the profile of patients with LBP attending tertiary centers like NITOR. Knowledge of these is essential to direct effective, population specific, evidence based rehabilitation strategies. The study aim is to investigate the profile of LBP patients and their quality of life in a large tertiary level hospital like NITOR, hoping that this information would be able to guide clinical practice as well as public health policies for Bangladesh (Hossain et al. 2019, pp. 195-251).

1.2 Justification:

Low back pain (LBP) is one of the most common musculoskeletal disorders worldwide, leading to significant physical, psychological, and social consequences. It has a direct impact on patients' quality of life (QoL), particularly in urban populations where occupational demands, sedentary lifestyles, and environmental stress are increasing risk factors. In Bangladesh, and especially in Dhaka city, hospitals frequently receive a large number of patients suffering from LBP, indicating its growing burden on both individuals and the healthcare system.

Although the prevalence of LBP is high, there is limited research in Bangladesh that specifically investigates how LBP affects patients' QoL. Most existing studies focus on clinical or diagnostic aspects, but few explore broader dimensions such as pain intensity, disability, mental health, and social participation. This gap in knowledge makes it difficult to fully understand the lived experiences of patients and to design comprehensive rehabilitation strategies. Understanding the QoL of LBP patients is therefore essential for several reasons. Firstly, it helps to evaluate the effectiveness of current treatment and rehabilitation approaches. Secondly, it highlights disparities in access to healthcare and the influence of socioeconomic status on patient outcomes. Thirdly, it can guide policymakers and healthcare providers to prioritize patient-centered care.

By focusing on patients attending the National Institute of Traumatology and Orthopaedic Rehabilitation (NITOR) in Dhaka, this study will generate context-specific evidence on how LBP influences different domains of QoL. The findings are expected to contribute to improved management strategies, better rehabilitation planning, and the development of policies aimed at enhancing the overall well-being of individuals suffering from LBP in Bangladesh.

1.3 Research question:

What is the level of quality of life among the patients having low back pain attending national institute of traumatology and orthopedic rehabilitation (NITOR)?

1.4 Aim of the study:

The aim of the study is to assess the level of quality of life among the patients having low back pain attending the National Institute of Traumatology and Orthopaedic Rehabilitation (NITOR).

1.5 Study objective:

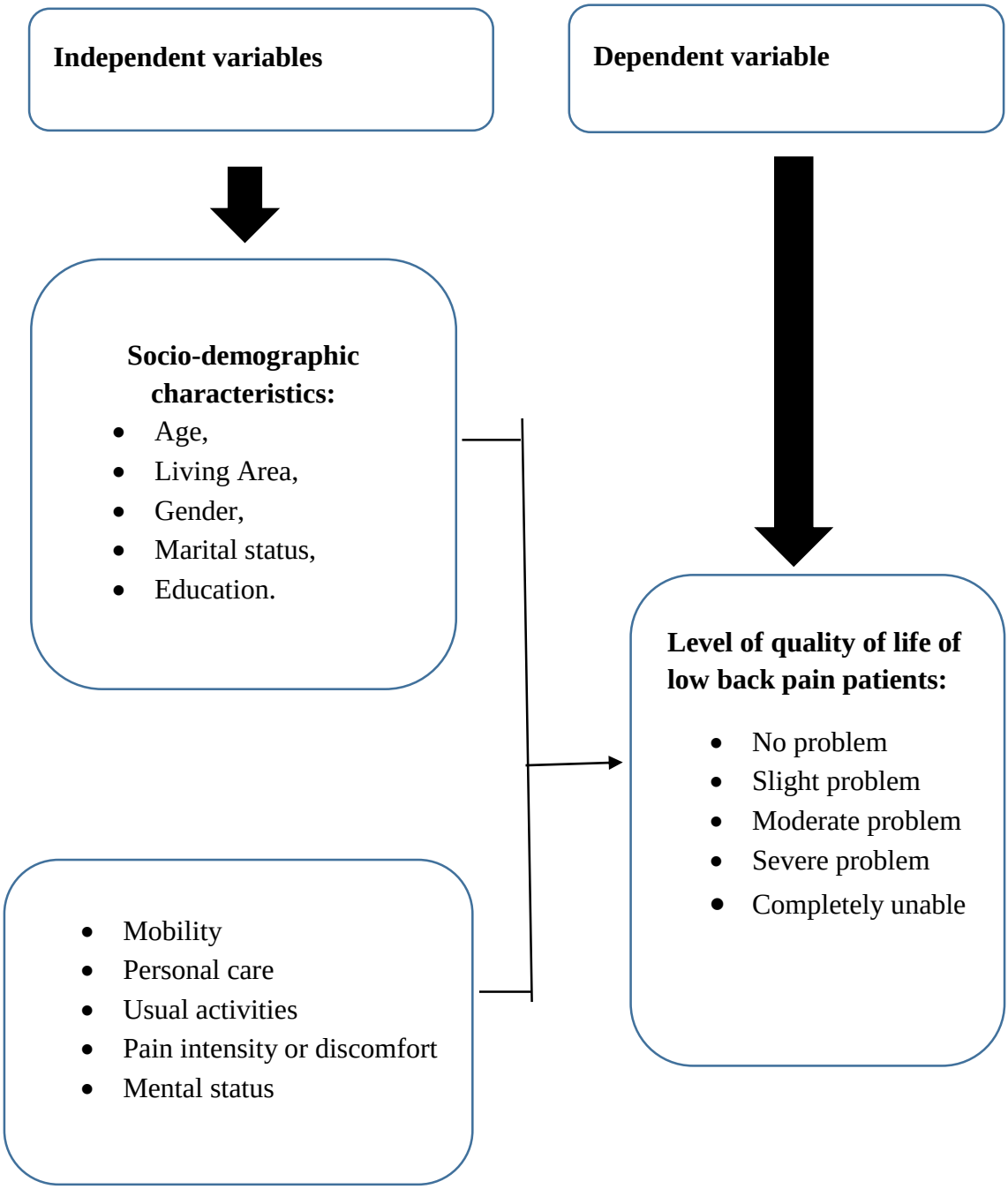
1.5.1 General objective:

To assess the level of quality of life among the patients having low back pain attending National Institute of Traumatology and Orthopedic Rehabilitation (NITOR).

1.5.2 Specific objectives:

- To describe the socio-demographic characteristics of the participants (age, gender, residential area and occupation)
- To assess the level of quality of life of patients having low back pain using by EQ5D5L.
- To analyze the association between level of quality of life and socio-demographic variables.

1.6 Conceptual framework:



1.7 Operational definition:

Quality of life:

According to the World Health Organization (WHO) : “Quality of Life (QoL) is an individual’s perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns.”

Low back Pain:

Low Back Pain (LBP) is a pain or discomfort felt in the lower back, between the ribs and pelvis, which may radiate to the legs. It can be acute, subacute, or chronic, and often results from muscle strain, disc problems, spinal degeneration, or poor posture, significantly affecting daily life and movement.

Mobility:

Mobility is the ability to move freely and easily.

Personal care:

Personal care is assistance with daily living and personal hygiene tasks that an individual may be unable to do for themselves, such as bathing, dressing, toileting, eating**.**

Pain intensity:

Pain intensity is the subjective magnitude or severity of pain experienced by an individual, rather than a direct measure of the physical injury itself.

Menal status:

Mental status refers to the overall cognitive, emotional, and behavioral state of a person at a specific point in time, as revealed through observations and specific questions during a mental status examination (MSE).

CHAPTER-II: LITERATURE REVIEW

Low back pain (LBP) is one of the most common musculoskeletal disorders affecting 60-80% of adults during their lifetime globally (Hartvigsen et al. 2018, pp. 356-367). This has a substantial socioeconomic burden as it is a top cause of disability, work absenteeism and reduced worker productivity among all populations. Low back pain (LBP) is now the leading cause of years lived with disability (YLDs) globally under the Global Burden of Disease (GBD) Study ranking higher than other chronic health conditions such as depression, diabetes and arthritis (Hoy et al. 2014, pp. 2028-2037).

The global burden of LBP is not equally distributed across all countries, with a partial excess being observed in the less developed ones, so-called low- and middle-income countries (LMICs). This is partially due to elements such as high-impact work, lousy ergonomics and the absence of preventative or rehabilitative services (Balague et al., 2012, pp. 482-491. Recent studies from South Asia have shown that workers involved in heavy manual labor, such as rickshaw pullers, garment workers and agricultural laborers are at increased risk of early onset LBP (Sharma et al. 2020, pp. 85-90).

During the last decade, LBP has become a major public health problem in Bangladesh. The high burden of musculoskeletal pain has been well documented in previous research; a case in point are the studies among urban working population with physically demanding occupational background (e.g. garment factory workers, rickshaw pullers and office staffs with prolonged sitting) who have shown to suffer from musculo-skeletal pain load to a great extend (Chowdhury et al. 2017, pp. 522-530). A study of Bangladeshi office workers nearly 46% of respondents had LBP, with ergonomics and sedentary behavior being the key determinants. Likewise, studies related to industrial and garment workers have reported that poor working position associated with repetitiveness of operating machine in a prolonged manner increases the risks for LBP which leads to less productivity and decreased quality of life (Hossain et al. 2019, pp. 103-110).

Collectively, these results suggest that LBP poses an increasing health and economic burden in a rural area of Bangladesh, with this misinformation or misunderstanding

affecting timely diagnosis and limited availability of specialized physiotherapy leading to amplification of the long-term consequences. The importance of context-specific research and intervention strategies to tackle both the occupational as well as lifestyle causative determinants for LBP, and the broader implications on overall health-related quality of life. Methods Low back pain (LBP) is a multifactorial condition influenced by socio-demographic, occupational and health-related factors as well as pain severity and chronicity. There is ample of available literature on socio-demographic profile factors like age, sex, marital status, education and socioeconomic status as determinants of LBP prevalence and health outcomes. (Hoy et al. 2018, pp. 968–974). Young people, females, older adults and individuals of lower socioeconomic status are also at an increased risk for developing chronic LBP, perpetuated by inadequate access to healthcare and higher rates of physical demands associated with employment (Shmagel et al. 2020, pp. 688-694). Women may experience higher prevalence and increased disability related to their asthma compared with men, with possible effects from both biological factors and occupational exposures (Almeida et al. 2018, pp. 1271-1281).

Occupational factors are important in the life-course of LBP. Jobs involving prolonged sitting, repetitive bending (flexion and extension), heavy lifting or intra-abdominal pressures, poor posture, have increased risk for both acute and chronic LBP (Ali et al. 2020, p. 12131). Musculoskeletal strain worsens with longer working hours and insufficient ergonomic conditions, resulting in higher pain intensity and disability. In the Bangladesh context, studies on office workers, garment factory workers and manual laborers identify repeating movements and poor workplace ergonomics as major drivers behind LBP prevalence among these occupational groups (Chowdhury et al. 2017, pp. 522-530).

Health-related factors, in turn, impact LBP outcomes. Obesity increases mechanical loading on the spine, while smoking and physical inactivity are also linked to worse recovery and more intense pain (Shmagel et al. 2016, pp. 1688-1694). Moreover, comorbidities (such as diabetes, cardiovascular disease and depression) not only add to the likelihood of developing chronic LBP but modify the effects of standard treatments and contribute significantly to the burden associated with chronic LBP (Kamper et al. 2015, p. 444).

These variables, as well as the duration and chronicity of pain are also relevant to prognosis and functional outcomes. Acute LBP often resolves with little intervention, while chronic pain as defined by pain lasting greater than 12 weeks is associated with high levels of psychological distress, functional disability and chronic quality-of-life reduction. Patients with chronic LBP frequently experience decreased mobility, impaired social participation and an increased risk of mental health issues, thus there is a desire for early detection and targeted intervention strategies. LBP is a multifaceted condition arising from the interaction of socio-demographic, occupational and health-related factors and pain characteristics that shape functional consequences and quality of life outcomes. Knowledge of these determinants is important to formulate prevention and tailor rehabilitation programs, especially in low-resource settings such as Bangladesh (Hoy et al. 2014, pp. 2028-2037).

Low back pain (LBP) is associated with moderate to high burden and disability; however the extent of LBP-related deterioration across core domains of health related quality of life (HRQoL) is not well understood. LBP manifests as mobility limitations, functional restrictions, and decreased independence (Hoy et al. 2021, pp. 389-395) which is associated with long-term disability and work impairment. Global evidence relating to patients with chronic LBP shows significantly lower scores regarding physical health compared with those without musculoskeletal pain, especially in mobility, self-care and role functioning (Wu et al. 2020, p.299). Low back pain continued to persist limiting basic daily activities as well as reducing productivity in occupation categories such as nurses and office workers of Bangladesh that portrayed significant physical burden with the problem (Ali et al. 2020, p. 131).

LBP has also been associated with poor mental health. There is increasing evidence to suggest a bidirectional relationship between LBP and mental health outcomes such as depression, anxiety and stress in many studies (Pinheiro et al. 2022, pp. 699-708). Accordingly, chronic LBP patients quite commonly exhibit greater emotional distress, catastrophizing and altered sleep patterns that maintain pain perception and disability (Bjorland et al. 2024, p. 16266). Individuals with chronic LBP were at twice as high risk of developing depressive symptoms than pain-free populations in a large multi-country study. Not only is this a psychosocial burden, which leads to worse coping strategies, longer recovery times and overall degradation of the well-being (Chou & Chen et al. 2024, p. 5325).

Lower back pain (LBP) has a negative social impact on work participation, family relationships and social integration. Some studies suggest that in working-age adults, chronic LBP is one of the main predictors of absenteeism, presenteeism and early retirement (Peter et al. 2023, pp. 570-581). The ability to participate socially is additionally reduced with patients indicating that they no longer partake in hobbies because of pain and having an undamaged family role (Tan et al. 2022, p. 456). The social consequences of LBP are exacerbated in Bangladesh due to limited social support systems and access to healthcare, ultimately leading to a negative impact on both individual households' economic prospects, as well on overall family quality of life (Nabi et al. 2023, p. 1172).

Validated instruments that rely on direct questionnaires or interviews to capture these effects are frequently utilized in research and clinical practice. A generic tool, EQ-5D measures five dimensions of health status: mobility, self-care, usual activities, pain/discomfort and anxiety/depression (EuroQol Group 2018) The SF-36 is a possibility to assure an overview across the 8 aspects of physical and mental health, which it would make it a good tool for cross-sectional and longitudinal studies concerning LBP (Ware et al. 2020, p. 1). The WHOQOL-BREF has also been used for measuring the QoL of patients afflicted by chronic pain conditions in different cultural settings, such as South Asia, providing a measure of physical, psychological, social and environment well-being. Taken together, results of these instruments illustrated that LBP compromised the HRQoL substantially: responses to this symptom changed dramatically in a qualitative and structurally comprehensive manner when persistent course developed (WHOQOL Group 2018, pp. 1-3).

LBP is a common condition to explore in similar population studies and epidemiological research has consistently shown gender differences. The prevalence of LBP is higher among women, and they are more likely to report disability as a result (Shmagel et al, 2020, pp. 168-194). Many possible biological, social and occupational etiologies have been postulated. There are increases in musculoskeletal vulnerability predisposing to pain more in women due to hormonal fluctuations, as seen with pregnancy and menopause (Almeida et al. 2018, pp. 1271-1281). In addition, women are over-represented in physically demanding housework and occupations in the health sector, where risk factors of LBP presenting at work are found (Sanjoy et al. 2017, p. 173). In Bangladesh, female nurses and garment workers

are also experiencing high prevalence of musculoskeletal pain including LBP that usually resulting in impaired work efficiency as well as poorer quality of life (Sanjoy et al. 2017, p. 173)

Another major determinant of LBP prevalence and chronicity is age. Considering mediating factors, middle-aged and older adults are at higher risk for being affected by persistent and disabling LBP attributable to degenerative spinal changes, reduced muscle strength and comorbidities (Hoy et al. 2021, pp. 389-395). A meta-analysis by Chronic low back pain prevalence sharply after age 40, and remains high into older age (Wu et al. 2020, p. 299). Nonetheless, the matter of fact is that, LBP among younger individuals including students, sedentary office employees and factory workers have become a main health issue in recent period as a result of improper posture (Ali et al. 2020, p. 231). One such Bangladeshi study among online professionals reported 65.6% one-month LBP prevalence, primarily associated with extended sitting hours, lack of breaks, and ergonomic deficiencies. Our findings indicate that LBP is not only becoming a major health problem in middle-aged and elderly people, but most worryingly that lifestyle-related factors appear to increase the likelihood of symptoms being reported by younger adults. By the all means, gender and age are vital contributors to LBP burden with effect on prevalence, severity and disability responses. For Bangladesh, this summary can indicate a need for targeted interventions that encompass ergonomic, occupational and lifestyle risk factors throughout life course with emphasis on vulnerability among the women and increasing prevalence of burden in younger age population (Hossian et al. 2022, pp. 98-105).

Low back pain (LBP) is considered the number one cause of disability worldwide in both developed and developing countries. Global Burden of Disease Study 2019 data show that LBP is the leading cause identified globally in years lived with disability (YLDs) and contributes to YLDS across all age groups (Hoy et al. 2021, pp. 389-395). LBP has a substantial effect in the western world, where research shows that upwards of 80% of adults have had an episode at some point in their life (Shmagel et al. 2020, pp. 252-260). In addition to its clinical burden, LBP is responsible for substantial work absenteeism, decreased productivity and increasing healthcare costs in such regions (Wu et al., 2020, p. 299). In the US, costs associated with LBP are valued at more than $100 billion yearly in terms of both direct and indirect

expenditures incurred due to treatment and loss of work capacity (Dieleman et al. 2020, pp. 863-884).

This study provides the first robust estimates on indirect costs in low-resource settings; these economic consequences may be even greater in Asian contexts, such as those of India and Bangladesh, where weak health systems often rely heavily on out-of-pocket financing for medical care. For example, a systematic review of musculoskeletal disorders in South Asia found that, due to financial constraints and limited access to rehabilitation services, the majority of people with LBP present in informal care providers or self-care particularly where there is high co-pay (Patel et al. 2020, pp. 570-581). For example, in India, LBP has been recognized as one of the most disabling conditions among rural farmers and urban office workers where evoked pain often result from years of lack of ergonomic awareness compounded by scarcity to physiotherapy services. These results are important to us and similar to a lot of other ones that demonstrate unequal access when compared with high-income countries, where early intervention and rehabilitation is standard (Singh et al. 2019, pp. 293-298).

LBP is very common in Bangladeshi studies, especially so in rural vs urban populations. As stated in these studies, nurses, garment workers, bus drivers and bank employees are some of the occupational groups where LBP can be seen from 34% to more than 65%, depending on the exposure to work activities and ergonomic conditions (Sanjoy et al. 2017, p. 173). In remote areas, including rural Bengal where many farmers and rickshaw pullers live with high rates of chronic musculoskeletal pain, lack of access to rehabilitation services further reduces quality of life (Hossain et al. 2018, p. 606). They say that a high proportion of patients in Bangladesh make use of over-the-counter painkillers or traditional remedies without medical advice, leading to chronic pain and disability. As a result, untreated or poorly managed LBP often causes chronic disability, absenteeism and reduced productivity at work, creating additional economic burden on low income households.

Synthetic response of global and regional evidence register that LBP is a common health problem but its effect magnitude is such gigantic owned by South Asia/especially (Bangladesh) due to structural healthcare contraindication with socio-economic vulnerability. Hence, providing context-specific strategies like ergonomic

improvements, cost-effective local rehabilitation and community-based awareness is essential to counteract the burden of LBP in low-resource settings (BMJ Open et al. 2024, p. 1).

Low back pain (LBP) is a common and complex problem requiring a multimodal intervention that incorporates pharmacological, physical, and psychosocial strategies. Conventional management is usually initiated with the prescription of analgesics including non-steroidal anti-inflammatory drugs (NSAIDs), muscle relaxants for pain and inflammation which are needed only in the short term (Qaseem et al. 2017, pp. 514-530). Nevertheless, contemporary clinical guidelines recommends that pharmacological interventions are inadequate and could induce risperidone and side effects such as dependence if long-term used (Oliveira et al. 2018, pp. 2791-2803).

Rehabilitation, centered around regular physiotherapy and structured exercise programs focused on posture, core strengthening and flexibility of the spine. Specific techniques including stretching, aerobic conditioning, myofascial release and manual therapy have shown considerable effectiveness at reducing the severity of pain intensity and a frequency of LBP episodes (Delitto et al. 2012, pp. 1-57). Lifestyle changes are equally as important; e.g. it has been suggested to manage weight, cessation of smoking and exercises apart from ergonomic adjustments at the workplace in ameliorating lower-back pain (Balague et al. 2012, pp. 482-491).

In addition to physical interventions, psychosocial support is increasingly considered a necessary part of the package for managing chronic LBP. Psychological burden of chronic pain is also amendable to treatment, example Cognitive-behavioural-based therapy (CBT), Stress management and psychotherapy that can relieve persistent pain accompanied by depression, anxiety and poor quality of life. Mental health interventions when combined with them have had better coping strategies and adherence to physical rehabilitation leading to an overall productiveness in treatment (Kamper et al. 2015, p. 444).

In Bangladesh, irrespective of the causes of LBP a royal role is played by rehabilitation center as like National Institute of Traumatology and Orthopedic Rehabilitation (NITOR). Physiotherapy, occupational therapy and pain management services are available in specialized facilities such as NITOR; services that increase mobility, improve function, reduce disability and enhance the quality of life for their

patients. The availability and accessibility have been the greatest in major urban centers, but most of the rural populations still had no choice but to either rely on informal care or resort to self-medication. Introduction Expansion of community based rehabilitation services could address these disparities and reduce the national burden of LBP (Hossain et al. 2018, p. 606).

A growing body of evidence suggests that early intervention and patient education are key factors in improving long-term outcomes. This includes teaching patients good body mechanics, correcting their posture, and reinforcing the importance of regular activity to prevent chronicity and recurrence (George et al. 2018, pp. 1-57). Physiotherapy referral in the early phase through patient-centered self-care approaches reduces healthcare costs and disability, and improves Quality of Life (QoL) is well entrenched. Consequently, the combination of pharmacological, physical and psychosocial interventions which are initiated at an early stage and better access to rehabilitation centers render the wisest choice possible for treatment of LBP (Foster et al. 2018, pp. 368-383).

Although the body of global evidence on the epidemiology, risk factors and quality of life (QoL) outcomes for LBP is growing, there remains limited context-specific evidence from Bangladesh. Although a number of studies from high-income countries have thoroughly investigated the biopsychosocial dimensions of LBP, which established patient characteristics including pain severity, posture, body weight (BMI), vocation and gender as determinants of QoL outcomes (Foster et al. 2018, pp. 2368–2383; Kamper et al. 2015, p. 444). In contrast, Bangladeshi research has focused on prevalence and descriptive epidemiology with a particular focus on occupation and ergonomics as correlates of LBP while relation to QoL was studied unsystematically (Moniruzzaman et al. 2018, p. 59).

CHAPTER-III: METHODOLOGY

3.1 Study design:

This was a descriptive type of cross-sectional study. A cross-sectional design was chosen because it is suitable for assessing the quality of life among patients with low back pain attending the National Institute of Traumatology and Orthopedic Rehabilitation (NITOR).

3.2 Study area:

The relevant data for the present study were collected from patients attending the National Institute of Traumatology and Orthopedic Rehabilitation (NITOR).

3.3 Study place:

The study was conducted under the academic supervision of SAIC College of Medical Science and Technology (SCMST), Dhaka, and the study place was the National Institute of Traumatology and Orthopedic Rehabilitation (NITOR), where all data were collected.

3.4 Study period:

The period of the study was one year extending from 1st Jun 2024 to July 2025.

3.5 Study population:

Patients attending at National Institute of Traumatology and Orthopedic Rehabilitation (NITOR) constituted the study population for the present study.

3.6 Sample size:

The sample size of the study was calculated by the following statistical formula.

We know that –

$$n = \frac{z^2\, p\, q}{d^2}$$

$$= \frac{(1.96)^2 \times 0.834 \times 0.166}{(0.05)^2}$$

$$= 213$$

Here,

n = required sample size

Z= confidence level at 95% (standard value of 1.96)

P = P is the prevalence taken as 83.4% (Fujii et al. 2016, pp. 432-438)

q = 1- p

= 1-0.834

= 0.166

d = Acceptable error at 5%

So, sample size is 213.

So, the researcher aims to focus his study by 213 sample following the calculation above initially.

3.7 Sampling technique:

Convenience sampling technique was within study.

3.8 Eligibility criteria:

3.8.3 Inclusion criteria:

- Patients diagnosed with low back pain (LBP), including acute, subacute, and chronic types (WHO, 2018, p. 1).
- Adults aged 18 years and above (WHO, 2018, p. 1).
- Attending outpatient or inpatient services at NITOR during the study period.
- Able and willing to provide informed consent (CIOMS, 2016, p. 2).
- Capable of understanding and responding to the questionnaire (EQ-5D-5L, EQ-VAS, etc.) (Herdman et al. 2011, p. 1727-1734).
- Bangla-speaking individuals, for standardization of data collection (Chowdhury et al. 2017, p. 1-6).)

3.8.4 Exclusion Criteria:

- History of recent spinal surgery (within last 6 months) .
- Presence of neurological conditions (e.g., stroke, Parkinson's disease, SCI).
- Severe cognitive impairment, dementia, or psychiatric illness affecting communication or comprehension.
- Pregnant women (as pregnancy-related LBP may confound results).
- Patients with malignancy-related back pain.

- Patients with systemic inflammatory diseases (e.g., rheumatoid arthritis, ankylosing spondylitis).
- Refusal or inability to participate in the study.

3.9 Method of data collection:

3.9.4 Technique of data collection:

The technique of data were collected through face to face formal interviews with the participants**.**

3.9.5 Instrument and tools of data collection:

- A pre-tested semi-structured questionnaire and demographic information chart used as a data collection instrument.
- EQ-5D-5L was used to measuring the quality of life.
- The English questionnaires were translated into Bengali to ask the participants during interviews.

3.9.6 Procedure of data collection:

The researcher obtained permission from the Ethical Review Board of SAIC College of Medical Science and Technology to conduct the study. A written permission was also taken from the concerned authority of National Institute of Traumatology and Orthopedic Rehabilitation (NITOR). After that the researcher approached the patients and the aim and objectives of the study was explained in details to them. Interested patients were included in the study. Participants were asked to fill up written consent form with their signature to ensure volunteer participation. They were informed about the privacy and confidentiality of the information. Then the researcher started interview with the participants by using the pretested questionnaire. The interview was in a cordial environment. At the end of the interview, the researcher thanked the participants.

3.10 Management of data:

3.10.1 Data editing:

The questionnaires were reviewed after data collection to identify any mistakes or inconsistencies. Necessary corrections were done as required. All responses were adequately coded for analysis

3.10.2 Data entry:

The coded data were entered into a computer based on the variables of the study.

3.10.3 Data analysis:

The data were analyzed using the Statistical Package for the Social Sciences (SPSS) version 25 program. Descriptive statistics, such as frequency, distribution, range, mean, and percentage were performed. For inferential statistics the relationship between independent and dependent variables were analyzed accordingly.

3.11 Result:

The findings of the study are presented in the result section of the thesis, including tables, charts, graphs, and descriptions of the variables.

3.12 Ethical consideration:

The researcher submitted a study protocol to the Ethical Review Board of Saic College of Medical Science and Technology (SCMST). The IRB of SCMST approved 22th June research protocol on time. The researcher also obtained permission from the authority of National Institute of Traumatology and Orthopedic Rehabilitation (NITOR). All participants were provided with detailed information about the study's purpose, procedures, benefits, and risks. Written informed consent was obtained from all participants before their inclusion in the study. Personal and medical information of the participants were kept strictly confidential. Data were anonymized by assigning unique identification codes, and only the researcher had access to the data. Participation in the research was entirely voluntary, and participants had the right to withdraw from the study at any time without any negative consequences or loss of benefits. There was minimum risk to participants, as it involved only non-invasive data collection methods (e.g., interviews and medical record reviews). No experimental treatments or procedures were administered. The study's findings might help improve understanding and management of preventive measures and protection, potentially benefiting patients in the long term. Data collected will be used solely for research purposes and will not be shared with unauthorized individuals or entities.

CHAPTER-IV: RESULTS

Table no.1: Frequency distribution by the respondents of socio demographic information:

Variables	Category	Frequency	Percent
Age	Less than 21 years	4	3.8
	21-40years	43	41.0
	41-60 years	46	43.8
	More than 60 years	12	11.4
	Total	105	100.0
Overall Age Mean ± SD: 43.53 ± 12.590			
Gender	Male	89	84.8
	Female	16	15.2
	Total	105	100.0
Education	Illiterate	2	1.9
	Primary	30	28.6
	Secondary	28	26.7
	HSC	26	24.8
	Graduation	19	18.1
	Total	105	100.0
Marital status	unmarried	7	6.7
	Married	92	87.6
	Divorced	6	5.7
	Total	105	100.0
Living area	Rural	24	22.9
	Urban	81	77.1
	Total	105	100.0

According to the sociodemographic profile of the respondents (n = 105), the sample as a whole was middle-aged, with a mean age of 43.53 ± 12.59 years. Of the respondents, the majority (43.8%) were between the ages of 41 and 60, closely followed by 41.0% in the 21–40 age group. Only 3.8% were under the age of 21, while a lesser percentage (11.4%) were above 60. 84.8% of the participants were

male, while only 15.2% were female, indicating that the sample was dominated by men. Twenty-eight percent (28.6%) of the respondents had completed primary school, twenty-six percent had completed secondary school, and twenty-eight percent had completed higher secondary education (HSC). The majority of participants had at least some formal education, as seen by the lesser percentage (18.1%) with a graduation degree and the 1.9% who were illiterate. According to data on marital status, 87.6% of people were married, compared to 6.7% who were single and 5.7% who were divorced. In terms of living area, the vast majority of respondents (77.1%) lived in cities, whilst 22.9% were from rural areas, suggesting that the respondents were primarily urban. This demographic pattern emphasizes that the majority of the research sample consisted of married, middle-aged men who lived in cities and had a range of formal educational backgrounds. The majority of participants, or 87.6% (n=92) of the sample as a whole, were married, according to the marital status distribution. Participants who were divorced made up 5.7% (n=6) while those who were unmarried made up 6.7% (n=7). Data were gathered from 105 participants in total. Analysis of the place residence found that 81(77.1%) were living in urban areas and 24 (22.9%) lived at rural settings only. This suggests an over-representation of urban residents in the study sample, perhaps suggesting better access to hospitals/clinics, schools or research institutions that are often situated within these areas. The overall sample size was 105 and such urban-rural proportions might be of interest when other socio-demographic or health related trends are considered.

Occupation of the participants:

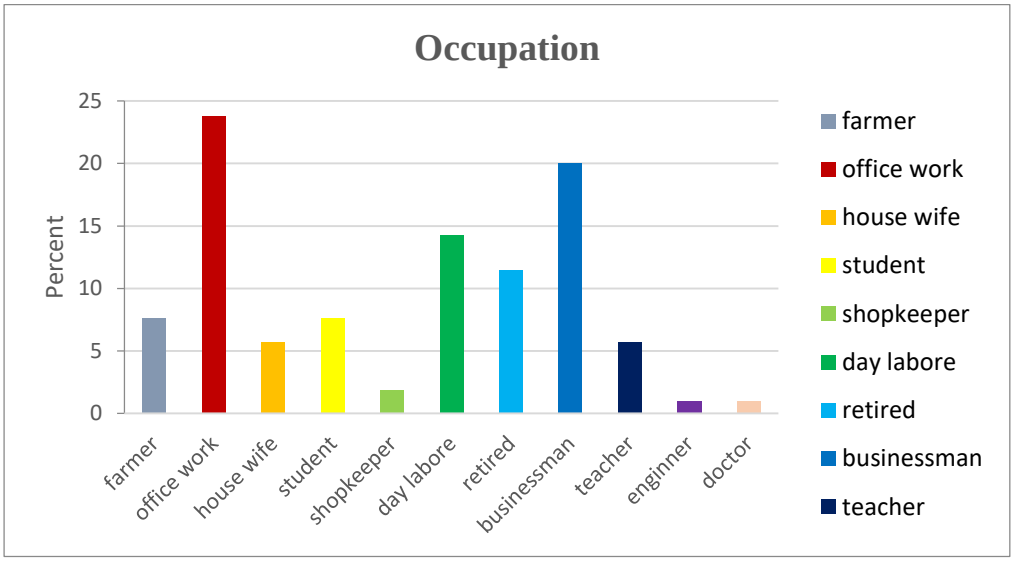


Figure no. 4: Occupation of the participants

The occupational profile of conferees was quite evenly balanced. The most common who were involved in office works, (n=25), 23.8%, followed by businessmen at, 20.0%,-,(n =21). Day laborers accounted for 14.3% (n=15) and retired made up 11.4% (n=12). Farmers and students, 7.6% (n=8), housewives and teachers each also comprised 5.7% (n=6). Fewer proportion of the participants were shop keeping (1.9%, n=2), engineering (1.0%, n =12 and medical 1, 0% respectively n =l). In all, there were 105 respondents. This spread is a diversity of professional, manual labor and non-working group members; therefore with diverse socio-economic status characteristics among the respondents.

Working posture of the participants:

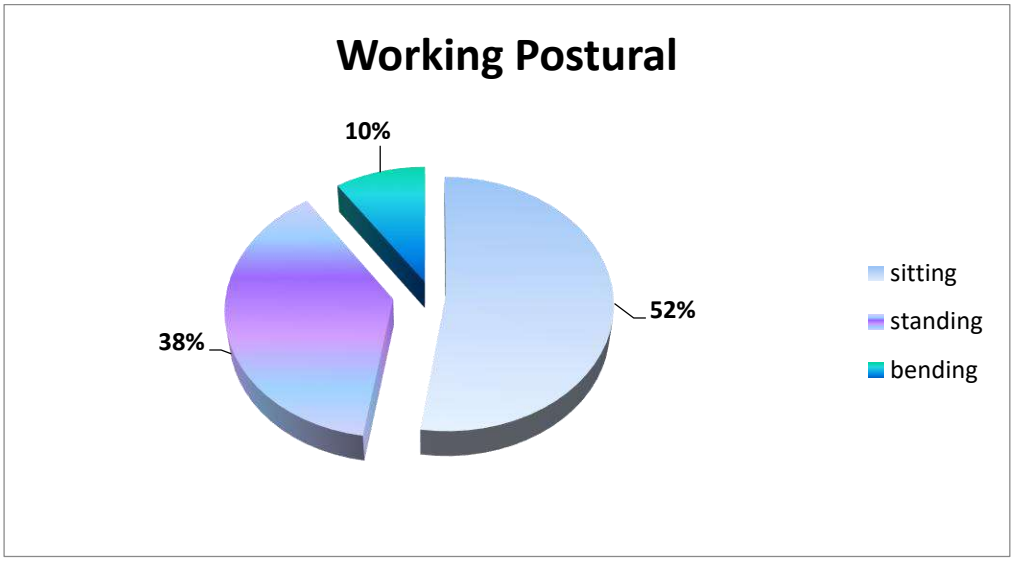


Figure no. 5: Working posture of the participants

Discussion Posture at work in the present study, analysis of posture status in the workplace showed that more than half (52.4%, n=55) reported sitting most of time during working hours. The next most common primary posture during work was standing (40, 38.1%). A minority (n=10, 9.5%) spent time working in a bent posture. These results indicate that most participants are employed in jobs requiring prolonged sitting or standing, which could have consequences on musculoskeletal health and effects. Participants A total of 105 subjects participated in the study.

Frequency distribution by the respondent of history of lifting heavy objects:

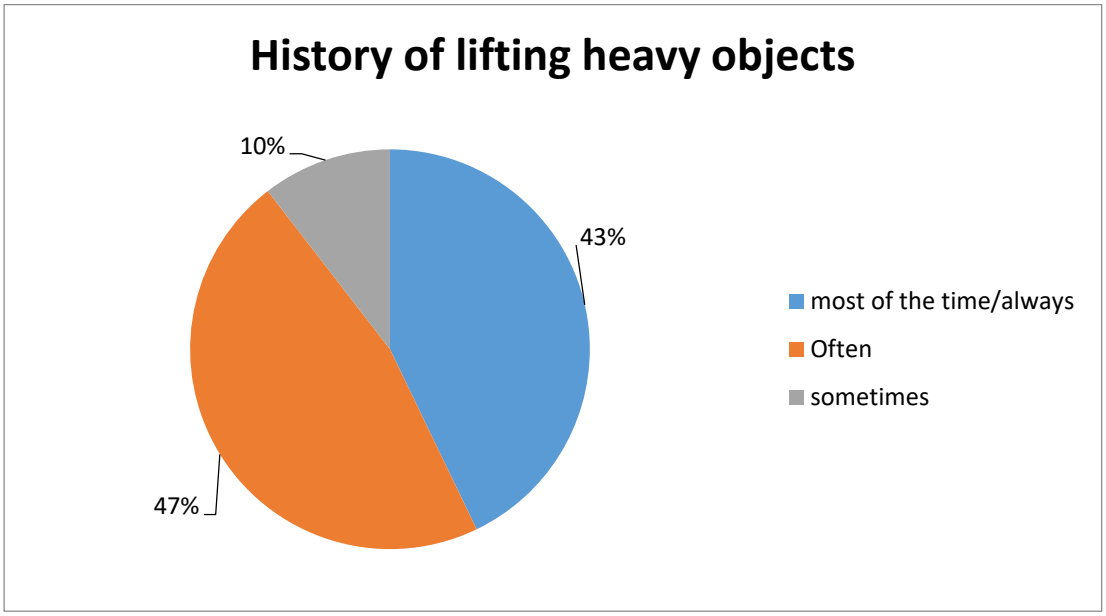


Figure no. 6: Frequency distribution by the respondent of history of lifting heavy objects.

A history of heavy object lifting among the participants in this study was highly prevalent. More specifically, 46.7% (n=49) of respondents reported lifting heavy objects “often”, and this answered by the equal amount resulted to being done "most or all" of the time; correspondingly as well regarding standing: Read "Mostly I'm sitting", for a demonstration! 'Sometimes lifting heavy objects" was included only by 10.5% (n=11). This indicates that a large proportion of workers in the study population were involved constantly with heavy manual work, which can add to musculoskeletal problems or other health complaints. The final sample was comprised of 105 women.

Working hour of the participants:

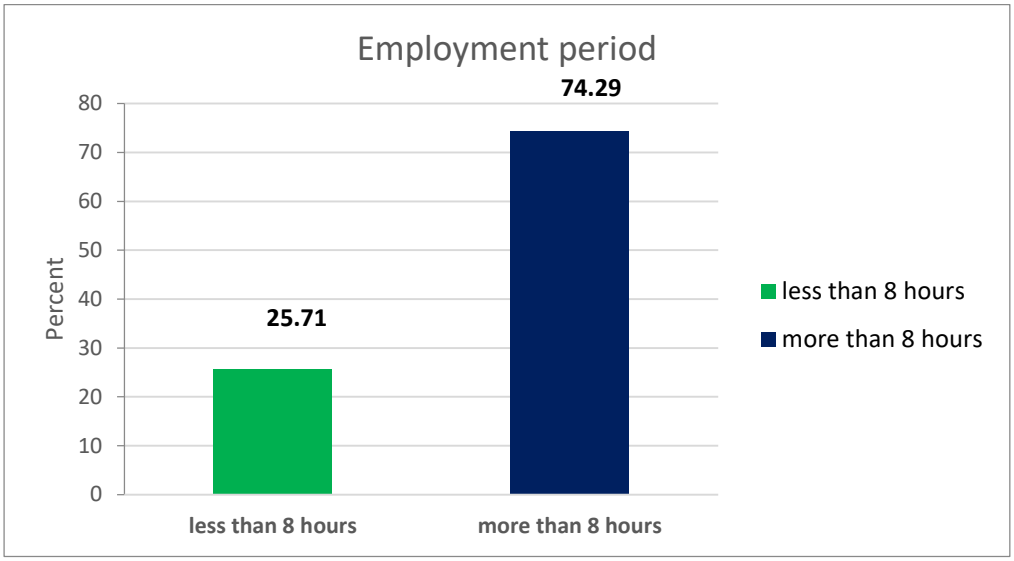


Figure no. 7: Working hour of the participants

The examination on employment duration showed the most of workers (74.3%, n=78) were employed to work over 8 hours/day and they were significantly more than those who worked less than 8hr/day by a percent difference of -25.7% (n=27). This suggests that a considerable part of participants experience long working hours which may lead to both physical and psychophysical strain, particularly in occupations characterized by prolonged static positions or heavy work. Altogether 105 children were studied.

BMI of the participants:

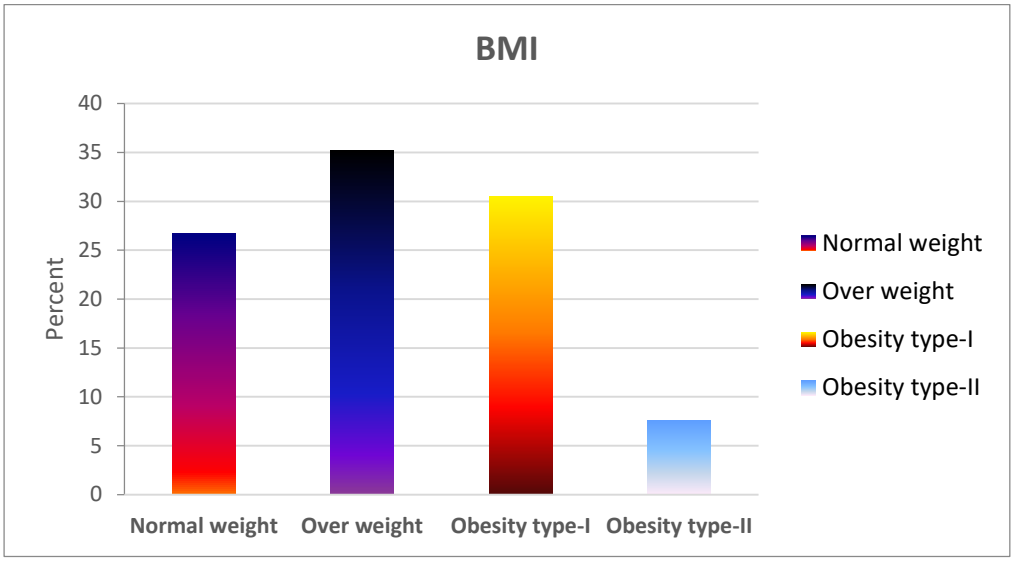


Figure no. 8: BMI of the participants

The participants were categorized based on the BMI and it was found that a higher number of individual falls under overweight category, which constitutes 35.2% (n=37). This was succeeded by 30.5% (n=32) who were categorized in Obesity Type - I group. Normal weight participants constituted 26.7% (n=28) and Obesity Type-II was observed in 7.6% n=8). These findings suggest that a substantial proportion of study participants (73.3%) were overweight or obese and the prevalence of the condition is may be very high among these elderly individuals, which can have important implications for total health status particularly when expressed in terms musculoskeletal conditions as well other chronic diseases. One hundred and five subjects were in the total sample.

Table no. 2: Association between gender and socio-demographic information:

Variables	Chi Square Test			Significance
	$\chi 2$	df	P-value	
Age	7.711	3	0.052	Non-significant
Education	4.779	4	0.311	Non-significant
Marital status	1.349	2	0.509	Non-significant
Living area	4.673	1	0.031	**Significant**
Occupation	27.258	10	0.002	**Significant**

(< 0.05, < 0.01, < 0.001)

An analysis was performed to investigate the correlation between gender and several socio-demographic factors among the study participants. The correlation between gender and age neared statistical significance (χ^2 = 7.711, df = 3, p = 0.052), indicating a potential age-related gender distribution, with men being more prominent in all age categories. There was no significant link between education level and gender (χ^2 = 4.779, df = 4, p = 0.311), which means that men and women had equivalent levels of education. In the same way, marital status did not have a significant effect on gender (χ^2 = 1.349, df = 2, p = 0.509).

Nonetheless, a statistically significant correlation was identified between residential area and gender (χ^2 = 4.673, df = 1, p = 0.031), indicating a greater prevalence of males living in urban regions relative to females. There was also a very strong link between gender and occupation (χ^2 = 27.258, df = 10, p = 0.002). Some jobs, including office work, day labor, and business, were mostly done by men, while others, like housework, were only done by women. These results indicate that certain socio-demographic characteristics, such age and occupation, may affect gender distribution, whereas others, such as education and marital status, reveal no substantial gender disparities within the sample.

Table no. 3: Association between gender and work and posture related information:

Variables	Chi Square Test			Significance
	$\chi 2$	df	P-value	
Working posture	0.462	2	0.794	Non-Significant
Lifting heavy weight	5.174	2	0.075	Non-Significant
Employment period	0.479	1	0.489	Non-Significant

(< 0.05, < 0.01, < 0.001)

There was an examination to find out if there was a link between gender and work- or posture-related characteristics among the participants. The correlation between working posture and gender was not statistically significant ($\chi^2 = 0.462$, df = 2, p = 0.794), demonstrating that both males and females had analogous distributions in sitting, standing, and bending postures inside the workplace.

In the same way, there was no significant link between employment period and gender ($\chi^2 = 0.479$, df = 1, p = 0.489), which means that both men and women worked for about the same amount of time, whether it was less than 6 hours a day or more.

The correlation between lifting heavy weights and gender did not attain statistical significance ($\chi^2 = 5.174$, df = 2, p = 0.075); however, it neared the threshold, suggesting a possible trend. A greater percentage of males indicated that they move heavy goods "most of the time" and "often" in comparison to females, which may be pertinent in comprehending gender-specific professional needs. Overall, there were no statistically significant gender differences in these work-related characteristics, but some tendencies may need more study.

Table no. 4: Association between gender and work and medical related information:

Variables	Chi Square Test			Significance
	$\chi 2$	df	P-value	
BMI	8.549	3	0.036	**Significant**
Nature of pain	1.770	1	0.183	Non-Significant
Pain radiation	0.175	1	0.675	Non-Significant
Previous history of LBP	11.797	3	0.008	**Significant**
History of back injury	1.644	1	0.200	Non-Significant
Type of injury	0.658	3	0.883	Non-Significant
Pain aggravating factors	0.269	3	0.966	Non-Significant
Pain easing factors	2.457	3	0.483	Non-Significant

(< 0.05, < 0.01, < 0.001)

An examination was conducted to the correlation between gender and bmi variables among the participants. The relationship between working posture and gender was not statistically significant (χ^2 = 8.549, df = 3, p = 8.549), indicating that the distribution of Body Mass Index categories differs between males and females in this study group. revious History of LBP: This relationship is also statistically significant and is the strongest association found (χ^2 = 11.797, p-value = 0.008). Furthermore, the relationship between gender and lifting heavy weights was not statistically significant (p-value = 0.075), though the result was close to the significance threshold, suggesting a potential trend that might be worth investigating in a larger study.

Table no. 5: Association between overall QoL and daily Activity:

Variables	Chi Square Test			Significance
	χ2	df	P-value	
Mobility	49.560	3	<0.001	**Significant**
Self-care	45.723	3	<0.001	**Significant**
Usual activities	39.128	2	<0.001	**Significant**
Pain or discomfort	79.129	3	<0.001	**Significant**
Anxiety or depression	70.914	4	<0.001	**Significant**

(< 0.05, < 0.01, < 0.001)

There were a number of statistically significant links between overall quality of life (QoL) and daily activity measures. A robust correlation was identified regarding mobility ($\chi^2 = 49.560$, df = 3, $p < 0.001$). Most of the people who said they had no or only a little trouble walking had a good to moderate quality of life (QoL). On the other hand, most of the people who said they had moderate to severe trouble walking had a bad to worse QoL. In the same way, self-care capacity was strongly linked to QoL ($\chi^2 = 45.723$, df = 3, $p < 0.001$). Participants who had little or no trouble washing and dressing were more likely to say they had higher QoL, while those who had moderate or severe trouble predominantly said they had low QoL.

A notable correlation was identified in routine activities ($\chi^2 = 39.128$, df = 2, $p < 0.001$). others who had only a few problems doing everyday things said their quality of life was better, while others who had moderate to severe problems said their quality of life was worse. The pain or discomfort component was very strongly linked to QoL ($\chi^2 = 79.129$, df = 3, $p < 0.001$). People with mild or moderate pain usually reported improved QoL, while people with severe or acute pain mostly fell into the poor QoL category.

Ultimately, a robust significant correlation was identified between anxiety or depression and quality of life ($\chi^2 = 70.914$, df = 4, $p < 0.001$). People who said they had no or just mild anxiety or depression had a better quality of life (QoL), while

people who said they had moderate to severe emotional discomfort had a worse QoL. These results show that physical limits, pain severity, and mental well-being are very important elements that affect how people in the study feel about their quality of life.

Each dimension has five levels of severity: (No problem =1, Slight problems = 2, Moderate problem = 3, Severe problem = 4, Unable / Extreme problem = 5). So, your EQ-5D-5L description is now clear: 5 dimensions (Mobility, Self-care, Usual activities, Pain/Discomfort, Anxiety/Depression), 5 levels (No problems Unable/Extreme), Used to create a health profile (5-digit code).

In this study, the EQ-5D-5L total scores were categorized to represent the health status of participants as follows:

Total Score: Health Status Category Interpretation (5 Perfect health, No problems reported in any of the five dimensions = 6 - 9, Mild health problems light problems in one or two dimensions, overall good quality of life, 10 - 14 = Moderate health problems, Moderate impairment of quality of life due to problems in multiple dimensions, 15-19 = Severe health problems, Serious problems in most dimensions, resulting in poor quality of life, 20 - 25 Extreme problems). Extreme or severe problems in all five dimensions, indicating very poor quality of life.

CHAPTER-V: DISCUSSION & LIMITATION

5.1 Discussion:

The study's results indicated that the predominant age group affected by low back pain (LBP) was between 41 and 60 years (43.8%), closely followed by those aged 21–40 years (41%). This corroborates previous epidemiological studies that demonstrate the prevalence of low back pain (LBP) escalates with age, reaching its zenith in midlife and experiencing a minor decline in the elderly (Hoy et al. 2012). Moreover, Balagué et al. (2012) contend that individuals aged 40 to 60 are especially vulnerable due to the cumulative mechanical load on spinal structures and associated degenerative changes.

This is in line with what Hartvigsen et al. (2018) found in a comprehensive review: middle-aged adults (40–60 years) are more likely to have chronic LBP because of degenerative changes in the spine and work-related stress. However, contrasting research, such as that by Dionne et al. (2016), indicated that younger persons (20–40 years) also have significant LBP prevalence due to sedentary lifestyles and poor ergonomic practices. This trend corresponds with findings by Meucci et al. (2015), who determined that the incidence of LBP among middle-aged individuals was linked to professional demands and sedentary lifestyles. As people get older, their spines become more prone to degenerative disorders. This is why older adults have a higher risk of these conditions and a lower quality of life (QoL), as Freburger et al. (2009) also noted. The mean age of 43.53 years in your study's results is consistent with this epidemiological trend.

In this study, a large number of people were either overweight (35.2%) or obese Type I (30.5%), with a mean BMI of 28.67. These figures underscore the escalating public health issue of obesity as a contributing factor to low back pain (LBP). Shiri et al. (2010) assert that persons with elevated BMI face a significantly heightened risk for persistent low back pain, attributable to augmented mechanical loading and heightened systemic inflammation.

This aligns with the findings of Shiri et al. (2018), which demonstrated a significant link between obesity and low back pain (LBP) attributable to heightened mechanical

stress on the lumbar spine. However, a study conducted by Heuch et al. (2015) indicated that although obesity intensifies LBP, individuals of normal weight also experience considerable pain attributed to psychosocial variables, like stress and inactivity. The average BMI in the research was 28.67 (SD = 4.066), which shows that LBP patients tend to have higher BMIs. This is supported by studies from around the world on obesity-related musculoskeletal illnesses (Wertli et al. 2017). Heuch et al. (2013) also identified a consistent positive correlation between BMI and the prevalence of LBP in both genders. Obesity increases mechanical stress on the lumbar spine and makes it harder to remain active, which keeps the pain cycle going. Additionally, individuals with excess weight are more susceptible to postural dysfunctions and muscle deconditioning, resulting in reduced quality of life scores (Fanuele et al. 2006).

This research indicated that 84.8% of participants were male, whereas merely 15.2% were female. This discrepancy may indicate selection bias or variations in occupational exposure; however, it contradicts global literature, which frequently shows that women report a higher prevalence and severity of low back pain (LBP) (Hoy et al. 2010; Stubbs et al., 2016). Cultural norms and reporting behaviors may account for this disparity in areas where men are more likely to pursue healthcare or work in high-risk professions.

This contradicts previous research indicating that women report increased prevalence of low back pain due to hormonal factors, pregnancy-related strain, and osteoporosis (Fillingim et al. 2016). Nonetheless, the disproportionate presence of males in this study may indicate occupational exposure, as manual labor and physically demanding roles are frequently male-dominated (Punnett et al. 2018). Wijnhoven et al. (2019) conducted a study revealing that although women report greater chronic low back pain, men suffer more impairment due to job hazards. Nonetheless, women typically report inferior quality of life outcomes attributable to behavioral and biological causes. Kovacs et al. (2011) conducted a study demonstrating that women exhibited markedly lower ratings in pain perception and mobility, despite comparable objective clinical findings. So, having too few women in your study can hide important genderspecific information about QoL.

Your results showed that majority of the people who took part had at least a primary school education (28.6%), and only a small number were illiterate (1.9%). There were different levels of education: 28.6% had primary school, 26.7% had secondary school, and 18.1% had graduated. Lower levels of education are generally associated to jobs that are hard on the body, which raises the risk of LBP (Driscoll et al., 2014). On the other hand, those with more education tend to do sedentary employment, which can also cause LBP because they sit for long periods of time (Chen et al. 2019). The study's results are consistent with the research conducted by Hurwitz et al. (2018), which identified a correlation between both low and high educational backgrounds and LBP, albeit through distinct mechanisms—manual labor vs inadequate posture and inactivity. Educational attainment is a significant predictor of health literacy, which is associated with enhanced disease management and increased quality of life (Blyth et al., 2005). Leveille et al. (2005) say that higher levels of education also make people more aware of ergonomic practices and how to get medical help.

The examination of marital status showed that the great majority (87.6%) were married. This is significant as married persons frequently have social support, which helps mitigate the psychological impacts of chronic pain. Eighty-seven point six percent of the sample was married, which could affect quality of life because of social support (Hülsebusch et al. 2016). But stress from being married can also make pain feel worse (Canivet et al. 2015). The difference between urban and rural areas (77.1% urban vs. 22.9% rural) implies that cities have better access to healthcare. However, living in cities may lead to LBP since people are less active there (Steffens et al., 2016). Rural communities, while being underrepresented, frequently experience low back pain attributable to agricultural labor (Hoy et al. 2014). Lin et al. (2011) assert that spousal social support is favorably associated with pain tolerance and quality of life in individuals with chronic pain. On the other hand, people who are divorced or single say their mental health is worse and they are less happy with their lives. 77.1% of the people who took part in your survey lived in cities. This overrepresentation might be because people in cities have more access to healthcare services. Hoy et al. (2010) and Chen et al. (2017) found that people who live in rural areas often have worse outcomes because they can't get to physiotherapy, their diagnosis is delayed, and their professions are physically demanding. But those who

live in cities may be more likely to lead sedentary lives, which is another risk factor for chronic LBP.

There was a wide range of jobs, with office workers (23.8%) and businesspeople (20%) making up the most of the workforce. The high number of people who sit at work (52.4%) is in line with what Lis et al. (2007) found: sitting for lengthy periods of time is bad for your spinal health. Additionally, prolonged standing (38.1%) was common, serving as additional contributing factor to low back pain (LBP). A significant proportion of those affected were office workers (23.8%) and businessmen (20.0%), suggesting that both sedentary and high-stress professions are associated with LBP (Janwantanakul et al. 2017). Manual laborers (14.3%) and farmers (7.6%) also reported LBP, supporting the findings of Punnett et al. (2018) that physical strain is a significant risk factor.

Heavy lifting, which 46.7% of people said they do often, is a known biomechanical stressor. According to Punnett and Wegman (2004), manual workers who lift and twist things are more likely to get musculoskeletal problems. This observation aligns with your findings that extended exposure to physically demanding employment is associated with diminished QoL scores.

Dutmer et al. (2019) showed that LBP patients who were overweight and worked in sedentary employment had a lower quality of life, which is in line with the results of this study. However, study conducted by Kamper et al. (2015) highlighted psychosocial elements, such as depression and anxiety, as more significant determinants of quality of life than BMI alone. Likewise, a study conducted by Costa et al. (2017) revealed that urban people experienced higher instances of chronic low back pain compared to their rural counterparts, contradicting the underrepresentation of rural participants in this study.

Most of the people who took part said they had pain that came and went (60%) or was always there (40%). Pain that spread below the knee was very common (61%). Radiating pain, which is commonly caused by nerve root compression or disc herniation, means that the disease is more serious. Deyo and Weinstein (2001) say that these kinds of patients usually have poorer QoL scores.

Moreover, your research revealed a significant prevalence of prior LBP episodes, with 36.2% reporting 6–10 antecedent occurrences. This is in line with the idea of "recurrent LBP," which da C Costa and Maher (2009) say has a big effect on mental health and functional ability. People who have chronic and recurring LBP have a far lower quality of life than people who have it for the first time.

The EQ-5D-5L was utilized in my study to look at five aspects of quality of life: mobility, self-care, daily activities, pain/discomfort, and anxiety/depression. The results showed that all measures were strongly linked to the QoL category ($p < 0.001$).

People who had no or very minor mobility problems said their quality of life was good to moderate, while people who had severe mobility problems all said their quality of life was poor to worse. Costa et al. (2008) also found that limited mobility was the most important factor in determining quality of life. Taking care of yourself and doing things you normally do: There was a strong link between having trouble taking care of oneself or doing everyday tasks and having a lower quality of life. In the same way, a long-term study by Kovacs et al. (2004) found that having trouble with simple tasks is a strong sign of worse quality of life in people with LBP. This dimension has the strongest statistical link. Chronic pain, especially when it's bad, makes everything in life harder. Waddell et al. (2003) say that the strongest sign of impairment and low quality of life is pain that lasts a long time. Mental health turned out to be a major factor in QoL. Individuals experiencing moderate to severe anxiety or depression predominantly belonged to the poor quality of life group. This is in line with what Linton (2000) and Kroenke et al. (2011) said: that psychological discomfort makes pain feel worse and makes people less likely to participate in rehabilitation.

In this study analysis of gender identified strong links between gender and things like BMI ($p = 0.036$) and a history of LBP ($p = 0.008$). Women with lower BMIs nevertheless had worse results, which is in line with what LeResche et al. (2003) found, which suggested that men and women feel pain and deal with it differently. Also, the way that gender and emotional factors like anxiety interact with each other supports the biopsychosocial model of chronic pain (Gatchel et al. 2007).

This study's findings support what other studies have shown on LBP and QoL around the world. It shows important demographic, occupational, clinical, and psychological factors that affect the quality of life of people with LBP. Using the validated

EQ-5D5L tool gave us a full picture of how LBP affects people in many ways. Also, the fact that a substantial number of the men in your study were overweight, middle-aged, and lived in cities is in line with current global trends in sedentary work habits. However, distinct regional and cultural characteristics, such as the underrepresentation of women and the overrepresentation of urban inhabitants, indicate a necessity for more inclusive future studies. These should look into the things that make it hard for people in rural areas to get health care and assess gender-sensitive remedies.

5.2 Limitation of the study:

- One of the most important problems with this study is that there were too many men (84.8%) and not enough women (15.2%). This gender imbalance may result in biased interpretations, particularly as numerous studies indicate that women often report greater prevalence, severity, and disability related to low back pain (LBP) due to factors including hormonal fluctuations, pregnancy, osteoporosis, and variations in pain perception.
- A significant proportion of the participants hailed from urban locales, possibly neglecting the distinct occupational, environmental, and healthcare access issues encountered by rural residents. This urban bias restricts the applicability of the findings to rural or isolated areas, where the prevalence of LBP may be affected by agricultural employment and insufficient medical facilities.
- Due to the cross-sectional nature of this study, definitive causal links cannot be established. Although correlations between several demographic, vocational, and clinical characteristics and quality of life have been discerned, the temporal relationship remains ambiguous.
- A significant portion of the data, encompassing pain characteristics, previous low back pain history, and responses to the EQ-5D-5L, was self-reported. This method is naturally prone to recall bias, underreporting, or embellishment, which could compromise the accuracy of the findings, particularly with pain severity and frequency.
- The study did not include radiographic imaging or clinical examination results (e.g., MRI, physical evaluations), which would have improved the reliability of diagnosing and classifying LBP severity. Exclusively depending on subjective complaints constrains the clinical profundity of the findings.
- The lack of follow-up hinders the evaluation of changes in participants' quality of life over time or in relation to therapies, lifestyle modifications, or the progression of LBP.

CHAPTER-VI: CONCLUSION & RECOMMENDATION

6.1 conclusion:

This study offers an extensive examination of the demographic, clinical, occupational, and psychological aspects related to low back pain (LBP) and its effects on the quality of life (QoL) of those affected. This study provides significant insights into the various aspects affecting the quality of life of patients experiencing low back pain. The results show that people in their forties and fifties are more likely to have low back discomfort than people of other ages. As people get older, work-related stress, and lifestyle-related risk factors, the spine might become more stressed. This is common at this time of life. The people in this study also tended to be overweight or obese, which puts even more mechanical stress on the lower back and makes chronic pain and impairment worse.

The study used the EQ-5D-5L questionnaire to find important links between pain and problems with important everyday activities like getting around, taking care of oneself, doing routine tasks, and mental health. People who had chronic or radiating pain, as well as those who had trouble doing everyday tasks or who were anxious or depressed, consistently said that their quality of life was lower. These results support the bio-psychosocial model of chronic pain, which shows that psychological and functional aspects are just as important as physical symptoms in determining a person's overall health.

The study also showed how important work and lifestyle factors are. Individuals engaged in sedentary office positions or physically strenuous occupations both saw significant effects on spine health and everyday functioning. Long periods of sitting, lifting things over and over, and not using proper ergonomic techniques were allaire linked to worse quality of life outcomes. The study group comprised mostly men from cities, which could make it hard to apply the results to other groups, but the results nevertheless show important global trends in the prevalence and risk of low back pain.

6.2 Recommendation:

- People in high-risk jobs and middle-aged individuals should be urged to get regular checkups for low back discomfort. Finding problems early can assist stop them from getting worse and lessen their effect on quality of life.
- Excess body weight is a major risk factor, so public health programs should focus on encouraging healthy lifestyles, balanced diets, and exercise to ease the strain on the spine caused by obesity.
- When treating low back pain, you shouldn't just look at the physical symptoms. Adding physiotherapists, psychologists, and occupational health professionals to the care team can help with both the physical and mental causes of low back pain.
- Employers should make sure that their workplaces are ergonomically sound, with the right seating, workstations, and instruction on how to lift safely. It is important to make changes to both sedentary and physically demanding employment to lessen the strain on the lower back.
- Because anxiety, sadness, and a bad quality of life are all closely linked in people with LBP, psychological support services should be a part of pain management regimens. Counseling and programs to lower stress can help people get better and deal with their problems.
- Because there were more urban participants in this study than rural ones, it is suggested that healthcare systems include more physiotherapy and pain management treatments in rural areas, where access is typically limited.
- Subsequent research and healthcare initiatives should strive for a more equitable representation of both genders to enhance the understanding of gender-specific factors affecting low back pain (LBP) and its management.
- Patients should learn how to fix their posture, do stretches, exercise at home, and move their bodies correctly. Giving people the tools they need to take care of themselves can help them rely less on drugs and get better results.

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APPENDICES- A

Consent form

Respondent ID:

Dear participant,

I am Rakibul Islam Shanto, student of B.Sc. in physiotherapy program in the department of Saic College of Medical Science & Technology (SCMST) which is affiliated Dhaka University. I am conducting the study entitled. as **Quality of life among the patients having low back pain attending national institute of traumatology and rehabilitation (NITOR)** a part of my thesis work for the partial fulfillment of B.Sc. in physiotherapy degree. There are the lists of question you need to fill up which is include socio- demographic, information related, disease related and treatment related questions. For spending your time to participate in this self-administered interview which will take around 15-20 minutes. There is list of questionnaires and you need to fill up each answer. The information gained from this questionnaire will be used to academic purposes and will be kept confidential. Your participation in this study is totally voluntarily and you have the right to withdraw from the interview without any clarification at any moment. You can ask any question to the researcher regarding the study to meet up your quarry. Looking forward your kind co-operation.

Declaration of the participant

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

Respondent name: Witness name:

Signature and date: Signature and date:

Questionnaires (English) "Characteristics of low back pain and its effects on Quality of life among the patients with low back pain attending national institute of traumatology and orthopaedic rehabilitation (nitor) "

Patients name :	
Patients ID:	
Address :	
Phone No. :	
Name of Interviewer :	
Interview Date:	

Answer every questions by marking the tick (✓) mark. If there is any confusion between more than one answer, please give the best answer that you think. Part-1: Socio Demonological Information

1.	**Age**	**---------- years**
2.	**Gender :**	**o Male** **o Female**
3.	**Educational status:**	○ **Illiterate** ○ **Primary level o SSC** ○ **HSC** ○ **Graduation** ○ **Masters and above**
4.	**Marital status :**	○ **Unmarried/single** **Married/living with partner** ○ **Divorced/Widowed**
5.	**Living areas**	**o Rural** **o Urban**
6.	**Occupations**	

Part-2: Work and posture related Information

7.	**Postural status at the work place:**	**o Sitting** **o Standing** **o Bending** **o Squatting** **o Walking**
8.	**History of lifting heavy objects:**	**o Most of the time/always** **o Often** **o Sometimes** **o Never/seldom**
9.	**Employment period:**	**o Less than 8 hours** **o More than 8hours**

Part-3: Pain related information

10.	**BMI= weight (kg) / height(m2):**	
12.	**Nature of pain :**	**o Constant** **o Intermittent**
13.	**Does the pain radiate :**	**o Above knee** **o Below knee**
14.	**Previous episodes of low back pain:**	o **None** **1-2** o **3 -5** o **More than 5** o **More than 10**
15.	**History of back injury:**	**o Yes** **o No**
16.	**Types of injury:**	**o Direct trauma** **o Twisting**

		o Lifting **o Carrying**
17.	**Aggravating factors**	**o sitting** **o standing** **o bending** **o walking** **o lying** **o as the day progress**
18.	**Easing factors**	**o sitting** **o standing** **o Bending** **o walking** **o lying** **o as the day progress**

Part-IV: Questionnaires

EQ-5D-5L Health Questionnaire

Please tick the box that best describes your health today.

1. Mobility

□ I have no problems walking.
□ I have slight problems walking.
□ I have moderate problems walking.
□ I have severe problems walking.
□ I am unable to walk.

2. Self-Care

□ I have no problems washing or dressing myself.
□ I have slight problems washing or dressing myself.
□ I have moderate problems washing or dressing myself.
□ I have severe problems washing or dressing myself.
□ I am unable to wash or dress myself.

3. Usual Activities (e.g., work, study, housework, family, or leisure activities)

□ I have no problems doing my usual activities.
□ I have slight problems doing my usual activities.
□ I have moderate problems doing my usual activities.

□ I have severe problems doing my usual activities.
□ I am unable to do my usual activities.

4. Pain/Discomfort

□ I have no pain or discomfort.
□ I have slight pain or discomfort.
□ I have moderate pain or discomfort.
□ I have severe pain or discomfort.
□ I have extreme pain or discomfort.

5. Anxiety/Depression

□ I am not anxious or depressed.
□ I am slightly anxious or depressed.
□ I am moderately anxious or depressed.
□ I am severely anxious or depressed.
□ I am extremely anxious or depressed.

Your Overall Health Today

(EQ-VAS: Visual Analogue Scale)

Please mark an (X) on the scale to indicate how good or bad your health is today.

0 (Worst health you can imagine) ---|---|---|---|---|---|---|---|---|--- **100 (Best health you can imagine)**

Your score: _____

সম্মতি ফর্ম

উত্তরদাতার আইডি: _____

প্রিয় অংশগ্রহণকারী,

আমি রাকিবুল ইসলাম শান্ত, সাইস কলেজ অব মেডিকেল সায়েন্স অ্যান্ড টেকনোলজি এর ফিজিওথেরাপি অনুষদের বি.এস.সি. প্রোগ্রামের একজন শিক্ষার্থী, যা ঢাকা বিশ্ববিদ্যালয়ের অধিভুক্ত। আমি আমার বি.এস.সি. ইন ফিজিওথেরাপি ডিগ্রির আংশিক পূরণের জন্য একটি গবেষণা পরিচালনা করছি, যার শিরোনাম:**"ন্যাশনাল ইনস্টিটিউট অব ট্রমাটোলজি অ্যান্ড অর্থোপেডিক রিহ্যাবিলিটেশন (NITOR)-এ লো-ব্যাক পেইনে আক্রান্ত রোগীদের জীবনের মান"**আপনাকে এই গবেষণায় অংশগ্রহণের জন্য বিনীত অনুরোধ জানানো হচ্ছে। আপনাকে একটি প্রশ্নপত্র পূরণ করতে হবে, যা নিম্নলিখিত বিষয়গুলো অন্তর্ভুক্ত করবে; সামাজিক-গবেষণামূলক তথ্য,রোগ সম্পর্কিত প্রশ্নচিকিৎসা সম্পর্কিত প্রশ্ন এই স্ব-পরিচালিত সাক্ষাৎকারটি সম্পূর্ণ করতে আনুমানিক ১৫-২০ মিনিট সময় লাগবে। আপনার দেওয়া সমস্ত তথ্য শুধুমাত্র শিক্ষাগত উদ্দেশ্যে ব্যবহৃত হবে এবং গোপনীয়তা রক্ষা করা হবে।আপনার অংশগ্রহণ সম্পূর্ণ স্বেচ্ছাসেবী, এবং আপনি যেকোনো সময় কোনো কারণ না জানিয়ে গবেষণা থেকে প্রত্যাহার করার অধিকার রাখেন। গবেষণা সংক্রান্ত যেকোনো প্রশ্ন থাকলে, দয়া করে গবেষকের সাথে যোগাযোগ করুন। আমি আপনার মূল্যবান সময় ও সহযোগিতার জন্য কৃতজ্ঞ।

অংশগ্রহণকারীর ঘোষণা

আমি এই জরিপে অংশগ্রহণের জন্য আমন্ত্রণ পেয়েছি। গবেষণার উদ্দেশ্য ও বিবরণ আমাকে ব্যাখ্যা করা হয়েছে এবং আমার সমস্ত প্রশ্নের সন্তোষজনক উত্তর দেওয়া হয়েছে। আমি বুঝতে পেরেছি যে, আমার অংশগ্রহণ সম্পূর্ণ স্বেচ্ছামূলক, এবং আমি যেকোনো সময় কোনো কারণ না জানিয়ে গবেষণা থেকে প্রত্যাহার করতে পারবো।আমি এই গবেষণায় স্বেচ্ছায় অংশগ্রহণ করতে সম্মতি দিচ্ছি।

উত্তরদাতার নাম: সাক্ষীর নাম:
স্বাক্ষর ও তারিখ: স্বাক্ষর ও তারিখ:

প্রশ্নাবলী (বাংলা)

"ন্যাশনাল ইনস্টিটিউট অফ ট্রমাটোলজি অ্যান্ড অর্থোপেডিক রিহ্যাবিলিটেশন (NITOR) এ আগত রোগীদের কোমর ব্যথার বৈশিষ্ট্যসমূহ এবং রোগীদের জীবনধারণের প্রকৃতির উপর ব্যথার প্রভাব "

রোগীর তথ্য:

রোগীর নাম:	
রোগীর আইডি:	
ঠিকানা:	
ফোন নম্বর:	
সাক্ষাৎকার গ্রহণকারীর নাম:	
সাক্ষাৎকারের তারিখ:	

প্রশ্নের উত্তর দিন এবং (✓) চিহ্ন দিন। যদি একাধিক উত্তর নিয়ে দ্বিধায় থাকেন, তবে আপনার দৃষ্টিতে সঠিক উত্তরটি নির্বাচন করুন।

অংশ-১: সামাজিক-জনতাত্ত্বিক তথ্য

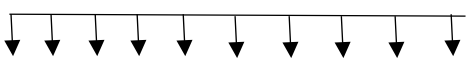
১.	বয়স:	বছর:
২.	লিঙ্গ:	• ☐ পুরুষ • ☐ মহিলা
৩.	শিক্ষাগত যোগ্যতা:	• ☐ নিরক্ষর • ☐ প্রাথমিক স্তর • ☐ এসএসসি • ☐ এইচএসসি • ☐ স্নাতক
৪.	বৈবাহিক অবস্থা:	• ☐ অবিবাহিত/সিঙ্গেল • ☐ বিবাহিত/সঙ্গীর সাথে বসবাসরত • ☐ তালাকপ্রাপ্ত

৫.	আবাসিক এলাকা	• ☐ গ্রাম • ☐ শহর
৬.	পেশা:	

অংশ-২: কাজ ও অঙ্গভঙ্গি সম্পর্কিত তথ্য

৭.	কর্মস্থলে অঙ্গভঙ্গির অবস্থা:	• ☐ বসে থাকা • ☐ দাঁড়িয়ে থাকা • ☐ সামনে ঝুঁকে থাকা • ☐ হাঁটু মুড়ে বসা • ☐ হাঁটা
৮.	ভারী বস্তু তোলার ইতিহাস:	• ☐ প্রায় সবসময় • ☐ মাঝেমধ্যে
৯.	কর্মঘণ্টা:	☐ ৮ ঘণ্টার কম ☐ ৮ ঘণ্টার বেশি

অংশ-৩: ব্যথা সংক্রান্ত তথ্য

১০.	**ব্যথা সংক্রান্ত তথ্যমআই = ওজন (কেজি) / উচ্চতা (মিটার^2)**	
১১.	**ব্যথার তীব্রতা (VAS স্কেল):**	 ১ ২ ৩ ৪ ৫ ৬ ৭ ৮ ৯ ১০
১২.	**ব্যথার প্রকৃতি:**	☐ স্থায়ী ☐ অনিয়মিত

১৩.	**ব্যথা কি ছড়িয়ে পড়ে?**	☐ হাঁটুর উপরে ☐ হাঁটুর নিচে
১৪.	**পূর্বে কোমরের ব্যথার অভিজ্ঞতা:**	☐ নেই ☐ ১-২ বার ☐ ৩-৫ বার ☐ ৫ বারের বেশি ☐ ১০ বারের বেশি
১৫.	**কোমরে আঘাতের ইতিহাস:**	☐ হ্যাঁ ☐ না

১৬.	**আঘাতের ধরন:**	☐ সরাসরি আঘাত ☐ প্যাঁচানো ☐ ভার উত্তোলন ☐ বহন করা
১৭.	**ব্যথা বাড়ানোর কারণ**:	☐ বসা ☐ দাঁড়ানো ☐ নিচু হওয়া ☐ হাঁটা ☐ শোয়া ☐ দিন বাড়ার সাথে সাথে
১৮.	**ব্যথা কমানোর উপায়:**	☐ বসা ☐ দাঁড়ানো ☐ নিচু হওয়া ☐ হাঁটা ☐ শোয়া ☐ দিন বাড়ার সাথে সাথে

চতুর্থ অংশ: প্রশ্নোবলী

ইকিউ -৫ডি-৫এল প্রশ্নাবলী: অনুগ্রহ করে সেই বাক্সটি টিক দিন যা আপনার আজকের স্বাস্থ্যের সাথে সবচেয়ে ভালো মেলে।

4.১. চলাফেরা:

আমি হাঁটতে কোনো সমস্যা অনুভব করি না।	
আমার হাঁটতে সামান্য সমস্যা হয়।	
আমার হাঁটতে মাঝারি সমস্যা হয়।	
আমার হাঁটতে গুরুতর সমস্যা হয়।	
আমি হাঁটতে অক্ষম।	

4.২. নিজের যত্ন নেওয়া

আমি নিজেকে ধোয়া বা পোশাক পরতে কোনো সমস্যা অনুভব করি না।	
আমি নিজেকে ধোয়া বা পোশাক পরতে সামান্য সমস্যা অনুভব করি।	
আমি নিজেকে ধোয়া বা পোশাক পরতে মাঝারি সমস্যা অনুভব করি।	
আমি নিজেকে ধোয়া বা পোশাক পরতে গুরুতর সমস্যা অনুভব করি।	
আমি নিজেকে ধোয়া বা পোশাক পরতে অক্ষম।	

4.৩. দৈনন্দিন কাজকর্ম (যেমন: কাজ, পড়াশোনা, গৃহস্থালি কাজ, পারিবারিক বা অবসর কার্যকলাপ)

আমি আমার দৈনন্দিন কাজকর্ম করতে কোনো সমস্যা অনুভব করি না।	
আমি আমার দৈনন্দিন কাজকর্ম করতে সামান্য সমস্যা অনুভব করি।	
আমি আমার দৈনন্দিন কাজকর্ম করতে মাঝারি সমস্যা অনুভব করি।	
আমি আমার দৈনন্দিন কাজকর্ম করতে গুরুতর সমস্যা অনুভব করি।	
আমি আমার দৈনন্দিন কাজকর্ম করতে অক্ষম।	

4.৪. ব্যথা/অসুবিধা

আমার কোনো ব্যথা বা অস্বস্তি নেই।	
আমার সামান্য ব্যথা বা অস্বস্তি রয়েছে।	
আমার মাঝারি ব্যথা বা অস্বস্তি রয়েছে।	

আমার গুরুতর ব্যথা বা অস্বস্তি রয়েছে।	
আমার চরম ব্যথা বা অস্বস্তি রয়েছে।	

4.৫. উদ্বেগ/বিষণ্নতা

আমি উদ্বিগ্ন বা বিষণ্ন নই।	
আমি সামান্য উদ্বিগ্ন বা বিষণ্ন।	
আমি মাঝারি উদ্বিগ্ন বা বিষণ্ন।	
আমি গুরুতর উদ্বিগ্ন বা বিষণ্ন।	
আমি চরম উদ্বিগ্ন বা বিষণ্ন।	

(ই কিউ -ভিজ্যুয়াল অ্যানালগ স্কেল)

o (আপনার কল্পনার সবচেয়ে খারাপ স্বাস্থ্য) **⁰----------|¹⁰-------|²⁰--------|³⁰--------|⁴⁰--------|⁵⁰--------|⁶⁰--------|⁷⁰--------|⁸⁰--------|⁹⁰--------| ১০০--------**
(আপনার কল্পনার সবচেয়ে ভালো স্বাস্থ্য)

আপনার স্কোর:

IRB Permission letter

SCMST-BPT/IRB/.....03-11/25/24

To
Rakibul Islam Shanto
4th Year Student of B.Sc. in Physiotherapy
Session: 2019-20, Reg No: 8802
SAIC College of Medical Science & Technology (SCMST)
Mirpur-14, Dhaka-1216, Bangladesh

Subject: Approval of the thesis proposal **"Quality of Life among the Low Back Pain Patients Attending Institute of Traumatology and Orthopaedic Rehabilitation (NITOR)"** by ethics committee.

Dear Rakibul Islam Shanto
Congratulations.
The Institutional Review Board (IRB) of SCMST has reviewed and discussed your application to conduct the above-mentioned dissertation, with yourself, as the principal investigator. The Following documents have been reviewed and approved:

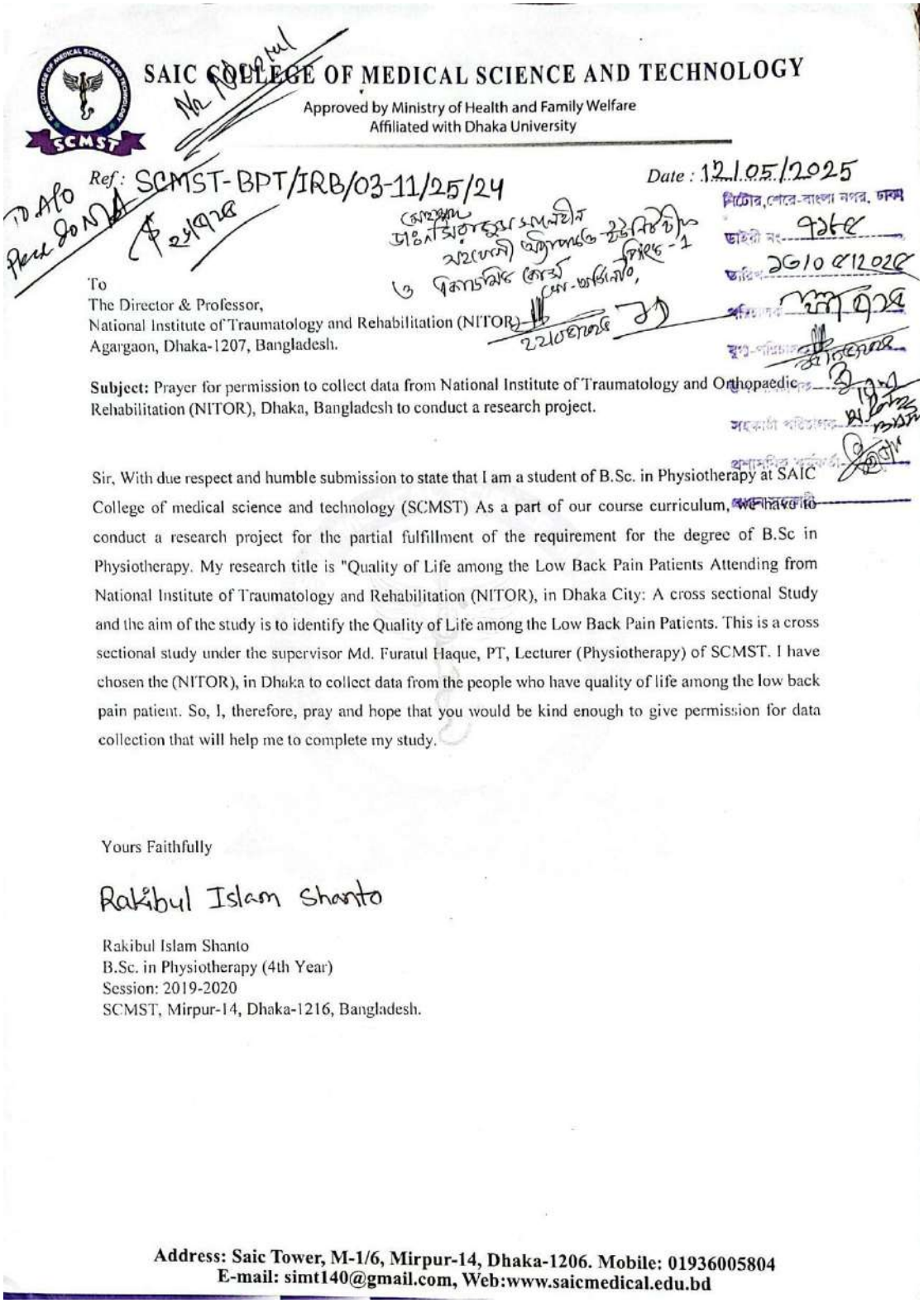
Sr. No.	Name of the Documents
1	Research proposal.
2	Structured Questionnaire (English & Bangla version)
3	Information sheet & consent form.

The purpose of the study is to determine the prevalence of and associated factors for shoulder pain among the Bangladeshi handball player. The study involves face to face interview by using structured questionnaire to determine the prevalence of and associated factors for shoulder pain among the Bangladeshi handball player that may take 30 to 40 minutes to fill in the questionnaire and there is no likelihood of any harm to the participants. The members of the Ethics committee have approved the study to be conducted in the presented form at the meeting held at 09.00 AM on 28th September 2023 at SCMST.

The institutional Ethics committee expects to be informed about the progress of the study, any changes occurring during 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,
04.09.24
Dr. Abul Kasem Mohammad Enamul Haque
Principal, SCMST &Chairman, Institutional Review Board (IRB)
SAIC College of Medical Science & Technology (SCMST)
Mirpur-14, Dhaka-1216, Bangladesh

HOSPITSL PERMITION



SAIC COLLEGE OF MEDICAL SCIENCE AND TECHNOLOGY

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

Ref.: SCMST-BPT/IRB/03-11/25/24

Date : 12/05/2025

To
The Director & Professor,
National Institute of Traumatology and Rehabilitation (NITOR)
Agargaon, Dhaka-1207, Bangladesh.

Subject: Prayer for permission to collect data from National Institute of Traumatology and Orthopaedic Rehabilitation (NITOR), Dhaka, Bangladesh to conduct a research project.

Sir, With due respect and humble submission to state that I am a student of B.Sc. in Physiotherapy at SAIC College of medical science and technology (SCMST) As a part of our course curriculum, we have to conduct a research project for the partial fulfillment of the requirement for the degree of B.Sc in Physiotherapy. My research title is "Quality of Life among the Low Back Pain Patients Attending from National Institute of Traumatology and Rehabilitation (NITOR), in Dhaka City: A cross sectional Study and the aim of the study is to identify the Quality of Life among the Low Back Pain Patients. This is a cross sectional study under the supervisor Md. Furatul Haque, PT, Lecturer (Physiotherapy) of SCMST. I have chosen the (NITOR), in Dhaka to collect data from the people who have quality of life among the low back pain patient. So, I, therefore, pray and hope that you would be kind enough to give permission for data collection that will help me to complete my study.

Yours Faithfully

Rakibul Islam Shanto

Rakibul Islam Shanto
B.Sc. in Physiotherapy (4th Year)
Session: 2019-2020
SCMST, Mirpur-14, Dhaka-1216, Bangladesh.

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