PREVALENCE OF LOW BACK PAIN AMONG WEIGHTLIFTING AND NON-WEIGHTLIFTING UNDERGRADUATE STUDENTS IN THE UNIVERSITY OF BENIN, BENIN CITY, EDO STATE, NIGERIA.

BY

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CERTIFICATION

This dissertation by **Caleb Chukwuemeka Enemuochukwu** is accepted in its present form as satisfying the dissertation requirement of the Bachelor of Physiotherapy of the School of Basic Medical Sciences, College of Medical Sciences of the University of Benin.

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DEDICATION

To God Almighty, who made this work a success and to my parents and siblings for their unwavering support.

ABSTRACT

Background: Low back pain (LBP) is the most common musculoskeletal (MSK) ailment in the general population. Weightlifting is a popular activity that puts so much strain on the body's muscles and predisposes athletes to LBP. The lower back is the most often damaged body part in weightlifting and weightlifting is the one that increases the risk of LBP in all sports. There is a dearth of knowledge regarding the association between LBP and weightlifting among university students.

Aim: The study aims to investigate the prevalence of low back pain and determine it's potential risk factors among weightlifting and non-weightlifting undergraduate students of the University of Benin.

Methods: A total of 104 students comprising of 52 weightlifters and 52 non-weightlifters were selected across the university with the use of snowball and convenience sampling. An adapted version of the Nordic Musculoskeletal questionnaire was used to obtain information on socio-demographic data, weight-lifting characteristics and occurrence of LBP. Descriptive statistics such as percentage and inferential statistics such as Chi-square were used to summarise the data. Alpha level was 0.05.

Results: Weightlifters (WLFs) have a higher lifetime prevalence of LBP 82.69(%) compared to non-weightlifters (NWLFs) 71.15(%). The difference in between lifetime and 7 days prevalence among both weightlifters and non-weightlifters was statistically significant (p= 0.000). Frequency of weightlifting was significantly associated with LBP (p= 0.019).

Conclusion: There is a high prevalence of low back pain among weightlifting and non-weightlifting undergraduate students in University of Benin. Significant association were found between frequency of weightlifting with the occurrence of LBP.

Keywords: Low back pain, weightlifters , non-weightlifters, prevalence

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INTRODUCTION

1.1 Background of study

Low back pain is defined as pain in the back located between the lower ribs and the buttocks, which may or may not radiate down one or both legs and the pain must last for at least one day (Hoy *et al.,* 2014). Previous research has shown that low back pain (LBP) is the most common musculoskeletal (MSK) ailment in the general population, with an 85% to 90% lifetime incidence (Jones & Kumar, 2001). Anderson (1999) estimated that adults globally have a yearly low back pain incidence of 15% and a point prevalence of 30%. According to (Hoy *et al.,* 2012), the mean lifetime prevalence of LBP worldwide is estimated to be 38.9% and the condition is more common in women and those between the ages of 40 and 80. The estimated lifetime prevalence of LBP in Africa is 47%, whereas the one-month prevalence is 57% and the point prevalence is 39% (Morris *et al.,* 2018). A mean prevalence of 55.39 percent is reported for LBP in Nigeria over 12 months, ranging from 32.5% to 73.5% (Bello *et al.,* 2017). LBP is a multifaceted syndrome with contributing factors extending beyond biomechanics. Stress, anxiety, and depression can manifest as physical pain, while factors like smoking, obesity, and sedentary habits can exacerbate mechanical dysfunctions. While musculoskeletal imbalances, improper posture, and previous weight-lifting injuries undoubtedly play a role, a holistic understanding necessitates acknowledging the interplay of psychological and lifestyle elements.

Weightlifting is a popular activity that puts much strain on the body's muscles and predisposes athletes to LBP (Fares *et al.,* 2020). It is utilized to enhance the dimensions, form, and balance of

the person's surface muscles, making them more substantial, prominent, and well-defined (Kent, 2017). It involves lifting heavy weights to increase muscular build and strength. Lifting weights has been linked to a higher incidence of LBP, even though it has many positive health effects. Grier *et al*. (2022), found that the prevalence of weight training injuries after 12 months was 4.5 for males and 0.6 for females among US Army Division members. A study on female college students discovered that their inability to learn how to use free weights and other types of resistance training could be a deterrent to their engaging in resistance training (Hurley *et al*., 2018). According to a different study, weightlifting regularly may have benefits for both physical and mental health (Keating *et al*., 2013). Repetitive movements, heavy loads, and improper lifting techniques can strain the lower back muscles and joints, causing pain and discomfort. The lower back is the most often damaged body part in weightlifting (Calhoon & Fry, 1999) and weightlifting is the one that increases the risk of LBP in all sports (T Videman *et al*., 1995). Improper execution and excessive weight in weightlifting frequently lead to lower back injuries, making LBP a prevalent complaint in the sport (Iman Vahdat *et al*., 2017).

Several studies have shown the prevalence of LBP in non-weightlifting undergraduate students who may engage in other sports activities or are exposed to other risk factors that predispose them to LBP. According to a study conducted on undergraduate students at a sports and physical education center in Tunisia, 14.8% of the participants had LBP, with females having a higher frequency (17.6%) (Triki *et al*., 2015). Another study found that 82.0% of Qassim University medical students had LBP in their cross-sectional study (Alwashmi *et al*., 2023). Studies examining the risk factors for LBP among physiotherapy students have revealed a prevalence of 61% in one study (Trompeter *et al*., 2017). Numerous factors, such as income, sedentary lifestyle, obesity, and physical inactivity, could account for these correlations (Hoy *et al.,* 2010; Dighriri *et*

al., 2019; Wong *et al*., 2021). Aggarwal *et al*. (2013) conducted a study on LBP and related risk factors among undergraduate students at a medical college in Delhi, which revealed that life skills education, counselling, and curriculum restructuring are necessary due to the high prevalence of LBP among medical students and its correlation with bad study habits, lifestyle choices, and psychological factors. Long periods of sitting while studying or using a computer can cause LBP in many university students (AlShayhan & Saadeddin, 2017; Daldoul *et al.,* 2020). According to a Saudi Arabian university study, sedentary lifestyles and poorer sleep quality were associated with increased pain levels in the participants (Alshehri *et al*., 2023). Students are more likely to participate in harmful habits that negatively impact their health, like stress, inactivity, and sedentary lifestyles (Almutairi *et al*., 2018).

There is a dearth of knowledge regarding the association between LBP and weightlifting among university students. While some studies have indicated that lifting weights may raise one's risk of low back LBP, others have claimed that lifting weights may prevent or lessen LBP (Shiri *et al.,* 2018; Fares *et al*., 2020). The contradicting findings could be caused by the disparities in the definitions, approaches, and metrics used to quantify LBP and weightlifting, as well as the inability to account for potentially confounding variables such as body mass index, age, sex, or other lifestyle choices. Consequently, a more thorough and consistent study is required to ascertain the prevalence and risk factors of LBP in university students who lift weights and those who do not.

This study aims to compare the prevalence of LBP among weightlifting and non-weightlifting undergraduate students at the University of Benin. The results of this study could support safe and efficient weightlifting practices as well as increase students' awareness of and ability to prevent and manage LBP.

1.2 Statement of the problem

A large percentage of undergraduate students suffer from LBP, which negatively affects both their well-being and academic performance. With an emphasis on separating the experiences of weightlifting and non-weightlifting populations, this study explores the specific topic of LBP prevalence and risk factors among university students. It is important to research the prevalence of LBP among undergraduate weightlifters since it can shed light on the possible dangers of this popular exercise. Furthermore, to provide a baseline comparison and discover other potential risk factors that are unrelated to weightlifting, it is imperative to evaluate the prevalence of LBP among students who do not engage in weightlifting exercise. Previous research has indicated that weightlifters have a higher risk of LBP. Fares *et al*. (2020) conducted a study to explore the nature and cause of LBP in weightlifting adolescents and young adults. Eighty-seven men and six women were recruited for the study, all of whom participated in weightlifting exercises. The study concluded that weightlifting predisposes athletes to LBP, but to the best of the researcher's knowledge, no studies have been done on the prevalence of LBP among university students who engage in weightlifting. Additionally, these studies have not compared the prevalence of LBP between weightlifting and non-weightlifting university students.

This study will therefore aim to answer the following questions:

i. What is the prevalence of low back pain among weightlifting undergraduates in University of Benin?

ii. What is the prevalence of low back pain among non-weightlifting undergraduates in University of Benin?

iii. Will there be a significant difference in the prevalence of low back pain between weightlifting and non-weightlifting undergraduates in University of Benin?

iv. What are the risk factors associated with low back pain among weightlifting undergraduates in University of Benin?

1.3 Aims of the study

This study aims to investigate the prevalence of low back pain and determine its potential risk factors among weightlifting and non-weightlifting undergraduates of the University of Benin.

1.3.1 Specific Objectives

The specific objectives of this study are to:

i. Determine the prevalence of low back pain among weightlifting and non-weightlifting undergraduates in University of Benin.

ii. Examine if there is any significant difference in prevalence of low back pain among weightlifting and non-weightlifting undergraduates in University of Benin.

iii. Assess the association between weight mass lifted and prevalence of low back pain among weightlifting undergraduates in University of Benin.

iv. Evaluates if there is any significant association between frequency of weightlifting and prevalence of low back pain among weightlifting undergraduates in University of Benin.

v. Establish if there is any significant association between body mass index and prevalence of low back pain among weightlifting undergraduates in University of Benin.

vi. Determine if there is any significant association between duration of weightlifting and prevalence of low back pain.

1.4 Hypotheses

1.4.1 Main hypotheses

i. There would be no significant difference between lifetime and 7 days prevalence of LBP among the weightlifters.

ii. There would be no significant difference between lifetime and 7 days prevalence of LBP among the non-weightlifters.

iii. There would be no significant difference in lifetime prevalence of LBP between weightlifters and non-weightlifters.

iv. There would be no significant difference in 7 days prevalence of LBP between weightlifters and non-weightlifters.

1.4.2 Sub Hypothesis

i. There would be no significant association between the body mass index of weightlifting students and prevalence of low back pain.

ii. There would be no significant association between the frequency of weightlifting and low back pain.

iii. There would be no significant association between weight mass and low back pain

iv. There would be no significant association between duration of weightlifting and their prevalence of low back pain.

1.5 Significance of study

i. The outcome of the study may help create and execute preventative measures inside university fitness centers and weightlifting clubs by providing insight into the association between low back pain and weightlifting.

ii. It can lessen the impact of low back pain and enhance the well-being of this significant population group by identifying modifiable risk factors.

iii. There is a lot of study on low back pain in sports, but not much of it focuses on university students who lift weights. This study has the potential to generate important new knowledge in the field, guiding future approaches to this population's care and research.

1.6 Scope of the study

This study is delimited to:

i. Students undergoing their undergraduate studies at the University of Benin.

ii. Students who have had at least one-year duration of weightlifting training.

iii. Students who had never participated in weightlifting training.

iv. Students between the age of 18 and 32 years.

1.7 Limitations of the study

Limitations of the study include:

i. The prevalence of low back pain was self-reported, hence there may be disparity between the prevalence rate in this study and actual overall prevalence among University students.

ii. This study was carried out among weightlifting and non-weightlifting undergraduate students in University of Benin, there should be caution in the application of the findings of this study to other Universities.

1.8 Definition of operational terms

i. **Prevalence:** The percentage of a population affected by a specific illness or medical condition at a given moment (Merriam-Webster Dictionary).

ii. **Low back pain:** Pain and discomfort in the lower back that is located above the inferior gluteal fold and below the 12th costal margin, either with or without lower limb radiating symptoms (WHO, 2013).

iii. **Weightlifting:** the activity of lifting heavy objects either as a sport or for exercise (Cambridge Advanced Learner's Dictionary).

iv. **Sedentary:** not physically active (Merriam-Webster Dictionary).

v. **Undergraduate:** A student at a college or university who has not received a first and especially a bachelor's degree (Merriam-Webster Dictionary).

1.9 List of Abbreviations

i. LBP: Low Back Pain

ii. BMI: Body Mass Index

iii. NMQ: Nordic Musculoskeletal Questionnaire

CHAPTER TWO

LITERATURE REVIEW

2.1 Definition

Low back pain is defined as pain in the back located between the lower ribs and the buttocks, which may or may not radiate down one or both legs and the pain must last for at least one day (Hoy *et al*., 2014). It refers to localized soreness or stiffness in the lower back, usually between the ribs and the gluteal folds (American Academy of Orthopaedic Surgeons, 2019).

2.2 Epidemiology

The primary cause of disability globally is low back pain, which also has a substantial financial impact due to its correlation with decreased productivity at work (Global Burden of Disease Study, 2023). In 2017, it was projected that the point prevalence of low back pain was approximately 577.0 million people worldwide (Wu *et al.,* 2020). Low back pain is more common in women than in men, peaking in instances between the ages of 50 and 55 and peaking in older adults between the ages of 80 and 85 (Hoy *et al*., 2010). Anderson (1999), estimated that adults globally have a yearly low back pain incidence of 15% and a point prevalence of 30%. The prevalence of persistent low back pain among patients in South Africa was found to be 22.2%, according to (Kahere *et al*., 2022) a scoping review on the epidemiology of the condition in Sub-Saharan Africa. According to (Hoy *et al.,* 2012), the mean lifetime prevalence of low back pain worldwide is estimated to be 38.9% and the condition is more common in women and those between the ages of 40 and 80. The estimated lifetime prevalence of low back pain in Africa is 47%, whereas the one-month prevalence is 57% and the point prevalence is 39%

(Morris *et al*., 2018). A mean prevalence of 55.39 percent is reported for low back pain in Nigeria over 12 months, ranging from 32.5% to 73.5% (Bello *et al*., 2017).

2.3 Anatomy of the back

The back is formed by the posterior part of the trunk (torso), which is superior to the gluteal area and inferior to the neck. The spinal cord and lumbar region are included. The cranium's base to the coccyx's tip is where the column begins. The column transfers and supports weight to the pelvis and lower limbs while also safeguarding the spinal cord. What the head, neck, and limbs are attached to is the back of the body. The back includes the following structures:

I. **Skin and subcutaneous tissue.**
II. **Muscles:** a deeper layer, commonly referred to as the actual muscles of the back, that are particularly involved with moving or maintaining posture, and a superficial layer that is mostly associated with placing and moving the upper limbs.
III. **Vertebral column:** the intervertebral (IV) discs, the vertebrae, and the related ligaments.
IV. **Ribs (in the thoracic region):** especially the areas behind them, directly behind the rib angles.
V. **Spinal cord and meninges (membranes covering the spinal cord).**
VI. **Various segmental nerves and vessels.** (Moore *et al*., 2013).

2.3.1 Lumbar Vertebrae

The lower back, also referred to as the lumbar spine, is composed of five bones called lumbar vertebrae. As the largest and strongest vertebrae in the spine, they are important for facilitating

movement and bearing the weight of the body. The lumbar vertebrae are the biggest and strongest in the entire spine, and they are located between the sacrum (tailbone) and the thoracic vertebrae (upper back). Their enlarged size is indicative of their vital function in bearing your weight and enabling movement.

Each lumbar vertebra has a similar overall structure, consisting of:

i. Vertebral Body: The kidney-shaped front portion forms the main weight-bearing element.

ii. Vertebral Arch: Composed of two bony plates (laminae) and two struts (pedicles), it encloses the spinal canal, protecting the delicate spinal cord.

iii. Spinous Process: The bony projection pointing posteriorly (towards your back), providing attachment points for muscles and ligaments.

iv. Transverse Processes: Two bony projections extending sideways, serving as anchor points for abdominal and back muscles.

v. Superior and Inferior Articular Facets: Flat surfaces on the sides that allow articulation (joint movement) with adjacent vertebrae.

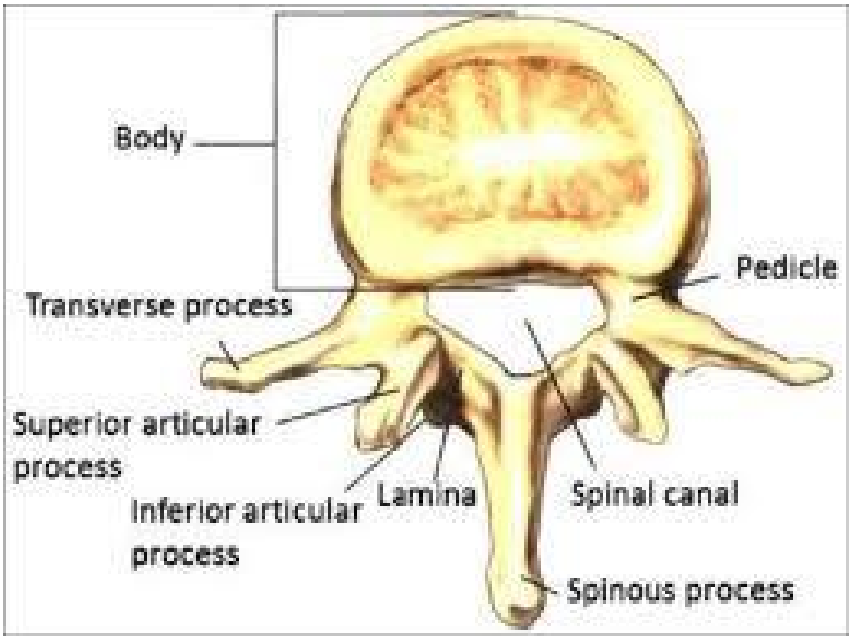

Figure 1

Figure 1. superior view of the lumbar vertebrae

Image source: Moore, Clinically Oriented Anatomy. 7th Edition. Pg. 442.

2.3.2 Muscles of the back

The muscles of the back are the intricate and vital set of muscles that make up the back. They support the spine, move the arms and shoulder blades, and aid in breathing. Henson *et al.,* (2020) divided the back's muscles into three groups**:**

i. Superficial muscles: These are the muscles that are visible and palpable on the outside. They consist of the levator scapulae, rhomboids, latissimus dorsi, and trapezius.

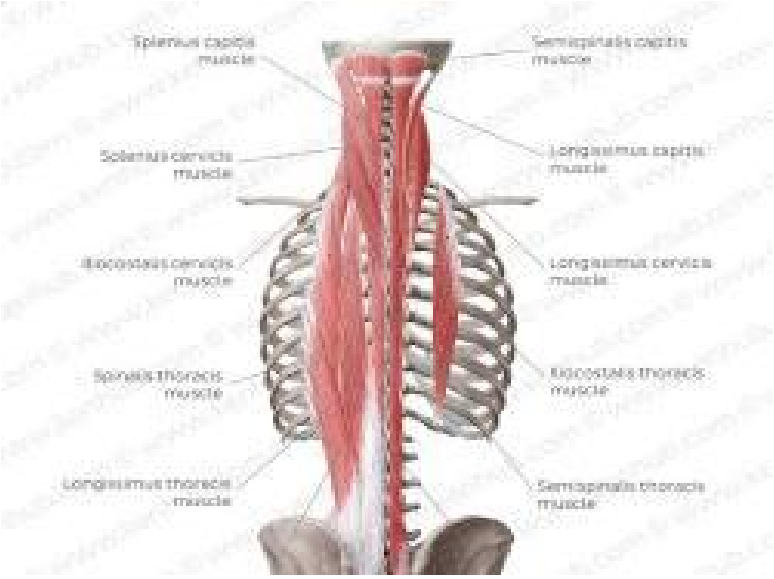

Figure 2

Figure 2. superficial muscles of the back

Image Source: Kenhub

ii. Intermediate muscles: These are situated deeper than the superficial muscles, and the ribs serve as the attachment point. They support the movement of the spine and ribs during breathing. The serratus posterior superior and the serratus posterior inferior are the two primary intermediate muscles.

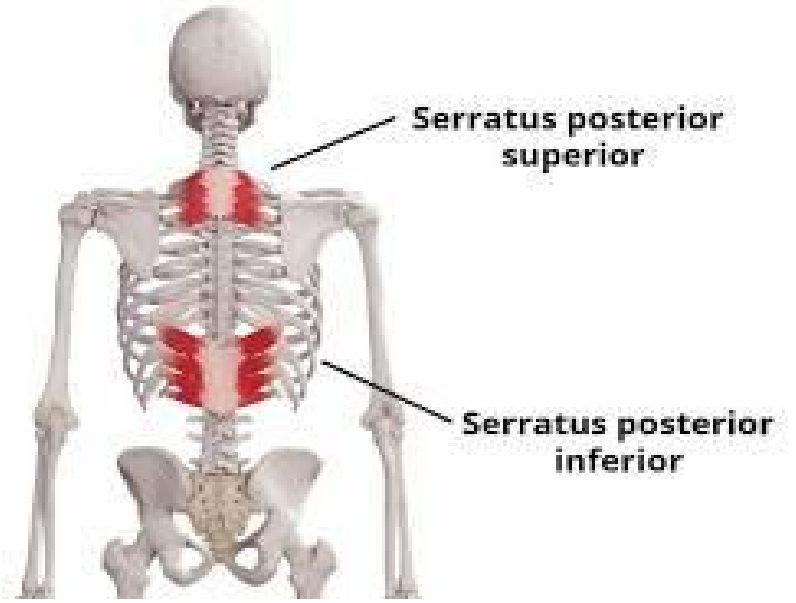

Figure 3

Figure 3. Intermediate muscles of the back

Image source: teachmeanatomy

iii. Intrinsic muscles: These are the innermost layer of muscles and are affixed to the vertebrae. They aid in stabilizing and regulating the spine's motion. The erector spinae, multifidus, and rotatores are the three primary intrinsic muscles. (Moore *et al.,* 2013; Henson *et al.,* 2020).

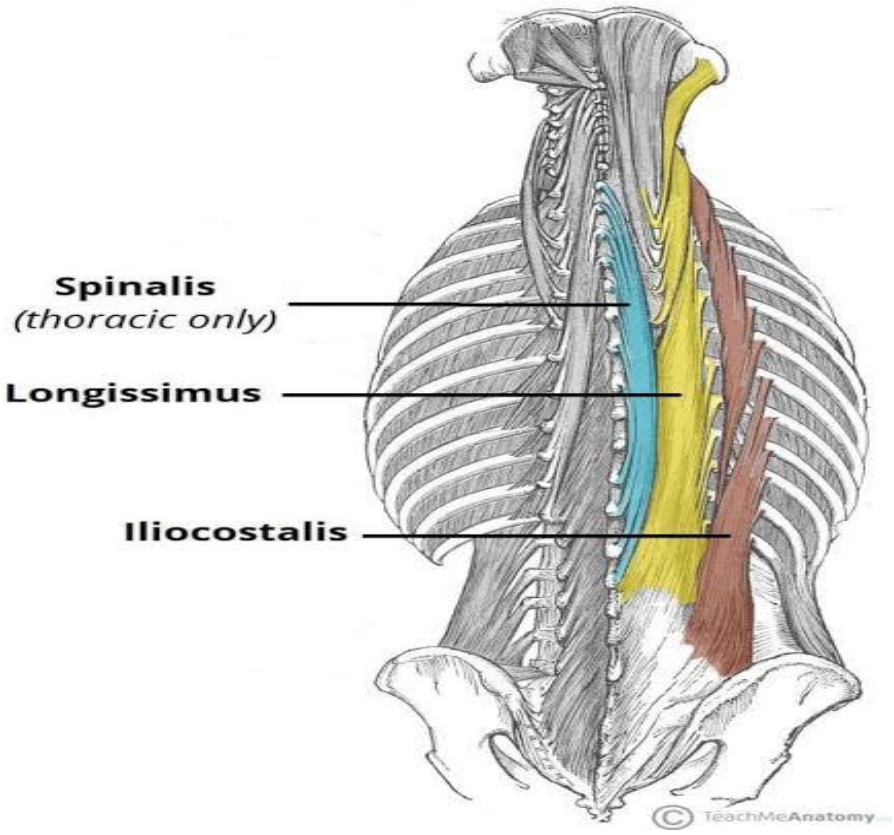

Figure 4

Figure 4. Intrinsic muscles of the back

Image source: teachmeanatomy

2.3.3 Ligaments and Tendons

The stability and motion of the spine are greatly influenced by the functions of tendons and ligaments. Ligaments are fibrous bands that join two or more bones and give support both when in motion and at rest. A number of significant ligaments are located in the back, including the ligamentum flavum, anterior longitudinal ligament (ALL), posterior longitudinal ligament (PLL), and interspinous ligaments. Tendons, on the other hand, are what connect muscles to bones to enable movement as well as to support and stabilize the upper body and spine.

2.4 Etiology

Back pain is a wide-ranging issue with numerous possible causes that fall primarily into five groups:

i) Mechanical: This most often results from damage to the soft tissues, intervertebral discs, or spine. Spondylolisthesis is one example of a fracture that can occur suddenly or gradually. Lumbago is commonly diagnosed as acute back discomfort or as a strain on the paraspinal or quadratus lumborum muscles. One typical cause of traumatic back pain is disc herniation. Back discomfort can also be mechanically caused during pregnancy.

ii) Cancerous: This is brought on by lytic lesions of the spine, marrow malignancies, or compressive nerve problems resulting from nearby space-occupying lesions. frequently showing up as a pathological fracture.

iii) Inflammatory: Seronegative inflammatory spondyloarthropathies, like ankylosing spondylitis, are the main cause of this. The most frequent occurrence is sacroiliitis. Depending on the cause, back pain has a different pathophysiology. The majority of the time, it might be a component of acute inflammation.

iv) Infectious: Abscesses in the muscles or soft tissues, discs, spine, or epidural areaIt is crucial to remember, though, that a number of conditions unrelated to the back, like biliary colic, pneumonia, and obstructive or infectious renal disease, can cause pain that a patient feels in the back.

v) Degenerative: The facet joint, sacroiliac joint, spinal stenosis, and degenerative disc disease are among the conditions that constitute osteoarthritis of the spine. In addition, degeneration is also a factor in osteoporotic compressive fractures.

Consequently, when assessing the patient, it is advisable to consider these processes in your differential diagnosis. (Patrick *et al*., 2014).

2.5 Risk Factors

Back pain increases with age and typically initially manifests in people between the ages of 30 and 40. Smokers are at a significantly higher risk because of the negative consequences of coughing, decreased blood supply to the spine, and osteoporosis, in addition to other concerns including weak muscles from inactivity and stress from being overweight (Mayo clinic, 2019). Low back pain is a multifaceted syndrome with contributing factors extending beyond biomechanics. Stress, anxiety, and depression can manifest as physical pain, while factors like smoking, obesity, and sedentary habits can exacerbate mechanical dysfunctions. Hershkovich *et al.* (2013) also found a correlation between low back discomfort and larger body mass indices as well as greater height. Sleep deprivation, poor sleep quality, and awkward sleeping positions can all make low back pain worse (Kovacs *et al*., 2003). Long periods of sitting while studying or using a computer can cause low back pain in many university students (AlShayhan & Saadeddin, 2017; Daldoul *et al*., 2020).

2.6 Classification of low back pain

2.6.1 Classification in terms of chronicity

The issue of low back pain can be divided into three categories: acute (less than six weeks),

subacute (between six and twelve weeks) and

chronic (more than twelve weeks).

In addition to being categorized according to the location of the pain. While 10–40% of non-chronic patients experience symptoms that persist longer than six weeks, the majority of patients experience acute pain that is self-limited for no more than six weeks. Patients with acute and subacute low back pain are treated differently from those with persistent pain (Atlas & Deyo, 2001; Heuch *et al*., 2013). Chronic back pain is defined as low back pain lasting more than 12 weeks. Up to one-third of individuals with low back pain report moderate-to-severe low back pain continuing a year after an acute episode (Atlas & Deyo, 2001). Treatment for people with persistent back pain is best approached logically and interdisciplinaryly, utilizing the medical, psychological, physical, and interventional modalities listed below (Elkayam *et al*., 1996).

2.6.2 Classification in terms of etiology

Low back pain is conventionally classified into specific and non specific (Balague *et al.,* 2012).

i) Specific: a disorder with an obvious etiology, such as a structural problem (herniated disc, spinal stenosis, fracture), or an inflammatory disease, tumor, or infection. It usually presents with specific symptoms such as shooting or intense pain, weakness, tingling, numbness, or radiating leg discomfort (sciatica). Specific therapies, such as medication, physical therapy, surgery, or

other relevant interventions, are required for effective management in order to address the underlying problem (American Academy of Orthopaedic Surgeons, 2023; Mayo clinic, 2023).

ii) Non-specific: Is the most prevalent type of the condition. This phrase is used when the pathoanatomical source of the pain cannot be identified (Maher *et al*., 2017). Most cases (between 80 and 90%) lack a clear explanation; in these cases, the exact origin of the pain is still unknown, most likely resulting from a combination of conditions such as disc degeneration, bad posture, muscle strain, and ligament sprain. appears as a variety of symptoms that vary in degree and location, such as dull, agonizing pain, tightness, stiffness, and trouble bending or moving. usually treated conservatively, which includes rest, analgesics, physical therapy, exercise, and alterations to lifestyle. Surgery is rarely necessary (American Academy of Orthopaedic Surgeons, 2023; Mayo clinic, 2023).

2.7 Symptoms of Low Back Pain

Back pain might feel like anything from a stabbing, burning, or shooting sensation in the muscles. Moreover, the discomfort may radiate down a leg. It can get worse as you bend, twist, raise, stand, or walk (Mayo clinic, 2023). Most individuals with acute LBP recover well, and most cases of the condition resolve on their own. For other people, though, the symptoms may worsen and develop into chronic pain. Leg discomfort associated with the spine (often referred to as sciatica or radicular pain) can also affect people with LBP. Many people describe this as either a sudden electric jolt or a dull sensation. Leg discomfort may be accompanied by numbness or tingling as well as weakening in some muscles. Radicular signs and symptoms are frequently

caused by the involvement of a spinal nerve root when they are linked to lower back pain. When a nerve is damaged or squeezed far from the spinal column, some patients may have radicular symptoms without lower back pain (WHO, 2023). It is imperative to seek immediate medical assistance when experiencing red flag symptoms such as sudden and intense pain, weakness in the legs, fever, or unexplained weight loss, as these may suggest a serious underlying disease.

2.8 Management of Low Back Pain

Millions of individuals throughout the world suffer from low back discomfort, which is extremely prevalent. The bright side is that there are a lot of useful management techniques accessible, even though they can be annoying and crippling. Exercises to build stomach and back muscles, enhance flexibility, and correct posture can all be taught by a physical therapist. Using these methods on a regular basis can help prevent discomfort from coming again. Physical therapists will also instruct patients on how to adjust their motions during a back pain episode so they can stay active without exacerbating their pain (Mayo clinic, 2023). In a multidisciplinary approach, addressing psychosocial and motivational variables is equally critical to minimizing disability and improving analgesic efficacy. Cognitive-behavioral therapy (CBT), progressive relaxation, and biofeedback are examples of psychological therapeutic modalities. CBT is a goal-oriented method for altering behavior and elevating mood that focuses on dysfunctional thought patterns and coping mechanisms. RCT data suggests a temporary improvement in pain and impairment (Chou, 2014). In order to maximize patients pleasure and involvement in the treatment process, patient education also includes clearing up any misunderstandings or concerns they may have and talking about reasonable expectations regarding the prognosis of low back pain (Qaseem *et al.,* 2017).

2.9 Empirical Review

S/N	Name/Year/ Country	Title	Aim	Design/Sample Size	Result	Conclusion
1	(Hoy et al., 2012)/ Australia	A Systematic Review of the Global Prevalence of Low Back Pain	To perform a systematic review of the global prevalence of low back pain, and to examine the influence that case definition, prevalence period, and other variables	A total of 165 studies from 54 countries were identified. Of these, 64% had been published since the last comparable review.	Low back pain was shown to be a major problem throughout the world, with the highest prevalence among female individuals and those aged 40–80 years. After adjusting for methodologic variation, the mean ± SEM point prevalence was	As the population ages, the global number of individuals with low back pain is likely to increase substantially over the coming decades. Investigators are encouraged to adopt recent recommendations for a standard definition of low back pain and to consult a recently developed tool for assessing the risk of bias of prevalence studies.

			have on prevalence.		estimated to be 11.9 ± 2.0%, and the 1-month prevalence was estimated to be 23.2 ± 2.9%..	
2	(Morris et al., 2018) , South Africa	An update on the prevalence of low back pain in Africa: a systematic review and meta-analyses.	A comprehensive search of all accessible bibliographic databases was conducted. Population-based studies into the prevalence of	Sixty-five studies were included in this review	The majority of the studies were conducted in Nigeria (n = 31;47%) and South Africa (n = 16;25%). Forty-three included studies (66.2%) were found to be of higher methodological quality. The pooled	This review found that the lifetime, annual and point prevalence of LBP among African nations was considerably higher than or comparable to global LBP prevalence estimates reported. Due to the poor methodological quality found among many of the included studies, the over-representation of affluent countries and the difficulty in sourcing and retrieving potential

			LBP among children/adolescents and adults living in Africa were included. Methodological quality of included studies was appraised using an adapted tool. Meta-analyses, subgroup analyses,		lifetime, annual and point prevalence of LBP in Africa was 47% (95% CI 37;58); 57% (95% CI 51;63) and 39% (95% CI 30;47), respectively.	African studies, it is recommended that future African LBP researchers conduct methodologically robust studies and report their findings in accessible resources.

			sensitivity analyses and publication bias were also conducted.Afri can studies.			
3	Bello et al., 2017) / Nigeria	A Systematic Review on the Prevalence of Low Back Pain in Nigeria.	it is necessary to collect data that can help to identify a point or annual prevalence that guides practice and policy making.	A total of 103 studies were yielded among which 12 studies were relevant.	The 12-month prevalence of LBP was commonly reported, and it was estimated from 32.5% to 73.53%. All of the reviewed studies were occupational based and did not depict a	The findings of the current review demonstrated a high prevalence of LBP among workers. Future studies with appropriate methodological design on a general population helps to identify the impact of LBP in Nigeria

					true general population prevalence of LBP.	
4	Birabi et al. 2012/ Nigeria.	Prevalence of low back pain among peasant farmers in a rural community in South South Nigeria	This study was undertaken to assess the prevalence and predominant causes of low back pain (LBP) among peasant farmers in Ebubu community in South-south	This was a community based cross-sectional study of 310 consenting, adult, full-time farmers, recruited using a two-stage cluster sampling scheme developed by WHO. Specially trained community health extension workers interviewed	Of the 310 apparently healthy farmers (age range 18-58 years [mean 36.71±8.98]; 132 males) sampled, 208 had LBP (67.10%). Low back pain was more prevalent in the 31-40 years age group (49.04%), females (50.96%), those who were non-	This study indicates that LBP is a prevalent health problem among rural peasant farmers. It was more prevalent in the middle-aged groups, and among females, the non-obese and tall individuals, and those who had been farming for a long duration. Severe LBP was linked to aging, high BMI and those above average height.

			Nigeria.	participants using a pre-tested questionnaire designed by the authors to solicit information on defined LBP. Socio-demographic characteristics were also obtained.	obese (68.95%) or tall (73.2%) and those who had practiced farming for a long duration. Severe LBP was significantly ($p<0.05$) linked to aging (51-60 years group), low BMI and those above average height (1.60 m).	

CHAPTER THREE

MATERIALS AND METHODS

3.1 Participants

3.1.1 Participant Selection:

This study was conducted among both male and female undergraduates of the University of Benin, Benin City.

3.1.2 Inclusion Criteria

i. Participants must be full-time undergraduates of the University of Benin between the ages of 18 and 32 years.

ii. Participants must be undergraduates with a weightlifting training duration of at least 1 year.

iii. Participants must be undergraduates who have never engaged in weightlifting

3.1.3 Exclusion Criteria

i. Undergraduates with obvious disability or impairments.

ii. Undergraduates who are unable to provide informed consent for the study.

3.2 Materials

3.2.1 Apparatus/Instrument

i. **Weighing scale:** This was used to measure the weight of the participants.

ii. **Stadiometer:** This was used to measure the height of the participants.

iii. **Nordic Musculoskeletal Questionnaire (NMQ):** This is a self-administered questionnaire developed in 1987 by Kuorinka *et al*., the Nordic Musculoskeletal Questionnaire serves as a standardized instrument for examining musculoskeletal symptoms in populations within ergonomic and occupational health contexts. Its validity was assessed against clinical history, revealing discordant responses ranging from 0% to 20% (Kuorinka *et al*., 1987). For pain within the past 7 days, the questionnaire exhibits sensitivity ranging from 66% to 92% and specificity ranging from 71% to 88% (Ohlsson *et al*., 1994). Sensitivity peaked at the shoulders and dipped at the neck, while specificity peaked at the elbows and dipped at the shoulders (Ohlsson *et al*., 1994). Test-retest reliability analysis using the Nordic Musculoskeletal Questionnaire demonstrated discordant responses ranging from 0% to 23% (Kuorinka *et al*., 1987). The questionnaire demonstrates good reliability for assessing musculoskeletal symptoms, with kappa coefficients ranging from 0.64 to 0.71 for pain within the past week, 0.73 to 0.82 for pain within the past year, and 0.59 to 0.78 for pain within the past year that impacts work or leisure (Palmer *et al*., 1999).

iv. Information to be collected from the participants include; Demographic data of the respondents, including their age, gender, weight and height.

v. Intensity of the weightlifting activity.

vi. Frequency of engagement in weightlifting activity.

vii. Duration of weightlifting activity.

viii. Area of the body at which the participant had perceived discomfort within 7 days and 12 months before the administration of the questionnaire.

ix. The total duration of time during which they felt pain or discomfort in the various parts of their body.

x. How the pain or discomfort has affected the performance of the basic and functional activities of daily living.

xi. What treatment or medical visits have they undergone to address the pain or discomfort?

3.3 Methods

3.3.1 Research Design

This research was a comparative cross-sectional study.

3.3.2 Sampling Technique

Weightlifting undergraduate students was selected from various weightlifting clubs within the University of Benin via snowball and convenience sampling and non-weightlifting undergraduate students was selected from various departments via snowball and convenience sampling.

The sample sizes for this study was calculated using Slovin's sample size formula n=N/(1+N(e)2

Where,

n = the sample size

N = the population of the study

e = the margin error in the calculation.

The estimated number of weightlifting and non-weightlifting undergraduates is 60 and 60 respectively.

For the weightlifting undergraduates;

N = 60, e = 0.05

n = 60/(1+60(0.05)2

n = 52

The sample size for weightlifting undergraduate students was 52.

For the non-weightlifting undergraduates;

N = 60, e= 0.05

n = 60/(1+60(0.05)2

n = 52

The sample size for non-weightlifting undergraduate students was 52.

3.3.3 Procedure for data collection

The essence of the research and the procedure for the cross-sectional survey was explained to the participants once the criteria have been met. The questionnaires was distributed after their consent has been sought and obtained. The questionnaires to be filled out was divided into two (2) sections. Section A is a socio-demographic questionnaire, and Section B is the Standardized

Nordic Musculoskeletal Questionnaire (NMQ). After completing each questionnaire, the questionnaires was retrieved from the respondents.

3.3.4 Procedure for Assessments and Measurements

The weighing scale was used to measure the weight of the participants. The height of the participants was taken using the stadiometer and then the questionnaire was given to the participants for self-administration.

3.3.5 Ethical consideration

Ethical approval was obtained from the Research Ethical Committee of the College of Medical Sciences before the commencement of this study. Students were properly informed about the purpose of the study; participation were voluntary, and they were asked to sign a written informed consent before the research study begins properly.

3.3.6 Data Analysis

Data was analyzed using the International Business Machine (IBM) Statistical Package for Social Sciences (SPSS) version 24.0. Descriptive statistics of percentage and frequency was used to summarize participants' socio-demographic variables. Descriptive statistics such as percentages was used to summarize the data and provide an overview of the participant's prevalence of low back pain. Inferential statistics such as the Wilcoxon signed ranked test, Mann-whitney U test was used to determine the significant difference between low back pain prevalence among the two group and Chi-square test was used to determine the association between the prevalence and selected predictors. The level of significance was set at $p<0.05$.

CHAPTER 4

RESULTS

4.1 PREAMBLE

This research investigated the prevalence of low back pain and it's associated risk factors among weightlifting and non-weightlifting undergraduate students in the University of Benin. The study included a sample of 104 participants, 52 weightlifters and 52 non-weightlifters selected from the various departments in the University.

4.1.1 SOCIO-DEMOGRAPHIC CHARACTERISTICS OF THE RESPONDENTS

The results in table 1 shows that a total of 104 undergraduate students of UNIBEN comprising of 52 weightlifters and 52 non-weightlifters participated in this study. The ages of the respondents ranges from 18years and above under the following distribution for the weightlifters: 18-20years(7.7%), 21-24years (57.7%), 25-28years(32.7%), 29-32years(1.9%). There is a slightly more males(57.7%) than females (42.3%). The BMI of the weightlifters were distributed as follows: obese(51.9%), normal(42.3%), overweight(3.8%) and underweight(1.9%). For the non-weightlifters, the ages were distributed as follows: 18-20 years(21.2%), 21-24years(61.5%), 25-28years(13.5%), 29-32 years(3.8%). There are more females(57.7%) than males(42.3%). BMI of the non-weightlifters are as follows: underweight(11.6%), normal(61.6%), overweight(26.9%) and obese(3.8%).

Table 4.1: Sociodemographic Characteristics of respondents (N=104)

	Frequency	Percentage
WEIGHT LIFTERS (N=52)		
Variables	n	%
Age		
1=18-20	4	7.69
2=21-24	30	57.7
3=25-28	17	32.7
4=29above	1	1.9
Gender		
Male	30	57.7
Female	22	42.3
Body mass index		
Underweight	1	1.9
Normal	22	42.3
Obesity	27	51.9
Overweight	2	3.8
NON WEIGHT LIFTERS (N=52)		
Variables	n	%
Age		
1=18-20	11	21.2
2=21-24	32	61.5
3=25-28	7	13.5
4=29above	2	3.8
Gender		
Male	22	42.3
Female	30	57.7

Body mass index		
Underweight		
Normal	6	11.6
Obesity	32	61.6
Overweight	14	26.9
	-	-

4.1.2. PREVALENCE OF LOW BACK PAIN AMONG THE RESPONDENTS AT 12 MONTHS AND 7 DAYS DURATION

As shown in Table 2, it was observed that for the weightlifters, the lifetime prevalence of low back pain was 82.7%, with 143 of the respondents reporting to have had low back pain. 41 (78.8%) of the respondents also reported to have had low back pain at least within the last 12 months. 18 (34.6%) of the respondents reported to have had low back pain within the last 7 days of the study. For the non-weightlifters, it was observed that, the lifetime prevalence of low back pain was 71.1%, with 37 of the respondents reporting to have ever had low back pain. 35 (67.3%) of the respondents also reported to have low back pain at least within the last 12 months. 15 (28.8%) of the respondents reported to have had low back pain within the last 7 days of the study.

Table 4.2: Prevalence of low back pain among weight lifting and non-weightlifting students. N=104

Variable	Frequency	Percentage (%)
WEIGHT LIFTERS (N=52)		
Have you ever had low back pain?		
Yes	43	82.7
No	9	17.3
What is the total length of time you had low back pain in the past 12 months?		
0 days	2	3.8
1 – 7 days	31	59.6
6 – 30 days	6	11.5
More than 30 days	4	7.7
Everyday	-	-
Have you low back pain in the last 7 days?		
Yes	18	34.6
No	34	65.4

NON WEIGHT LIFTERS (52)

Have you ever had low back pain?		
Yes	37	71.1
No	15	28.8
What is the total length of time you had low back pain in the past 12 months?		
0 days	2	3.8
1-7 days	31	59.6
6-30 days	1	1.9
More than 30 days	3	5.8
Everyday	-	-
Have you low back pain in the last 7 days?		
Yes	15	28.8
No	37	71.1

4.1.3 WILCOXON SIGNED RANK TEST OF SIGNIFICANCE BETWEEN LIFETIME AND 7 DAYS PREVALENCE OF LBP AMONG WEIGHTLIFTERS AND NON-WEIGHTLIFTERS

Table 3 shows a significant difference between lifetime and 7 days LBP prevalence of weightlifters (p-value=0.000) and also a significance difference between lifetime and 7 days LBP prevalence of non-weightlifters (p-value=0.000)

Table 4.3: Wilcoxon signed rank test for Level of Significant difference between Lifetime and 7 days prevalence of LPB among Weightlifters and Non weightlifters

Variables	Mean	Std Deviation	Z value	P value
Weightlifters Lifetime prevalence	1.1731	0.3820		
			-5.000	0.000
Weightlifters 7days prevalence	1.6538	0.4803		
Non-Weightlifters Lifetime prevalence	1.2885	0.4574		
			-4.690	0.000
Non-Weightlifters LBP 7 days prevalence	1.7115	0.4574		

4.1.4 MANN-WHITNEY TEST OF SIGNIFICANCE BETWEEN POINT AND 7 DAYS PREVALENCE OF LBP AMONG WEIGHTLIFTERS AND NON-WEIGHTLIFTERS

As shown in table 4, it was observed that there was no significant difference between weightlifters and non-weightlifters lifetime LBP prevalence (p-value=0.165) and similarly there was no significant difference between weightlifters and non-weightlifters 7days LBP prevalence (p-value=0.529).

Table 4.4: Mann- Whitney U Test for Level of Significant difference between LBP prevalence of Weightlifters and Non-weightlifters at a point and 7 days prevalence

Variables	Grouping	Mean Rank	Z value	P value
LBP Lifetime Prevalence	Weightlifters	49.50	-1.390	0.165
	Non-weightlifters	55.50		
LBP 7 days Prevalence	Weightlifters	51.00	-0.629	0.529
	Non-weightlifters	54.00		

4.1.5 CHI SQUARE TEST OF ASSOCIATION BETWEEN 7 DAYS PREVALENCE OF of LBP AND WEIGHT MASS, FREQUENCY OF WEIGHTLIFTING, BMI AND DAILY DURATION OF WEIGHTLIFTING AMONG WEIGHTLIFTERS

Table 5 shows a non significant association between 7 days LBP prevalence and BMI(p-value=0.442), duration of weightlifting (p-value=0.284), weight mass lifted (p-value= 0.820) and a significant association between 7 days LBP prevalence and frequency of weightlifting (p-value=0.019).

Table 4.5: Chi Square test of association between 7 days LBP Prevalence and BMI, Duration of Weight Lifting, Frequency of weight lifting and weight mass of weight lifted among weightlifters

Variables		Count	X^2	P Value
Weight lifters 7 days LBP Prevalence	BMI:			
	Underweight	1 (5.6%)		
	Normal	6 (33.3%)		
	Overweight	10 (55.6%)	2.692	0.442
	Obese	1 (5.6%)		
	Duration of Weight lifting;			
	<1 hour	11 (61.1%)		
	2-3 hours	7 (38.9%)	2.516	0.284
	4- 5 hours	0 (0.0%)		
	Frequency of Weight Lifting:			
	Once	3 (16.7%)		
		11 (61.1%)		

1-2 Times	0 (0.0%)	9.974	0.019
3-5 Times	4 (22.2%)		
>5 Times			
Weight Mass Lifted:			
20-40kg	6 (33.3%)	0.397	0.820
40-70kg	5 (27.8%)		
>70kg	7 (38.9%)		

4.2 Hypotheses testing

Hypothesis 1: There would be no significant difference between lifetime and 7 days prevalence of LBP among the weightlifters.

Test: Wilcoxon signed rank test

Alpha value: 0.05

Observed p-value: 0.000

JUDGEMENT: Since the observed p value was less than 0.05 alpha level. The hypothesis was therefore REJECTED

Hypothesis 2: There would be no significant difference between lifetime and 7 days prevalence of LBP among the non-weightlifters.

Test: Wilcoxon signed rank test

Alpha value: 0.05

Observed p-value: 0.000

JUDGEMENT: Since the observed p value was less than 0.05 alpha level. The hypothesis was therefore REJECTED

Hypothesis 3: There would be no significant difference in lifetime prevalence of LBP between weightlifters and non-weightlifters.

Test: Mann-Whitney U test

Alpha value: 0.05

Observed p-value: 0.165

JUDGEMENT: Since the observed p value was greater than 0.05 alpha level. The hypothesis was therefore NOT REJECTED

Hypothesis 4: There would be no significant difference in 7 days prevalence of LBP between weightlifters and non-weightlifters.

Test: Mann-Whitney U test

Alpha value: 0.05

Observed p-value: 0.529

JUDGEMENT: Since the observed p value was greater than 0.05 alpha level. The hypothesis was therefore NOT REJECTED

Hypothesis 5: There would be no significant association between BMI and low back pain

Test: Chi-Square test

Alpha value: 0.05

Observed p-value: 0.442

JUDGEMENT: Since the observed p value was greater than 0.05 alpha level. The hypothesis was therefore NOT REJECTED

Hypothesis 6: There would be no significant association between the duration of weightlifting and low back pain.

Test: Chi-Square test

Alpha value: 0.05

Observed p-value: 0.284

JUDGEMENT: Since the observed p value was greater than 0.05 alpha level. The hypothesis was therefore NOT REJECTED

Hypothesis 7: There would be no significant association between the frequency of weightlifting and low back pain.

Test: Chi-Square test

Alpha value: 0.05

Observed p-value: 0.019

JUDGEMENT: Since the observed p value was less than 0.05 alpha level. The hypothesis was therefore REJECTED

Hypothesis 8: There would be no significant association between weight mass lifted and their low back pain.

Test: Chi-Square test

Alpha value: 0.05

Observed p-value: 0.820

JUDGEMENT: Since the observed p value was greater than 0.05 alpha level. The hypothesis was therefore NOT REJECTED

CHAPTER FIVE

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1 Discussion

The primary aim of this study was to investigate the prevalence of low back pain among weightlifting and non-weightlifting undergraduate students at the University of Benin, Edo State, Nigeria. Though, low back pain (LBP) affects people of all ages and genders in numerous sports, it is most prevalent in young adults and teenagers. Research indicates that growth spurts, heightened physical activity, and participation in sports may be responsible for the high incidence of low back pain in this age range (Sudhir *et al.,* 2017). The respondents in our research were weightlifters and non-weightlifters who were all undergraduate students at University of Benin.

This study found ages 21-24 to be the largest age group among weightlifters (57.7%) and non-weightlifters (61.5%), which could be attributable to the typical enrollment age and duration of undergraduate programs. This present study found no significant difference in the gender distribution between weightlifters and non-weightlifters. The majority of weightlifters were obese (51.9%) while a significant number were also normal weight (42.3%), this could be a reflection of the increased muscle mass associated with weightlifting.

In this study, lifetime prevalence of low back pain among weightlifters and non-weightlifters was 82.7% and 71.1% respectively, the past 12 months was 78.8% and 67.3% respectively. These results are comparatively higher than that obtained by (Adegoke *et al.,* 2015), in a study on Adolescent low back pain among secondary school students in Ibadan, Nigeria, who reported a lifetime and 12 months prevalence of 58% and 43.8% respectively. AlShayhan *et al.* (2018), in a

study on Prevalence of low back pain among health sciences students reported a lifetime and 12 months prevalence of 56.6% and 48.8% respectively. According to reports, this discrepancy in occurrence has been attributed to weightlifting been a popular activity that puts much strain on the body's muscles and predisposes athletes to LBP (Fares *et al.,* 2020).

It was observed that there is a statistically significant difference between the lifetime prevalence of LBP and the 7-day prevalence of LBP among both weightlifters (p-value=0.000) and non-weightlifters (p-value=0.000), with both groups experiencing LBP more frequently in the past 7 days than throughout their lifetime.

However, there is no significant difference in the lifetime prevalence of LBP between weightlifters and non-weightlifters (p-value=0.165). Similarly, no significant difference was observed in the 7 days prevalence of LBP between weightlifters and non-weightlifters (p-value=0.529).

Furthermore, this study shows no significant association between 7 days prevalence of LBP and BMI (p-value=0.442), duration of weightlifting (p-value=0.284), weight mass lifted (p-value=0.820, however, there is a significance association between 7 days prevalence of LBP and frequency of weightlifting (p-value=0.019). There is a dearth of knowledge regarding the association between LBP and weightlifting among university students. To the best of the researcher’s knowledge, this present study seems to be one the first to investigate on the prevalence of low back pain among weightlifting and non-weightlifting university students, therefore there is a dearth of other research to support or contradict the impact of the tested variables on symptoms related to the low back pain. Several studies have shown the prevalence of LBP in non-weightlifting undergraduate students who may engage in other sports activities or are exposed to other risk factors that predispose them to LBP.

5.2 Conclusion

In conclusion, there is a high prevalence of low back pain among weightlifting and non-weightlifting undergraduate students in the University of Benin, however no significant difference was observed in the prevalence of LBP between weightlifters and non-weightlifters. Also, there was a significant association between frequency of weightlifting and 7 days prevalence of LBP.

5.3 Recommendations

Students should be encouraged to seek medical attention for any persistent back pain to prevent further complications, proper forms and techniques for weightlifting should be emphasized to minimize stress on the lower back and finally, educating students on proper ergonomics and maintainance of good posture to reduce strain on the back. investigate other predictors of low back pain

5.4 Implications for Further Study

Further studies should among these populations and similar studies should be carried out on a larger sample size in other geographical areas to discover if the results of this study is attainable in other areas.

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APPENDICES

APPENDIX 1

QUESTIONNAIRE

Please fill in the required information correctly

Section 1: Demographic data

1. Age _____

2. Gender _____

3. Body weight (kg) _____

4. Height (m) _____

5. BMI (kg/m²) _____

6. Department _____

Section 2: Weightlifting Participation

7. Do you participate in weightlifting? Yes [ ] No [ ]

(If you answered no to question 7, do not answer questions 8-10)

8. How long have you been weightlifting? Less than 1 year [ ] 1-2 years [ ] 3-5 years [ ] More than 5 years [ ]

9. How often do you typically weightlift per week? Once [ ] 1-2 times [ ] 3-4 times [ ] 5 or more times [ ]

10. How long do you spend weightlifting in a day? Less than 1 hour [ ] 2-3 hours [ ] 4-5 hours [ ] More than 5 hours [ ]

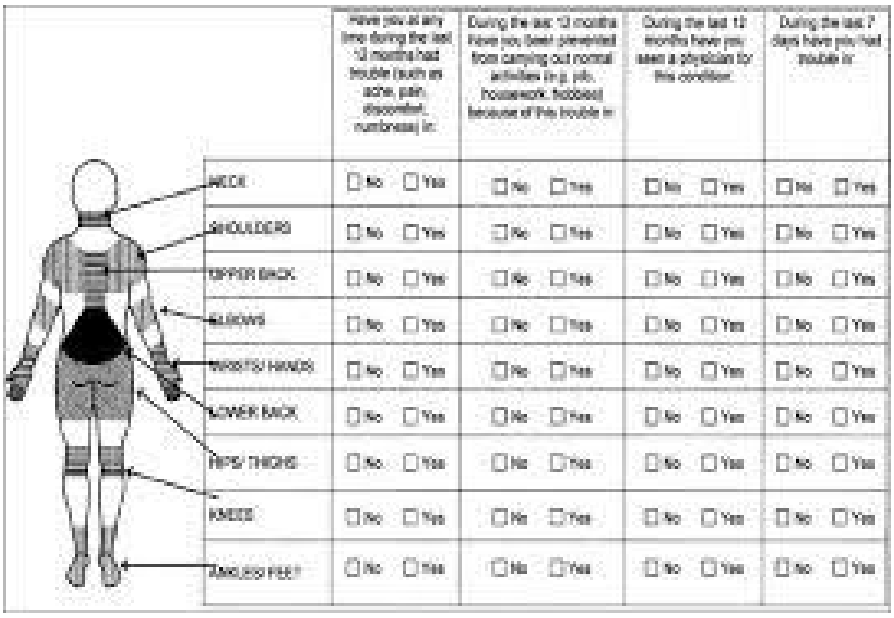
11. What is the maximum weight you normally lift per session in any of this training days? Less than 20kg [ ] 20- 40kg [ ] 40-70kg [ ] More than 70kg [ ]

12. Do you use proper technique and form when performing weightlifting exercises? Yes [ ] No [ ]

13. Do you have poor body positioning when performing weightlifting exercises? Yes [ ] No [ ]

NORDIC MUSCULOSKELETAL QUESTIONNAIRE

Please answer by putting a cross in the appropriate box – one cross for each question. You may be in doubt about how to answer but please do your best anyway. Please answer every question, even if you have never had trouble in any part of your body. In this picture, you can see the appropriate position of the parts of the body referred to in the questionnaire. Limits are not sharply defined and certain parts overlap. You should decide for yourself which part you have or have had your trouble (if any).



	Have you at any time during the last 12 months had trouble (such as ache, pain, discomfort, numbness) in:	During the last 12 months have you been prevented from carrying out normal activities (e.g. job, housework, hobbies) because of this trouble in	During the last 12 months have you seen a physician for this condition	During the last 7 days have you had trouble in
NECK	☐ No ☐ Yes	☐ No ☐ Yes	☐ No ☐ Yes	☐ No ☐ Yes
SHOULDERS	☐ No ☐ Yes	☐ No ☐ Yes	☐ No ☐ Yes	☐ No ☐ Yes
UPPER BACK	☐ No ☐ Yes	☐ No ☐ Yes	☐ No ☐ Yes	☐ No ☐ Yes
ELBOWS	☐ No ☐ Yes	☐ No ☐ Yes	☐ No ☐ Yes	☐ No ☐ Yes
WRISTS/ HANDS	☐ No ☐ Yes	☐ No ☐ Yes	☐ No ☐ Yes	☐ No ☐ Yes
LOWER BACK	☐ No ☐ Yes	☐ No ☐ Yes	☐ No ☐ Yes	☐ No ☐ Yes
HIPS/ THIGHS	☐ No ☐ Yes	☐ No ☐ Yes	☐ No ☐ Yes	☐ No ☐ Yes
KNEES	☐ No ☐ Yes	☐ No ☐ Yes	☐ No ☐ Yes	☐ No ☐ Yes
ANKLES/ FEET	☐ No ☐ Yes	☐ No ☐ Yes	☐ No ☐ Yes	☐ No ☐ Yes

Questionnaire about the Low Back

1. Have you ever had low back trouble (ache pain or discomfort)? No [ ] Yes [ ]

(if you answered no to question 1, do not answer questions 2 to 6)

2. Have you ever been hospitalised because of low back trouble? No [ ] Yes [ ]

3. Have you ever had to miss class or school because of low back trouble?

No [ ] Yes [ ]

4. What is the total length of time you had low back trouble during the last 12 months?

a) 0 days [ ]

b) 1 – 7 days [ ]

c) 6 – 30 days [ ]

d) More than 30 days, but not every day [ ]

e) Every day [ ]

(if you answered 0 days to question 4, do not answer questions 5 – 8)

5. Has low back trouble caused you to reduce your activity during the last 12 months?

a) School activity No [ ] Yes [ ]

b) Leisure activity No [ ] Yes [ ]

6. What is the total length of time that low back trouble has prevented you from doing your normal school work during the last 12 months?

a) 0 days [ ]

b) 1 – 7 days [ ]

c) 6 – 30 days [ ]

d) More than 30 days [ ]

7. Have you ever been seen by a doctor, physiotherapist, chiropractor or other such person because of lower back trouble during the last 12 months? No [ ] Yes [ ]

8. Have you ever had low back trouble at any time during the last 7 days? No [ ] Yes [ ]

APPENDIX 2
INFORMED CONSENT FORM

My name is ENEMUOCHUKWU CALEB CHUKWUEMEKA . I am a final year student of the department of Physiotherapy, School of Basic Medical Sciences, University of Benin. I am conducting a study on "PREVALENCE OF LOW BACK PAIN AMONG WEIGHTLIFTING AND NON-WEIGHTLIFTING UNDERGRADUATE STUDENTS IN UNIVERSITY OF BENIN". This research is being carried out to know the prevalence and associated risk factors of low back pain among weightlifting and non-weightlifting undergraduate students . For the purpose of this study the weight and height of the participants will be checked. Your participation and responses will be appreciated and kept confidential. Your sincere response to this questionnaire will be most helpful.

My email is calebchukwuemeka4@gmail.com and my phone number is 09071802584.

Please note that your participation in this study is voluntary and the participants has the right to withdraw from this study at any time.

Consent: Now that this study has been explained to me in details and I understand the nature purpose and benefits of the study, I consent to participate in this study

_____ _____

Signature/Date **Signature of Researcher/Date**