ASSESSMENT OF THE LEVEL OF DISABILITY AMONG PEOPLE SUFFERING FROM LOWER BACK PAIN IN AL-QADISIYA CITY/ IRAQ

BY

AKRAM NAEEM HAMID HAMID

The Institute of Health Sciences
The Department of Nursing

The Degree of Master of Nursig Science

SUPERVISOR
Assoc. Prof. Dr. ÖZGE ÇINAR MEDENİ

2023

ACCEPTANCE AND APPROVAL

Akram Naeem Hamid HAMID, a graduate student of The Institute of Health Sciences with student number 208205273, has successfully presented her thesis entitled "Assessment of the level of disability among people suffering from lower back pain in Al-Qadisiya city/ Iraq" before the jury whose signatures are below, after fulfilling all of the requirements determined by the relevant regulations for the degree of Master of Science:

Advisor **:** Assoc. Prof. Dr. Özge ÇINAR MEDENİ

Examining Committee Members:

Chairman **:** Assoc. Prof. Dr. Özge ÇINAR MEDENİ
Faculty of Health Sciences, Physiotherapy and Rehabilitation
Başkent university

Member **:** Assoc. Prof. Dr. İlknur GÖL
Faculty of Health Sciences, Department of Nursing
Çankırı Karatekin University

Member **:** Asst. Prof. Dr. Aslıcan Zeybek ÇAĞLAR
Faculty of Health Sciences, Physiotherapy and Rehabilitation
Başkent university

Approved for the Graduate School of Health Sciences

Assoc. Prof. Dr. Nazan KAYTEZ
Director of Graduate School

ETHICS STATEMENT

The thesis entitled “Assessment of the level of disability among people suffering from lower back pain in Al-Qadisiya city/ Iraq,” which was prepared and presented as a thesis, was written by myself and followed the scientific, academic rules, and ethical conduct. The idea/hypothesis of my thesis solely belongs to my supervisor and me. The research on the thesis was conducted by me; therefore, all of the used sentences and interpretations within the work belong to me.

I declare the issues mentioned earlier to be correct.

Signature

17.02. 2023

AKRAM NAEEM HAMID HAMID

ABSTRACT

ASSESSMENT OF THE LEVEL OF DISABILITY AMONG PEOPLE SUFFERING FROM LOWER BACK PAIN IN AL-QADISIYA CITY/ IRAQ

Akram Naeem Hamid HAMID

Master of Science in Nursing

Advisor: Assoc. Prof. Dr. Özge ÇINAR MEDENİ

February 2023

Background: Lower back pain is pain and discomfort that occurs below the costal margin and above the inferior gluteal flexors in adults of all ages. Disablement is most often caused by LBP worldwide and is connected with a significant social and economic burden.

Objectives: This study aims to assess the level of disability for people with lower back pain and determine the relationship between the levels of disability for people with lower back pain and socio-demographic characteristics.

Methods: The study was a descriptive study conducted on patients with lower back pain at Al-Diwaniyah Teaching Hospital, Al-Qadisiya City/ Iraq. Cankiri Karatekın University Scientific Research Evaluation Ethical Committee granted ethical approval and permission for the researcher to begin studying the thesis and to facilitate the researcher's task to obtain information from participants under Resolution (No:25, Date:21/4/2022). Also, obtaining permission from the Iraqi Ministry of Health on (No.: 22, Date: 3/25/2022). The study sample was 450 patients with the Level of Disability among People Suffering from Lower Back Pain in Al-Qadisiya City. The method used is to collect data from the study sample through questions directed to patients face-to-face about lower back pain. The sample was collected in (Diwaniyah Teaching Hospital in Al-Qadisiyah / Iraq) between 15.3.2022 - 15.10.2022). Study Questionnaire that Includes: The Socio-Demographic Form, The Quebec Back Pain Disability Scale, and The Oswestry Index for Low Back Pain and IPAQ.

Results: Findings according overall from the Quebec Disability Scale for Back Pain indicate that (89.8 %) of patients were severe pain and disability level; findings according of over all of The Oswestry Disability Index indicate that (64.9%) of patients were severe disability level and findings according to the overall of The International Physical Activity Questionnaire indicate that the (56.9%) of patients were low activity levels level. In the current study, there was a statistically significant effect between the patient's age, educational status, occupation, previous

illness, duration of diagnosis, weight, and people who lived with who with lower back pain. With a significance level of ≥0.05.

Conclusion: Lower back pain is more common in people under age 65, male, and illiterate. Married couples, working people, and people with chronic diseases more often experience lower back pain. There were statistically significant differences between participants' age, educational status, occupation, previous disease, duration of diagnosis, weight, life, and marital status on the Quebec Back Pain Disability Scale.

2023, 89 pages

Keywords: Lower back pain (LBP), Assessment, Level of Disability, physical activity, Exercise

ÖZET

AL-QADISIYA ŞEHRINDE / IRAK'TA BEL AĞRISI ÇEKEN İNSANLAR ARASINDA ENGELLILIK DÜZEYININ DEĞERLENDIRILMESI

Akram Naeem Hamid HAMID

Hemşirelik, Yüksek Lisans

Tez Danışmanı: Doç. Dr. Özge ÇINAR MEDENİ

Şubat 2023

Giriş: Bel ağrısı, her yaştan erişkinlerde kostal sınırın altında ve inferior gluteal bölge üzerinde meydana gelen ağrı ve rahatsızlıktır. Engel genellikle dünya çapında LBP'den kaynaklanmakta olup ve önemli bir sosyal ve ekonomik yük ile bağlantılıdır.

Amaç: Bu çalışma, bel ağrısı olan kişilerde engel düzeyini değerlendirmeyi ve bel ağrısı olan kişilerde engel düzeyleri ile sosyo-demografik özellikler arasındaki ilişkiyi belirlemeyi amaçlamaktadır.

Yöntem: Çalışma, Irak / Kadisiye Al-Diwaniyah Eğitim Hastanesi'nde bel ağrısı olan hastalar üzerinde yapılan tanımlayıcı bir çalışmadır. Çankırı Karatekin Üniversitesi Bilimsel Araştırma Değerlendirme Etik Kurulu'ndan araştırmanın yapılması için gerekli etik onay alınmıştır (No:25, Tarih:21/4/2022). Ayrıca, Irak Sağlık Bakanlığı'ndan (No: 22, Tarih: 25.03.2022) izin alınmıştır. Çalışma örneklemi, Kadisiye Şehrinde Bel Ağrısı Çeken İnsanlar Arasında Maluliyet Düzeyi Olan 450 hastaydı. Kullanılan yöntem, bel ağrısı hakkında hastalara yüz yüze yöneltilen sorular aracılığıyla çalışma örneğinden veri toplamaktır. Araştırma verileri 15.3.2022-15.10.2022 tarihleri arasında (Irak/Kadisiye Divaniye Eğitim Hastanesi) toplanmıştır. Olguların sosyodemografik bilgileri alındı. Quebec Bel Ağrısı Engellilik Ölçeği ve Oswestry özürlülük indeksi ile bel ağrısına bağlı engel durumu belirlendi. Uluslararası Fiziksel Aktivite AnKetinin kısa formu kullanılarak olguların fiziksel aktivite düzeyi belirlendi.

Bulgular : Quebec Bel Ağrısı Engellilik Ölçeği geneline göre hastaların (89.8 %) şiddetli ağrı ve özür düzeyine sahip olduğunu; Oswestry Engellilik İndeksi'nin tamamına göre hastaların (64.9 %) aşırı derecede engelli olduğunu ve Uluslararası Fiziksel Aktivite Anketine göre, hastaların (56.9 %) düşük aktivite seviyelerine sahip olduğunu göstermektedir. Mevcut çalışmada hastaların yaşı, eğitim durumu, mesleği, önceki hastalığı, kilosuna göre yapılan gruplamalarda bel ağrısı özürlülük düzeyi birbirinden farklı bulunmuştur ($p < 0,05$).

Sonuç: Bel ağrısı 65 yaş altı, erkek ve okuma yazma bilmeyen kişilerde daha sık görülmektedir. Evli çiftler, çalışan insanlar ve kronik hastalığı olan kişiler sıklıkla bel ağrısı yaşamaktadırlar. Quebec Bel Ağrısı Özürlülük Ölçeği'nde katılımcıların yaşı, eğitim durumu, mesleği, önceki hastalığı, tanı süresi, kilosu, yaşamı ve medeni durumu arasında istatistiksel olarak anlamlı farklılıklar vardı.

2023, 89 Sayfa

Anahtar Kelimeler: Alt bacak ağrısı, Değerlendirme, Engellilik Düzeyi, fiziksel aktivite,egzersiz.

PREFACE AND ACKNOWLEDGEMENTS

I would like to express my sincere gratitude to my dear teacher's Assoc. Prof. Dr. Özge ÇINAR MEDENİ, and all my family, especially my dear mother, who gave me all the means of support.

Akram Naeem Hamid HAMID
Cankiri-2023

CONTENTS

LIST OF ABBREVIATIONS

BMI	Body Mass Index
CLBP	Chronic Lower Back Pain
CVC	Central Venous Cathetar
HERC	Health Econmics Research Center
IPAQ	International Physical Activity Questionnaire
LBP	Lower Back Pain
LM	Lumbar Multifidas
MSDs	Musculoskeletal Disorders
NICE	National Institute For Health Care Excellance
NLBP	Non-Specefic Lower Back Pain
NPRS	Numeric Pain Rating Scale
NSAIDs	Nonsteroidal Anti-Infammatory Drugs
NSCLBP	Non-Specefic Chronic Lower Back Pain
ODI	Oswestry Disability Index
QDS	Quebec Disability Scale
RCTs	Randomized Controlled Trials
SA	Saudi Arabia
TrA	Transversus Abdominal

LIST OF FIGURES

List of Tables

1. INTRODUCTION

Low back pain (LBP) is pain and discomfort that occurs below the costal margin and above the inferior gluteal flexors in adults of all ages. Disablement is most often caused by LBP worldwide and is connected with a significant social and economic burden. Although low back pain (LBP) often improves on its own after a few months, It's not uncommon for symptoms to return, and the presence of a history of recurrence is a strong indicator of future episodes. Disabling effects of low back pain may range in severity. Some persons have minor discomfort and limited function. In contrast, others suffer from significant handicaps due to severe pain, to the point that it hinders their capacity to participate in important life areas, including family, work, and socializing (Maher *et al*. 2017).

Even though academics and doctors have used traditional drugs and surgery to treat LBP for many years, many individuals continue to suffer from LBP without experiencing significant pain relief. Physical activity (such as walking, swimming, and resistance training) incorporates whole-body motions that can reduce LBP by improving back muscular strength and overall coordination and flexibility. In treating LBP, such a method results in minor to substantial effect sizes (Searl *et al.* 2015).

Muscle strain, stiffness, and even sciatica are common symptoms. Because the exact etiology of LBP is unknown, most people (about 85 percent) are diagnosed with nonspecific LBP (NLBP), which interferes with everyday activities and is the largest cause of global impairment. The frequency of LBP is 23.2 percent after one month, and the number of people with LBP-related disabilities has increased by 54 percent in the last 30 years (Croft *et al.* 2018).

Furthermore, the physical and social complications associated with chronic LBP get more challenging to navigate as time goes on. Involving prescription drug addiction, such as opioids, and behavioral issues, such as depression and social isolation. Risk factors that may be changed to prevent chronic, severe LBP and disability must be

recognized to create effective treatment and prevention methods. The biopsychosocial model is used to visualize LBP, and it is commonly acknowledged that psychological aspects play a vital role in a person's LBP experience. Hysteria and depression have been linked to worse LBP and disability outcomes, according to systematic evaluations (Wartley *et al.* 2014).

There is, however, minimal evidence to establish the link between anxiety and dread of movement and LBP. Therefore, although it is generally acknowledged that psychological variables are linked to LBP, the evidence for specific components is inconsistent, and our understanding of the role of psychological elements in situations with the diagnosis of chronic LBP and disability is limited. This research aims to determine whether or not severe and chronic LBP are related to psychiatric symptoms such as depression, anxiety, and fear of movement. We expected that all psychological qualities would be linked to severe and persistent LBP but that some components would be more important than others (Hartvigsen *et al.* 2018).

Recurrence and persistence of LBP are frequent, and a history of recurrence is a strong predictor of future episodes, even though most instances of LBP resolve within a few months. Some persons with LBP have little discomfort and can operate quite normally, while others have a severe impairment that prevents them from engaging in their usual routines at home, at work, and in their social lives (Maher *et al.* 2017).

Persistent low back pain is associated with a growing complexity of medical and social complications, including prescription medicine addiction and psychosocial issues such as depression and social isolation. In order to develop efficient treatment and preventive strategies for chronic and severe LBP and disability, it is necessary to identify modifiable risk factors for these outcomes (Wartley *et al.* 2014).

However, research supporting the link between anxiety and fear of mobility and LBP is minimal. Thus, while there is widespread acceptance of a link between psychological variables and LBP, there is inconsistent evidence for particular individual

characteristics. Yet, there is still a lot we do not know about the role of psychological elements in chronic instances of severe LBP and impairment (Hartvigsen *et al.* 2018).

Patients with chronic low back pain frequently complain about activity intolerance (CLBP). Because of their back pain, they are unable to participate in their normal levels of physical exercise. When patients with acute back pain interpret their pain as threatening (they catastrophize about their pain), the fear of movement/ (re)injury emerges, according to the fear-avoidance paradigm. The fear of negative repercussions from raising their physical activity level ("I might end up in a wheelchair") could be a reason for them to avoid doing so. Long-term avoidance behavior can lead to impairment and disuse in the long run (Verbunt *et al.* 2003).

According to the fear-avoidance model, catastrophizing about pain leads to a dread of improved rates, which leads to one of two coping respondents: confrontation or avoidance. According to the paradigm, confrontation is an adaptive response that leads to less fear, more activity, and improved functioning. On the other hand, avoidance is a maladaptive response that causes an increase in dread, a decrease in activity, and a reduction in functioning (Peters *et al.* 2005).

The least healthy and active face the most everyday constraints due to LBP. This is reflected in the recommended treatments for LBP, which often encourage lifestyle modification to help with rehabilitation and disability reduction. In the case of LBP, it is recommended that patients stay active and avoid bed rest. Active methods, such as cognitive behavioral therapy and exercise, are preferred over passive interventions in persistent LBP. (koes *et al.* 2010)

Low back discomfort is a well-known and widespread health issue, yet its severity is sometimes overlooked. Low back pain is the primary cause of activity restriction and work absence in much of the world, putting a tremendous financial strain on individuals, families, communities, industry, and governments. It was mainly regarded as a Western-only problem until around ten years ago (Thelin *et al.* 2008).

An increasing amount of research, however, has revealed that low back pain is a significant concern even in low and middle-income nations since then. As part of the GBD 2005, the study's Musculoskeletal Expert Group determined the global burden of low back pain. Prevalence, incidence, and remission are significant epidemiological factors to consider when estimating the impact of low back pain. In a previous post, we detailed the process by which we developed a case definition for low back pain as well as a collection of discrete health states to characterize the varying degrees of severity and incapacitating consequences of low back pain (Hoy *et al.* 2010).

It has been shown that low back pain (LBP) is the leading cause of disability-related lost workdays and lost work years among workers in the industrialized world. The Japanese general public ranks LBP among the top five most prevalent health problems and disorders. About 85%-90% of all cases of LBP are considered "non-specific," and the majority are mild. Therefore, the sufferers do not become seriously disabled. Although only a fraction of the working population suffers from LBP-related disability, these individuals are responsible for a disproportionate share of the world's occupational health care expenses and days lost from work. Consequently, it is crucial to identify the conditions that may aggravate LBP and cause job incapacity (Vos *et al.* 2012).

Many LBP epidemiology studies have been conducted throughout the years and in many different countries. Low job satisfaction, melancholy, or a proclivity to somatize have all been identified as 'yellow flags' for LBP that lead to disability, as have ergonomic considerations like physical work demands. However, the quantity or intensity of each factor may differ between cultures or work contexts. Based on the above research, psychosocial variables have recently been recognized in Japan as a significant risk factor for LBP aggravation. However, to the best of our knowledge, no prospective epidemiological studies have investigated the association between the psychological conditions experienced by Japanese workers and the worsening of their back pain (Currie and Wang 2004).

In a recent investigation, we identified possible risk factors for the start of back pain impairment in a sample of Japanese workers who were part of a prospective cohort

study in an urban setting. Information on the prevalence of LBP and its associated effects was acquired prospectively. Both employers and employees have a vested interest in occupational health care, and the cohort study's primary emphasis was on LBP, which led to job impairment (Matsudaira *et al.* 2012).

The current research used information from the previously published cohort study to determine whether or not mild LBP progresses into persistent LBP in workers with a 1-year history of mild LBP; the results of this additional data analysis are presented here. Clinical research studies on 13 various kinds of occupational injuries and illnesses, including musculoskeletal difficulties, psychological well-being, and cancer, were done by the Japan Labor, Health, and Welfare Administration, which funded the current study. In order to aid in the solution of occupational health concerns and the dissemination of the results, research projects were conducted. (Matsudaira *et al.* 2014).

The annual cost of treating and caring for Americans who suffer from chronic pain is estimated to be over $600 billion. 1 There is a yearly cost of over $100 billion in the United States due to low back pain alone. 2 The most effective methods of treating familiar sources of chronic pain, such as long-term low back pain, remain to be identified (cLBP). As a result, the National Academy of Medicine (formerly known as the Institute of Medicine) has ranked evaluating current therapies for low back pain as one of its top 100 priorities, with a focus on retrospective cohort study participants. The Global Burden of Disease study's findings that low back pain causes more years of impairment globally than any other medical condition (including headache, depression, and every other mental illness) only serve to heighten these worries (James *et al.* 2018).

Chronic pain may be more prevalent in some groups in the United States. Chronic pain, for example, is joint among US Veterans; experts believe up to half of the patients examined at VA hospitals suffer from it. One research found that almost half of the Veterans experiencing chronic pain were experiencing it in their spine. Care costs for Veterans with chronic low back pain are substantial, according to statistics from the VHA Health Economics Research Center (HERC) (National Academies of Sciences *et al. 2017*).

Chronic pain also contributes to the opioid crisis, which is a significant effect. Veterans have an exceptionally high rate of prescription opioid use, despite dramatic reductions in recent years. To lower the demand for prescription painkillers, the National Academies of Sciences, Engineering, and Medicine recently released a study calling for further investigation into alternatives to opioids for the treatment of chronic pain, which can lead to patient abuse or end up in the community to be abused by others. Hadlandsmyth and colleagues (Hadlandsmyth *et al.* 2018).

Studies on pain therapy, especially those using comparative effectiveness or pragmatic research designs, benefit significantly from a thorough characterization of the intended participants. We compiled this information as a starting point for future research involving Veterans. The study's primary goals were to describe cLBP in Veterans and to identify the most widely utilized therapies. Furthermore, the study's investigators were interested in learning the treatment preferences of Veterans and primary care physicians. As a last step, we polled Veterans to determine what would prevent them from participating in a cLBP therapy trial. This will help us figure out how to remove barriers to enrollment and ultimately succeed in conducting such research (Belitskaya-Levy *et al.* 2021).

1.1 Importance of study

Importance of Low back pain (LBP) is a prevalent ailment that affects individuals worldwide. It is characterized as an ache or discomfort in the lower area of the back. According to reports, the lifetime prevalence is as high as 84 percent, with disability rates of 12 percent (Sundell *et al.* 2019).

People with non-specific low back pain (LBP) frequently report being unable to conduct daily tasks. The influence of pain on a patient's everyday functioning can be measured as a disability or a decline in physical function. Patients who feel more impaired and so report more significant daily life limits due to LBP are generally considered less physically active (Lin *et al.* 2011).

The most prevalent cause of severe and long-term physical impairment is chronic musculoskeletal pain, sometimes known as lower back pain, which affects more than 20% of the adult population. People who are bothered by back discomfort are one of the most prevalent grounds for sick leave since it inhibits them from carrying out their usual daily tasks. Furthermore, unemployment rates for those with health issues or impairments are frequently twice as high as for those with chronic pain. Knowing the characteristics linked to a decreased likelihood of job impairment and unemployment for those with chronic pain might be beneficial (Mather *et al.* 2019).

In Iraq, many people suffer from lower back pain problems, which negatively affect their daily lives. For these reasons, this study seeks to assess the level of disability among people who suffer from lower back pain and evaluate the relationship between disability and demographic characteristics for them to find out the causes and develop solutions.

1.2 Statement of the problem

"Determining the level of disability for people with low back pain."

1.3 Objectives of the study

1. To assess the level of disability for people with lower back pain.
2. To find out the relationship between the level of disability for people with lower back pain and socio-demographic characteristics.

1.4 Limits of the Study

- Failure to generalize because of the sample (accidental) and considering the sample weak.
- Time limits: 2022.
- Place limits: The city of Diwaniyah in Iraq.

1.5 Assumption of the study

This study assumes that there is an effect among people with lower back pain, attention deficit, mental state, movement, and fear, participants will understand the questions and be honest in their answers, and the inclusion criteria in the sample are appropriate and thus ensure that all participants.

2. GENERAL INFORMATION

2.1 Lower back pain (LBP)

Low back pain (LBP) is defined as pain localized between the 12th rib and the inferior gluteal folds, with or without leg pain is not an illness itself but rather a symptom that may indicate a variety of pathologies, some of which may be presently unidentified. It is characterized by discomfort between the lower rib borders and the buttock creases. Pain in one or both legs is a typical sign of low back pain, and some persons with low back pain also have neurological symptoms in their lower limbs. Rarely can the precise nociceptive origin of low back pain be pinpointed, leading to the diagnosis of "non-specific" low back pain in the vast majority of patients (Maher *et al.* 2017).

A tiny percentage of people with chronic low back pain have an underlying medical condition like cancer, a broken spine, an infection, or an inflammatory illness like axial spondyloarthritis, all of which need diagnosis and treatment tailored to the underlying cause. Compared to those who do not report low back pain, those who do tend to have more widespread physical and mental health issues and experience pain at many places around the body at once. In many cases, the combined impact of low back pain and comorbidity is more significant than that of either condition alone, necessitating more care but often resulting in a worse response to a variety of therapies (Hartvigsen *et al.* 2013)

As a result, the wide range of issues experienced by those with chronic low back pain stems from biological, psychological, and social elements, co-existing conditions, and pain-processing processes. Facet osteoarthritis, ligamentum flavum hypertrophy, and herniated discs are all degenerative alterations that may contribute to a narrowed spinal canal and foramina. Imaging proof of narrowing of the lumbar spinal canal or foramina is recommended in addition to the presence of distinctive symptoms and signs for the diagnosis of the clinical syndrome of lumbar spinal stenosis, according to experts. Compression of the cauda equina nerve roots is assumed to be the underlying cause of

the symptoms of lumbar spinal stenosis, which manifest as back pain (Tomkins-Lane *et al.* 2016).

Individuals of all ages might suffer from low back discomfort. Point prevalence estimates put the number of persons experiencing severe, persistent low back pain at 540 million worldwide in 2015. This number represents the percentage of the world's population that had this condition at any moment. Nowadays, low back pain is the leading cause of disability all over the world. Low-income and middle-income countries, such as Asia, Africa, and the Middle East (Vos *et al.* 2016).

Have seen the most significant increases in disability due to low back pain over the past few decades, but their health and social systems are ill-equipped to handle this growing burden, along with other priorities such as infectious diseases. As a result, most cases of low back pain are classified as non-specific since their underlying cause cannot be determined. Several biophysical, psychological, and social aspects of low back pain contribute to its inability to restore function, social engagement, and economic well-being. In addition to raising health care and social assistance expenses, low back pain has a broader economic effect. Disability rates due to low back pain vary widely from country to country, depending on factors such as cultural norms, health care systems, and laws. Both institutional and informal social assistance networks suffer in nations with low and moderate incomes. Health treatment for low back pain is often used in high-income nations. However, there is the worry that this practice adds to the total burden and expense rather than decreasing it (Hartvigsen *et al.* 2018).

2.2 Epidemiology of the LBP

It studies how diseases spread across a community and how such diseases might be managed. Epidemiology looks at the age, gender, race, and geographic variation in the prevalence of diseases and conditions and the temporal variation in the prevalence of low back pain. Knowledge of the natural history of low back pain is provided by epidemiology, which is crucial for the logical development of healthcare programs and also offers a benchmark against which the effectiveness of different therapies may be

validated. Additional epidemiological research establishes a causal relationship between pain and either internal or external variables, offsetting the inherent dangers and costs of cohort studies. In a prevalence study, a random sample of individuals is taken at a single moment; as a result, there is no set number of "cases" and "controls," with those numbers instead dependent on the prevalence of illness and exposures in the samples (Karran *et al.* 2020).

Epidemiological studies estimating the frequency and incidence of illnesses provide for an assessment of the societal impact of low back pain. How common a medical condition is at any given moment is measured by looking at its prevalence. By dividing the number of persons who report feeling pain at a particular time or place by the entire population at that time or place, we get a measure of prevalence. Point prevalence refers to a snapshot in time, whereas period prevalence looks at the average number of cases in a specific time frame, such as a month, year, or a person's whole life (cumulative lifetime prevalence). What we mean by "incidence" is the rate at which new pain cases arise within a population over a specific time frame, usually expressed as a percentage of the total number of patients. Depending on the study, estimates of the prevalence of low back pain might range from 33% to 65% to 84% throughout a year, year to year, and a lifetime. It is not clear if older people are more likely to have back discomfort (Airaksinen *et al.* 2006).

Few epidemiological data are directly relevant to the target population for these guidelines. Published data do not distinguish between low back pain that persists for over a year and less than a year. Low back pain affects around one-third of the UK adult population each year. Of these, around 20% (1 in 15 of the population) will consult their GP about their back pain (Macfarlane *et al.* 2006).

This results in 2.6 million people in the UK seeking advice about back pain from their GP each year after the first episode of back pain; 62% of people still have pain, and 16% of those initially unable to work are not working after one. Typically, pain and disability improve rapidly during the first month; (58% reduction from initial scores for both pain and disability), with slight further improvement being observed after three

months. Among adults, 11% report having had back pain severe enough to limit their activities in the preceding three months, 23% report having low back pain that has lasted longer than three months, and 18% report having had back pain that was at least somewhat bothersome sometime in the prior month (Parsons *et al.* 2007).

2.3 Prevalence of the LBP

It might be challenging to conclude studies that report similar prevalence rates for back pain due to differences in study populations and other confounding variables. Variations in the prevalence of back pain across communities may have several causes. These causes include, but are not limited to, differences in the ages of the populations investigated, levels of exercise, psychosocial function, physical characteristics, and other aspects of health. When comparing epidemiological studies, it is impractical to control for all of these factors. Numerous studies suggest that low back pain is widespread among adults, despite reports of differing prevalence rates. Reports of low back pain prevalence in the general population are all over the place. It is believed that between 50% and 80% of individuals will have back discomfort at some point (Kopec *et al.* 2004).

Point prevalence studies revealed rates between 12% and 30%, 1-year prevalence studies between 22% and 65%, and lifetime prevalence studies between 11% and 84%, as shown in this systematic review. Point prevalence rates for low back pain lasting longer than two weeks were lower than those for low back pain of any duration, according to surveys conducted at the same time as a similar methodologic literature review conducted by Loney and Stratford, which took place over a shorter but otherwise similar period (Hestbaek *et al.* 2003).

As a result, many people will sometimes have low back discomfort. It is estimated that between 5% and 10% of those diagnosed with low back pain will develop chronic low back pain (CLBP), a condition that significantly contributes to the financial and emotional burdens associated with health care use. Information regarding the frequency and related variables of CLBP is patchy in the literature, despite being very debilitating.

Multiple musculoskeletal outcomes are often assessed in the same study, and the data are often provided in a secondary format. The definitions of persistent and low back pain also varied widely from study to study (Hoy *et al.* 2012).

The prevalence of chronic low back pain was summarized in a study that looked at the incidence of low back pain over the world. Nonetheless, the authors' prevalence estimates relied on research with substantial heterogeneity in their assessment of the anatomy of the low back. According to the included studies, any discomfort in the back or neck would be classified as low back pain. This lack of uniformity disregarded efforts to standardize low back pain research in the literature as well as the differences between the cervical, thoracic, and lumbar spines (Meucci *et al.* 2015).

Lower back pain (LBP) is consistently ranked as one of the most common reasons for medical attention. As the most frequent form of MSD, it affects the body's skeletal and muscular systems. Worldwide, somewhere between 15 percent and 45 percent of the population may have LBP in any given year. Reportedly, 18.8 percent of Saudi Arabia's population suffers from LBP. Healthcare workers have a greater incidence of occupational disease and injury than the general population. In England, 86.1% of nurses suffer from LBP, whereas in Italy, 62.2% do, and in Hong Kong, 79.1% do (Kong Alnaami et *al*., 2019). A survey of nurses in Africa found that 63.6% suffer from LBP. It was shown that 54.3% of nurses in nearby Qatari research from 2015 suffered from LBP. There is a severe problem with LBP among nurses and other healthcare workers in South Africa, as in many other nations. Prevalence and risk factors for LBP in SA have been studied before, and the results were consistent with those found in the literature, finding a prevalence of 61.7% in Jeddah city and a prevalence of 80% in Riyadh city, respectively (Jradi *et al.* 2020).

There is an "epidemic in nursing" because of the high prevalence of MSDs among nurses, especially LBP, and the increased risk of MSDs among nurses compared to other health-care professionals and the general population. In most cases, a combination of variables determines whether or not a nurse would suffer from LBP due to the demands of their profession. Recent research has shown, for instance, that factors

including sex, age, body mass index (BMI), and experience might impact low back pain (LBP). Occupational factors such as long hours, poor posture, and shift work have also been linked to LBP (Jeyakumar and Segaran 2018).

There is speculation that LBP directly influences the limits and attendance of nurses, who make up around one-third of the staff at any given hospital. Moreover, psychological variables, such as stress and work satisfaction, and behavioral ones, such as being overweight or not getting enough exercise, significantly impact LBP occurrences. Nurses who suffer from low back discomfort can be less influential in the operating room (Nair 2020).

2.4 Types of the LBP

2.4.1 Flexion dominant back pain

This type of back pain is often described in terms of injury to the disc (though this is not always the case). What is more, the pattern of discomfort and other signs is usually consistent.

Signs and symptoms:

- Activities including sitting, bending, and lifting might exacerbate symptoms.
- Often experiences discomfort with coughing and sneezing; symptoms better after standing and walking; may include pain anywhere along the spine or the legs; can cause tingling or numbness; can progressively lead to weakness in the legs (but not always)
- Diminished Capacity to Move (difficulty straightening up after rising from sitting)

The Best Treatment for Flexion Maintaining spinal flexibility and relieving pain from dominant discomfort requires a directed exercise/stretch performed regularly throughout

the day. Passive, repetitive lumbar spine extension is a terrific place to start; however, a skilled physiotherapist should establish the specific stretch that is ideal for you should feel less discomfort and a more fantastic range of motion in your back after doing this stretch (Hall 2021).

2.4.2 Back pain that is more severe when extending

Extension There is often a pattern of dominant pain. Extension of the zygapophyseal joints, located in the lower back, is often cited as the source of the patient's primary complaint (or Z-joints). Like before, this is usually but not always the case of the issue.

Signs and symptoms:

- Pain after prolonged standing, temporary alleviation while seated or bending, and a constant, unchanging range of motion.
- Even if one's back is stiff, it is always stiff similarly.
- The following symptoms are associated with high-impact activities.
- Pain in the back and/or neck after running or gymnastics.
- Pain in the legs.
- Pain in the feet.
- Numbness or tingling in the feet in extreme instances.

Attention to Lengthening Finding techniques to alleviate strain on the spine during extension is a primary goal for those with dominant discomfort. Those who experience this discomfort generally stand with a little arch in their lower backs. Effective treatments include targeted ab stabilization exercises and hip mobility stretches (in particular, hip flexor stretches). Flexed postures, when used intermittently, may also assist in alleviating discomfort. Therapies like acupuncture and manual therapy, which help with pain relief, may also play a supporting role. Long-term care emphasizes developing strong abdominal muscles and a flexible spine. When your pain has been managed, your treatment plan might become more intensive. The plan will focus on

strengthening the back and hips to counteract the effects of muscular shortening (Barr *et al.* 2021).

2.4.3 Neurogenic claudication, section

The elderly (those aged 60 and above) are disproportionately affected by neurogenic claudication, a form of Extension Dominant back pain. A patient's ability to walk long distances may be severely impaired by this condition, which is brought on by the compression of nerves when standing and walking.

Symptoms include:

- A lack of symptoms when seated.
- Pain, numbness, or weakness in the legs after getting up and walking for a predetermined amount of time (length of time depends on severity);
- Many of these patients have no local spine pain;
- Once symptoms start, sitting or bending forward can alleviate them.
- Some people are observed hunching over shopping carts or similar devices to walk without pain in their legs.

Acute attacks of Neurogenic Claudication severely impair a patient's ability to walk, necessitating frequent rest pauses so that the nerves may heal. Patients in this situation should temporarily reduce their walking lengths and be offered a range of flexion-based stretches and methods to employ throughout the day. Exercises and training to counteract anterior pelvic tilt while standing may be helpful when symptoms subside. Patients in this situation should not "teach" themselves to go longer or "fight through the pain" since doing so is often like adding fuel to the fire.

Someone experiencing Neurogenic Claudication should focus on two areas of recovery: First, the patient needs sufficient abdominal strength so that the spine does not arch or

stretch as they walk. Second, the patient needs sufficient hip mobility so that the pelvis isn't dragged into an anterior tilt when they stand and walk (Barr *et al.* 2021).

2.4.4 Pain in the Back, Inflammation

The inflammatory kind of back pain is less prevalent than the mechanical variety, although it is often misdiagnosed. Inflammation of the spinal joints to an extreme degree is the root cause of this form of pain, which is brought on by a medical condition that causes the immune system to attack the spinal joints. Ankylosing spondylitis is one example of a disorder that may cause inflammatory back pain. However, inflammatory back pain may be caused by various health issues.

Symptoms and warning signs:

- Patients under 35 years of age and with no history of trauma are more likely to have discomfort.
- Back pain and stiffness increase with inactivity, particularly at night and in the morning, and improve with movement and light exercise.
- Most patients may benefit from nonsteroidal anti-inflammatory drugs (NSAIDs) such as ibuprofen or Naproxen in reducing pain and stiffness.

Some research suggests that turmeric may be helpful as a natural strategy to help decrease inflammation without the potential adverse effects of conventional anti-inflammatory medicines.

Patients should be provided with a treatment plan that instructs them on relieving postures and activities to avoid during acute episodes. A mild exercise regimen may help keep mobility and discomfort at bay, but physiotherapy cannot change the inevitable course of this ailment. The physiotherapist may implement a more intensive restoration program when the patient's symptoms are under control, and their pain level

is minimal. In addition, functional strength exercises with little impact may be beneficial (López-Medina and Molto 2020).

2.4.5 Problems with Constant Pain

Pain disorders originating in the back are notoriously challenging for doctors. The brain experiences pain in response to what the nervous system perceives as threatening stimuli but are not unpleasant or detrimental to the body. An in-depth familiarity with the patient and their background is essential for resolving this intricate problem.

It may be tremendously disheartening when medical experts constantly inform them that they see no biological basis for their discomfort. It is crucial to stress that the agony these patients experience is just as physically absolute as it is for those suffering from a mechanical injury. These people do not respond to standard medical care. They are best served by collaborating with a multidisciplinary healthcare team, including a physiotherapist with a solid grasp of pain science.

Signs and symptoms:

- Pain does not follow traditional anatomic boundaries
- The location of pain may move to encompass other sections of the body
- Pain may be made worse by a condition of worry or depression
- Changes in pain intensity are not always caused by mechanical injury or stress on the body.

Patients with chronic pain try out several approaches until they discover one that provides enough relief. Physiotherapists should assist these patients in comprehending their discomfort and advise them to preserve physical fitness and function. It is also crucial to rule out any underlying conditions, such as anxiety or depression, that might make things worse. A qualified expert needs to deal with these concerns. Rare pain diseases of this kind.

2.5 Risk Factors of LBP

Age is a significant contributor to the development of back pain. Some studies have found that the highest in the third decade, and the general prevalence increases with age 60 or 65 years old (Kopec *et al.* 2004). Factors that raise one's likelihood of contracting an illness are called risk factors.

Found spread It continues to increase with age for more severe forms of low back pain, and an increasing number of Studies have shown that low back pain is a widespread problem among adolescents (Ganesan *et al.* 2017).

Our comprehensive review indicated that both the mean and prevalence of low back pain was more significant in women, even though most studies did not discover a statistically significant difference between the sexes. Evidence suggests that older women, in particular, may be at a more significant risk than younger women. Compared to older men, females are more likely to suffer from chronic low back pain and miss time at work or seek medical attention because of it (Al-Awadhi *et al.* 2005).

There is evidence from two studies of obesity or a high body mass index (BMI) (>30). It is linked to a rise in cases of back discomfort. The correlation may be more significant in more women than men. Two more research reach the same conclusion. Namely, genetics greatly influence lumbar disc Decadence, and that intense physical stress, whether from work or recreation, is no longer considered necessary. The direction of the links between psychological elements such as stress, anxiety, depression, and pain behavior and low back pain is not always apparent (Dunn *et al.* 2006).

Evidence indicates that psychosocial factors are also significantly associated with the Transition from acute to chronic low back pain. Both mental and social forces at work were important, too. Low back discomfort has also been linked to other issues in the workplace. Matsui et al. establish a causal link between the rigors of one's job and the incidence of low back pain (working women excluded). They found that the prevalence

point of low back pain was 39% among manual workers, and a systematic study indicated that manual handling, bending, twisting, and vibration of the complete body were risk factors for low back pain. However, there is a lack of information on the risks faced by workers in low-income nations (Thiese *et al.* 2020).

Despite the variability in the prevalence rates reported for back and neck pain in the general population, it is evident that spine pain is a common and significant medical condition with a tremendous social and economic impact on society. Back pain is a leading cause of absenteeism from work, epidemiology, and risk factors for spine pain 359 the monetary costs to society from short-term disability and workers' compensation are huge. The first step in reducing the societal effect of back pain is to identify the risk factors that put people at a higher risk of developing the condition. Numerous research has looked for and analyzed the role of various demographic, physical, socioeconomic, psychological, and occupational variables in the onset of spinal pain. Since many risk factor studies depend on self-reported characteristics and statistical correlations of connection among large population cohorts, evaluating the literature may be difficult. Several contributing variables might put someone at risk of developing discomfort. According to a study several studies have investigated the correlation between back pain and personal and occupational characteristics. The financial impact of low back pain on a person may be substantial. Individuals affected by the condition tend to amass less money over time than those who do not suffer from this issue. Complicating factors amplify this effect (Schofield *et al.* 2015).

Back discomfort is the most significant cause of early retirement among older employees, displacing more individuals from the labor force than cardiovascular illness, diabetes, hypertension, cancer, asthma, and all other respiratory, gastrointestinal, and musculoskeletal disorders. Premature retirees over 65 who leave the workforce due to low back pain have 87% fewer wealth and income-producing assets than their full-time working peers. Multiple meta-analyses of qualitative studies detail what it is like to have chronic low back pain (Schofield *et al.* 2011).

These were demographic factors, age, sex, BMI, work experience, working hours, Socioeconomic status, lack of safety training, repetitive awkward working posture (bending, twisting, and overstretching), work shift, prolonged standing, lifting heavy objects, Tobacco, sleeping disturbance, history of back trauma, previous medical history of MSD, and lack of adequate rest interval at work (Jegnie and Afework 2021).

Because of this, it is essential to recognize that the causes of low back pain may be varied. Thus, it becomes challenging to identify potential dangers. Risk factors for low back pain have been the subject of several epidemiologic research to decipher the healthcare riddle of the 20th century. These studies have examined a wide range of potential causes, including those related to work, leisure, and mental health. Therefore, it is impossible to determine whether or not a risk factor is a causative based on the results of a single research, no matter how thoroughly it was conducted. Factors such as heavy physical strain, frequent lifting, postural stress, and vibration, as well as lifestyle and physical capacity, gender, age, race, genetic factors, height, and weight, smoking, excessive alcohol consumption, poor general health, and psychological stress, are just some of the many causes of low back pain and sciatica. Many of the abovementioned risks are also very prevalent in the asymptomatic community at large (Posch *et al*. 2019).

2.6 Signs and Symptoms of LPB

- Low back pain that is either dull or achy and localized.
- Pain that is piercing and scorching, radiating from the lower back to the rears of the thighs and, at times, the lower legs and feet, may be accompanied by numbness and tingling (sciatica)
- Back, hip, and pelvic muscle stiffness and spasms.
- Problems in standing up straight, walking, or transitioning between standing and sitting; pain that develops after sitting or standing for lengthy periods, dull ache, numbness, tingling, sharp pain, pulsating pain, pain with pins and needles sensation, muscle spasm, movement of the spine, and sciatica with shooting pain down one or both lower extremities,

- Tenderness, rash, and loss of continence of bowel or bladder.
- In addition, the onset and duration of lower back pain symptoms are often reported.
- Sharp pain: This kind of pain is common after an accident or when tissues are damaged, and it usually develops quickly and lasts for a few days or weeks. As the body begins to mend, the discomfort will lessen.
- Subacute lower back discomfort: In most cases, this kind of pain is mechanical (like a muscle strain or joint ache), yet it may last up to three months. When pain becomes so severe that it interferes with eating, sleeping, or working, it is time to think about getting checked out by a doctor.

Constant ache in the back extreme, persistent discomfort in the lower back that has persisted for more than three months often needs a comprehensive medical evaluation to pinpoint their cause (Almalki *et al.* 2021).

2.7 Type Characteristics of LBP

2.7.1 Features Associated with Pain

It is generally accepted that pain is more than just a peripheral communication about tissue "damage" that has been processed and sent to the central nervous system. Instead, a person's perception of pain is based on their risk assessment of a given input (such as nociceptive input from an intervertebral disk), which takes into account not just the severity of the input but also their own past experiences, beliefs, and contextual circumstances. So, it should not come as a surprise that the pain features of people with debilitating LBP are very varied and change over time, indicating the involvement of several multidimensional variables in pain systems (Rabey *et al.* 2015).

One of the most significant predictors of future debilitating LBP is a prior diagnosis of LBP, demonstrating that these processes continue for many individuals. Understanding that there is a spectrum of pain characteristics allows for a better understanding of the

multidimensional interactions associated with an individual's presentation and aids in guiding management, even though subgrouping people into purely "central" or "peripheral" pain mechanisms do not reflect the individual and complex nature of disabling LBP (Fillingim 2017).

For some people, pain is localized and has a distinct "mechanical stimulus-pain response" (that is, certain spinal positions, motions, and activities temporarily aggravate and alleviate pain). These characteristics may reflect cortically mediated nociceptive processes linked to learned associations between feared (threatening) activities or movements and nociceptive processing, or they may reflect primarily peripherally mediated nociceptive processes linked to increased loading and reduced movement variability associated with provocative motor responses to pain (Rabey *et al.* 2015).

Some people experience pain throughout their bodies, while others have exaggerated, inconsistent, or long-lasting pain reactions to mild mechanical stimulation. Sensitivity to touch, temperature, motion, and load may accompany the pain, likely due to an exaggeration of nociceptive signals at the spinal and brain stem levels. Some patients with debilitating LBP lack distinct repeatable clinical signs, even if central pain causes are likely to predominate; many others present with a complicated pain picture (Rabey *et al.* 2015).

2.7.2 Anatomical and Physiological Determinants of Diseases

One specific pathoanatomical etiology of debilitating LBP cannot be identified in most sufferers (90%-95%). It is estimated that between 5 and 10 percent of persons who have debilitating LBP also have a particular spinal pathology, such as a disk prolapse with radicular pain, neurological loss, or cauda equina involvement. Though most patients with disk prolapse and radicular discomfort get well without surgery, those with cauda equina symptoms or worsening neurology should be checked immediately. (Maher *et al.* 2017).

Magnetic resonance imaging abnormalities (such as extensive multilevel disk degeneration and vertebral endplate alterations) show a weak to moderate correlation with debilitating LBP, although they are more common in older, pain-free patients (Steffens *et al.* 2014).

This data emphasizes that, even when nociceptive input is present, pain, distress, and impairment levels will vary according to a complex interaction of individual characteristics. The reporting of pathoanatomical results may potentially heighten patient worries leading to worry and discomfort and iatrogenic impairment if they are not conveyed correctly. Patients should be made aware that, although pathoanatomical variables cannot permanently be changed, there is still a significant chance that certain disorders may improve with time. Although thinking about the patient's pathology is crucial, it is just one facet of a thorough examination and sound clinical judgment. In this way, the clinician may take a holistic picture of LBP that interferes with daily life without being overwhelmed by the number of issues to evaluate (Benson *et al.* 2010).

2.7.3 Natural Variables

Disabling LBP has been linked to high levels and patterns of exposure to mechanical spinal loading related to everyday life, employment, and/or sport, including heavy and/or recurrent loading, uncomfortable bending, and twisting. These combine with others to raise the danger of pain, including routine motions, fitness levels, feelings of exhaustion, health status, and mental state (Ng *et al.* 2015).

As opposed to this, pain-related functional behaviors are motor reactions to pain, the anticipation of pain, and/or pain-related suffering. Stiffer, slower, less varied, and more guarded spinal motions are typical of these behaviors, as are increased trunk muscular activity and difficulty relaxing the back muscles during routine actions like forward bending. This kind of reaction is occasionally seen in the context of acute tissue disease and/or severe damage, and it may be protective and adaptive in this situation. On the other hand, they become maladaptive, unhelpful, and provocative when they are out of

proportion to the severity of trauma or tissue disease or when they last longer than the period necessary for tissues to recover (Tsang *et al.* 2017).

People may have different pain thresholds in reaction to mechanical stress. Certain persons, for instance, may experience pain upon performing motions such as bending at the waist, twisting at the waist, or extending at the hips. Individual differences in the functional behaviors associated with these pain responses have also been reported. Activated flexion or extension of the lumbar spine may be to blame for back discomfort brought on by activities like sitting, bending forward, or lifting (Rabey *et al.* 2017).

However, for those who experience discomfort while performing these actions, shifting their weight to the unaffected side and engaging in other lateral movements may become standard operating procedure. Subtle alterations in movement and posture during functional activities are one form that some people's pain-related functional behaviors take. Overt safety behaviors (such as propping up with the hands and avoiding loading a limb or spinal movement, recurrent touching, or "testing" the pain) and communication behaviors (such as grimacing and wincing) are common among people with high degrees of pain-related suffering and incapacity. Some people exhibit sympathetic nervous system reactions (such as fast apical breathing, intense muscular tension, fluttering eyelids, perspiration, and restlessness) while under stress or when faced with dreaded activities. Highlighting the solid body-mind connection, these pain-related functional behaviors are connected to pain-related characteristics such as anxiety and distress, tissue sensitivity, and altered body perception (Glombiewski *et al.* 2015).

2.7.4 Considerations of a psychological nature

There is evidence that cognitive and affective psychological aspects affect how people experience, process, and respond to pain. Emotional states are reflected by affective components, which may be influenced by the experience of pain, societal pressures, and/or co-occurring mental health issues. Or the dread of enduring unpleasant sensations. The degree of dread you feel depends on how you judge your capacity to manage your discomfort, how predictable it is, and how intense it is. High levels of

perceived stress and adverse reactions to social pressures; anxiety, pain, and depression linked to declines in functional capacity and quality of life; and extreme feelings of frustration, wrath, and a sense of unfairness are all examples of possible harmful emotional elements (Bunzli *et al.* 2015).

Pain is typically exaggerated, and unproductive coping mechanisms are used, which contribute to impairment when one's outlook is negative, and one is experiencing emotional distress. Some people equate hostile reactions with avoiding useful things like working, socializing, going out, and enjoying one's leisure time (Leeuw *et al.* 2007).

Despite increasing discomfort and misery, some people's functional actions remain cautious and suggestive as they continue to partake in their preferred, nociceptive activities. The "boom and bust" cycle of pain persistence and avoidance is seen in many persons who mix these two coping mechanisms (O'Sullivan *et al.* 2018).

2.7.5 Societal Aspects

Disabling LBP is also influenced by historical and contextual social variables and the degrees of distress connected with them. Some examples of these include cultural and societal conditioning (such as a family history of disabling LBP, socioeconomic status, and level of education), exposure to stressful life events and situations (such as abuse, poverty, dysfunctional family relationships, hostile work environments, and legal action involving disabling LBP), and unhealthy interpersonal dynamics (e.g., punishing or solicitous). However, although social circumstances may not be changed depending on the person's life narrative, their involvement in the individual's experience of pain should be explored with the individual (Coggon *et al.* 2013).

2.7.6 Influences arising from one's way of life

Disabling low back pain (LBP) is well acknowledged to be influenced by and affected by various lifestyle variables. Disabling LBP and sleep disorders are often seen together. Debilitating LBP is a risk factor for poor sleep, while poor sleep is a risk factor for disabling LBP. Sleep's effects extend beyond the physical to the mental and emotional, which may improve or worsen things. Sleep problems and/or discomfort are associated with the onset of debilitating LBP (Lusa *et al.* 2015).

Disabling LBP is associated with inactivity (less than 90 minutes of physical exercise per week) and excessive activity (defined as more than 100 minutes of strenuous activity per day). There is mounting evidence that the loading and inflammatory processes of LBP are affected by lifestyle choices that contribute to abdominal obesity. Inflammatory processes, physical deconditioning, and bone health are all significantly impacted by insufficient exercise and a sedentary lifestyle. Cigarette smoking has also been linked to LBP, albeit the correlation is weak, and the underlying mechanism is not well understood (Okifuji and Hare 2015).

2.7.7 Aspects of General Health

Disabling health conditions, known as comorbidities, significantly impact disability rates and may create additional challenges for care providers. Diagnosed mental health disorders, sleep apnea, concomitant pain issues, obesity, and "nonspecific" health concerns, including exhaustion, insomnia, and irritable bowel syndrome, could all indicate overlapping neuroendocrine-immune pathways. This has been supported by several studies (O'Sullivan *et al.* 2018).

2.8 Guidelines for the clinical management of low back pain

According to the guidelines, non-pharmacological and non-invasive treatment is the preferred option. Exercise therapy, patient education, and other forms of active

intervention are all examples. Physical activity is often recommended in recommendations for the treatment of non-specific LBP. These guidelines stress the need to exercise caution while using diagnostic imaging, pharmaceuticals, and surgical procedures. In order to better coordinate care for different risk groups, the National Institute for Health and Care Excellence (NICE) recommends using a risk stratification tool (Jorgensen *et al.* 2018).

A clinical examination may be used to triage patients with low back pain.

A thorough history, physical examination, and a battery of neurological testing may identify radicular characteristics. Patients with low back pain should undergo diagnostic testing (such as MRI) and be screened for red flags' to rule out significant diseases (Almeida *et al.* 2018).

There is a need to evaluate potential psychosocial risk factors (yellow flags on prognostic screening tools) that may indicate a direr prognosis. The need for more complex and time-consuming care may be discussed and decided upon with the patient. After four weeks, if no recovery has occurred and a significant pathology or radiculopathy is detected, a professional appointment is advised (Strudwick *et al.* 2018).

Advice on self-management, encouragement to avoid bed rest and keep active, direction to resume regular activities, and referral to a group or individual fitness program are all examples of more superficial forms of treatment. A combined rehabilitation program might be used in conjunction with manual or psychiatric therapy (Shipton 2018).

2.9 Prevention of LBP

For low back pain to have less of an impact on people's everyday lives, public health initiatives that target obesity and insufficient exercise should be created. Evidence for chronic lower back pain prevention and treatment is often sourced to high-income

nations. It is unclear whether or not these guidelines can be implemented in nations with lower and intermediate incomes (Foster *et al.* 2018).

The importance of public health initiatives and the resources allocated to them will vary significantly amongst nations of varying socioeconomic status. Changing health pathways is hampered by the status quo of healthcare financing. The patient's journey through the healthcare system, from the first consultation to specialist treatment, may be facilitated by having this whole process laid out. Healthcare providers should routinely inform patients about the risks and advantages of physical activity and exercise, as well as the origins, processes, natural history, and prognosis of low back pain (Buchbinder *et al.* 2018).

Popular therapies to prevent low back pain focus on reducing exposure to potential causes. The use of lifting equipment, back braces, and ergonomically designed office furniture are all therapies that try to lessen the strain on the spine. Few randomized controlled studies have examined such approaches, and most preventative therapies have only superficial efficacy. It was determined in a 2016 evaluation (21 trials, 30.850 patients) that exercise alone or in conjunction with education is eff ective for avoiding low back pain, but other therapies such as education alone, back belts, and shoe insoles do not appear to prevent low back pain. Despite the need for caution due to the small sample sizes of most studies, the extent of the protective effect for therapies that were shown to be effective was substantial. By comparison, the probability of experiencing low back pain in the next year was decreased by 35% with exercise alone but 45% when combined with education. (Foster *et al.* 2018).

Exercises for the upper and lower limbs, as well as those to promote aerobic fitness, strength, flexibility, and skill or coordination, were included in the programs, and those explicitly targeted at the back. Regular time investment in the fitness programs was necessary.

2.10 Treatment for LBP

Recommendations in national clinical practice guidelines have evolved during the last 30 years (UK 2016). Non-specific low back pain is discomfort in that area without an obvious origin, and these recommendations are intended to help with it. Given the links between past behaviors, mental health, social circumstances, and long-term pain and disability, 5–8 suggest using a biopsychosocial model to guide evaluation and treatment. Per guidelines, laboratory testing and imaging are not recommended for regular usage in the early stages of patient care. They should be reserved for individuals whose results are likely to alter treatment (e.g., if a severe condition, such as infection, is suspected).

Self-management, physical and psychological therapy, and certain kinds of alternative medicine have greatly surpassed pharmaceutical and surgical treatments. Active therapies that concentrate on addressing psychosocial problems and enhancing function are encouraged by guidelines. Consistent recommendations for early management are that individuals should be provided with advice and education about the nature of low back pain and radicular pain; reassurance that they do not have severe disease and that symptoms will improve over time; and encouragement to avoid bed rest, stay active, and continue with usual activities, including work. Early supervised exercise therapy is typically unnecessary; however, it can be considered if recovery is slow or for patients with risk factors (Foster *et al.* 2018).

They are caused by constant, debilitating agony. The available evidence does not imply that initial therapy of acute radiculopathy varies from acute non-specific low back pain unless the patient has significant or worsening motor impairment. Particularly for long-lasting low back pain (>12 weeks), a graded activity or exercise program is recommended to help with pain, increase mobility, and decrease impairment. Since there is no conclusive evidence to support the superiority of one kind of exercise over another, recommendations advocate exercise programs that allow participants to tailor their workouts to their unique goals, preferences, and skills. Recommendations vary for passive therapies such as spinal manipulation or mobilization, massage, and acupuncture. Some guidelines deem these treatments unnecessary, while others see

them as complementary. A variety of other passive electrical and physical techniques, including ultrasound and transcutaneous electrical nerve stimulation (Chou *et al.* 2016).

Non-specific low back pain (LBP) is often treated with exercise, according to Low Back Pain Guidelines. Nonpharmaceutical intervention at an early stage is encouraged. For individuals whose symptoms do not improve, this may include psychological programs, education, self-management, and the return to regular activities and exercise. Therapeutic interventions that include movement have as their goal the restoration or restoration of function and the prevention of impairment. Physical activity may be performed in either a group setting or on an individual basis, and no data suggests that one is more effective than the other. A reduction in disability is associated with active techniques, such as exercise. It is not advised to use passive techniques (rest, drugs) due to their link to worsening impairment. Exercise is recommended as a standalone or adjunctive non-pharmacological treatment for depression by Denmark, the United States of America, and the United Kingdom guidelines. Some examples include spine manipulation, massage, yoga, and tai chi. The public should be educated on how to avoid low back pain via public health initiatives. As a first-line treatment option, physical therapy exercises should be utilized often for persistent low back pain (Shipton 2018).

A variety of exercise routines with a focus on developing lumbopelvic and abdominal control fall under the umbrella term "core stability exercises." These routines aim to strengthen the body's neuromuscular and motor control systems, making them more equipped to avoid spinal injuries. Exercises to strengthen the core and the pelvis may be included in LBP patients' preventative and rehabilitative care plans.

A recent meta-analysis has shown patients with chronic low back pain benefit more quickly and significantly from core stability exercises than from general exercises in pain reduction and improvement in physical function. In a study(Klizieneet *et al.* 2015).

Findings showed that core stability training increased the lumbar multifidus (LM) muscle's cross-sectional area in healthy and CLBP women. Patients with chronic low

back pain (CLBP) who engage in lumbopelvic core stability exercises have greater resting and contracting transversus abdominis thickness than those who do not. They did not, however, talk about other clinical outcomes like quality of life or disability (Leonard *et al.* 2015).

Research on the efficacy of various core stability programs as a therapy for LBP is extensive. There are two basic types of rehabilitation used by clinicians: motor control, which focuses on strengthening particular muscles (such as the lumbar and lateral abdominals), and general exercise, which targets the whole body. Some of the various methods utilized in core stability exercises include the use of a yoga ball, a Swiss ball, and even water (Bayraktar *et al.* 2016).

A multi-stage, progressive program is an efficient method of completing core stability exercises. First, the program works to restore normal range of motion and muscle length to address any musculoskeletal imbalances that may have developed. The patient's tolerance is then assessed before progressing to more sophisticated exercises on a mat and with a physioball, all to activate the central core muscles (most notably the LM and the lateral abdominal muscles). The procedure concludes with a return to a standing posture and functional activities, producing the intended results of improved trunk muscular coordination, strength, and stability (Noormohammadpour *et al.* 2018).

2.11 Intervention of LBP

In order to do a network meta-analysis, non-drug interventions were categorized into 12 groups, with "none" left out of the intervention measures. This excluded both traditional Chinese medicine and western medicine. The following categories were assigned to the codes for statistical purposes:

a. Physical activity and health education.
b. Health education, which may include instruction in ergonomics and mechanics, as well as advice on improving manual dexterity.

c. Multidisciplinary intervention: health, education, physical activity, and psychological intervention.
d. Therapies involving manipulation, such as massage, acupuncture, and feet reflexology.
e. Combining manipulation therapy with physical activity (option)
f. None: includes sustaining one's lifestyle, essential lifestyle guide, and blank contrast.
g. Yoga.
h. Wearing orthotic shoes and protective belts is a good idea.
i. Safety gear.
j. Low back exercises, such as low back gymnastics, core stability training exercises, home-made low back gymnastics, and other similar activities.
k. Health training with an emphasis on low back conditioning.
l. Self-management.
m. L. Health education and self-management are the letters (Sun *et al.* 2021).

Exercises aimed at increasing spinal muscular flexibility, strength, flexibility and strength, strength and aerobic fitness, and strength and aerobic fitness were all included as treatments in the studies (Hill and Keating 2015).

Strengthening, endurance, and coordination exercises; stretching and endurance exercise yoga; neuromuscular exercise to improve participants' control of movement in the lower back and enhance trunk muscular endurance and spinal stability; and a combination of posture and balance exercises; endurance and functional exercises, stretching exercises, and aerobic fitness (Tonosuet *et al*. 2016).

Various therapies lasted from three weeks to two years. Adherence to exercise has been observed in various studies, with numbers ranging from 30% to 90% (Shiri *et al.* 2018).

There are some commonalities between NSCLBP and low back pain in the general population, but there are also some differences. First, the causes of NSCLBP in nurses are somewhat unique when compared to those in other professions; the nature of the job necessitates a great deal of physical and mental exertion, as well as a high level of technical expertise, particularly for those who work in intensive care units and emergency rooms. Occupational factors, such as helping patients roll over, conducting catheterization, or inserting a central venous catheter (CVC), are common triggers of NSCLBP in nurses (Hu *et al.* 2019).

Second, several non-drug therapies, such as ergonomics training, unstable shoes, and assistance aids for transferring patients, are directed toward nurses. Better monitoring and treatment of NSCLBP for nurses is necessary, especially since medication therapies may cause gastrointestinal and cardiovascular system damage, and there is presently no viable surgical therapy (Alperovitch-Najenson *et al.* 2020).

Yoga, low back exercises, physical activity, multidisciplinary intervention, cognitive behavioral therapy, and health education are some of the non-drug therapies demonstrated to be effective in relieving NSCLBP. Although non-drug therapies effectively manage NSCLBP, nurses face obstacles due to the lack of clarity around the best option. Due to the complexities of broad non-drug therapies and the paucity of head-to-head randomized controlled trials (RCTs), it is hard to determine the best effective intervention in nurses with NSCLBP using typical meta-analysis techniques (Pakbaz *et al.* 2019).

3. MATERIALS AND METHODS

3.1 Study setting

The study was conducted in (Al-Diwaniya Teaching Hospital at the joints and fractures consultantin in Al-Qadisiya City / Iraq) between July 10, 2022, to October 15, 2022.

3.2 Ethical committee approval

Çankırı Karatekın University Scientific Research Evaluation Ethical Committee granted ethical approval and permission for the researcher to begin studying the thesis and to facilitate the task of the researcher to obtaining information from participants, under Resolution (No: 25, Date: 21/4/2022) (Appendix 2), ensuring that the research would be conducted in a way that is both ethical and safe for the participants. In order to get authorization from the Iraqi Ministry of Health, the researcher first had to get it from the Behavioral Research and Ethics Councils, and then he or she had to show the whole thing to the Diwaniyah Health Directorate to ensure his approval and cooperation on (No: 22, Date:25/3/2022) (Appendix 3).

3.3 Study design

The study was a descriptive cross-sectional study conducted on patients with lower back pain at Al-Diwaniyah Teaching Hospital, Al-Qadisiya City, in Iraq.

3.4 The study sample

The study sample was 450 patients suffering from Lower Back Pain in Al-Diwaniya Teaching Hospital in Al-Qadisiya City/ Iraq. Simple random sampling, accepted as a probability-based sampling method, will be used in sample selection. The formula n = N x t2 x p x q / d2 (N-1) + t2 x p x q was used in the sampling calculation. The symbols used in the formula are given below (Karasar, 2014). According to the simple random

sampling formula, with a confidence interval of 95% and a margin of error of 0.05, When putting the research data into the equation, it was concluded that the number of samples that can represent the population of (450) people should be no less than (208), according to the results of the calculations. The theoretical value of the research is 1.96, with a 95% confidence interval and a sampling error of 0.05.

3.4.1 The inclusion criteria

A. Patients with low back pain

B. Patients who wish to participate in the study.

C. Which includes patients of both sexes (Mal and female).

D. .Patients frequent the Diwaniyah Teaching Hospital.

E. .The age range includes all of the following: Not less than 30 years and not more than 80 years.

3.4.2 Criteria for exclusion

A. Patients who have serious diseases that may prevent them from taking part in the research.

B. .Reluctant patients who were invited to join the trial.

3.5 Data collection

The method used is to collect data from the study sample through questions directed to patients about lower back pain and the level of disability it causes them in their daily lives for 15-25 minutes, which they answer accurately and independently without the researcher's interference in their answers and without leaving any questions.

3.6 The Study questionnaire includes the following:

- **Part 1: The socio-demographic form:** The personal information form will be used to determine the socio-demographic characteristics of patients. The socio-demographic consists of (Age, Gender, Marital Status, Smoking, Educational Status, Occupation, Work Experience (years), Income Status, Previous Diseases, Live with Whom, Duration of Diagnosis, and Weight).
- **Part 2: The quebec back pain disability scale**: Consists of 20 items. This questionnaire concerns how back pain affects daily life and makes disability. The patient's answer (0. Not tricky at all / 1. Minimally complex / 2. Somewhat difficult / 3. Fairly difficult / 4. Very difficult / 5. Unable to do).

  The Quebec Back Pain Disability Scale questionnaire consists of 20 items, the Arabic version with a validity and reliability rating. The QDS has an excellent reliability coefficient (α= 0.86–0.98) in repeated-measures testing (P 0.001). Cronbach's alpha for inter-item consistency was 0.92, while the overall consistency was between 0.84 and 0.86. Construct validity was supported by a positive correlation between the Arabic QDS, ODI, and NPRS instruments (P = 0.69, P 0.01). The NPRS (r = 0.61) and the ODI (r = 0.67, P 0.01) in Arabic were positively correlated. There was a fair assessment of both the face and content validity (Alnahhal and May 2012).
- **Part 3: The oswestry index for low back pain:** Consists of 10 items, this questionnaire is about how back pain affects a patient's life and makes disability. (1. Pain intensity, 2.Personal care, 3.Lifting, 4. Walking, 5. Sitting, 6. Standing, 7.Sleeping, 8. Sex life, 9.Social life, 10. Traveling), each ıtem consists of six questions (Co *et al.* 1993).
- **Part 4: International physical activity questionnaire (IPAQ):** Consists of 7 items. It includes all the active activities the patient has done in the last seven days. (1. How many days in the last week have you engaged in strenuous physical activity, such as weight lifting, digging, aerobics, or speed bicycling? 2. When you think back on one of those days, 3. How long did you typically spend engaging in strenuous physical activities? 4. How many days in the recent week have you engaged in moderate physical activities like walking or biking for

short distances at a moderate pace or playing doubles tennis? 5. How long did you typically spend engaging in moderate physical activities on one of those days? 6. How many times have you gone for a stroll lasting at least 10 minutes in the last week? During one of those days, how long did you typically walk? 7. How many hours each week have you spent sitting in the last week?) Answers to these questions are specified in days, hours, and minutes (Ainsworth 2006).

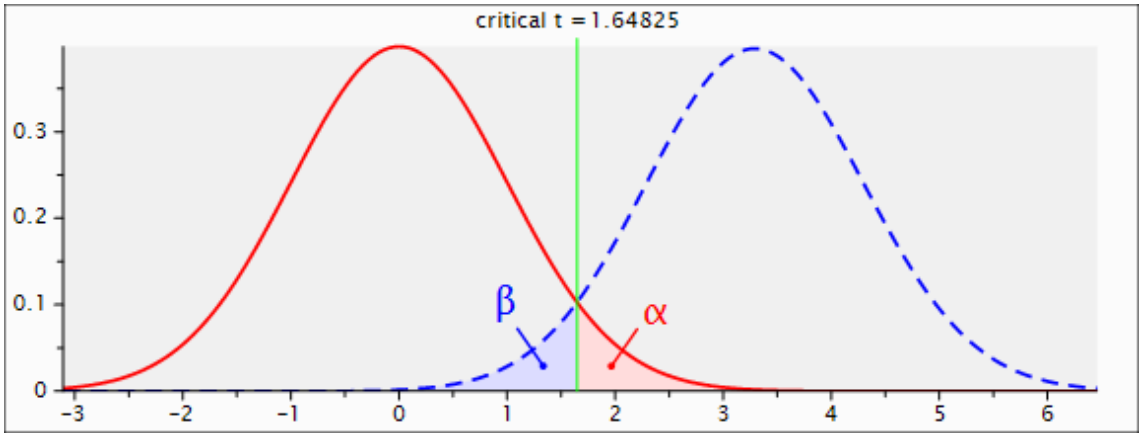
3.7 Data Analysis

The data will be analyzed using frequency, percentage, mean, standard deviation, hierarchical regression, one-way analysis of variance, and independent sample t-test in SPSS software. The significance level to be determined in evaluating the data is P≤.05.

3.8 G.power analysis

t tests – Means: Difference between two dependent means (matched pairs)

Analysis:	A priori: Compute required sample size		
Input:	Tail(s)	=	One
	Effect size dz	=	0.1553288
	α err prob	=	0.05
	Power (1−β err prob)	=	0.95
Output:	Noncentrality parameter δ	=	3.2950214
	Critical t	=	1.6482544
	Df	=	449
	Total sample size	=	450
	Actual power	=	0.9500355



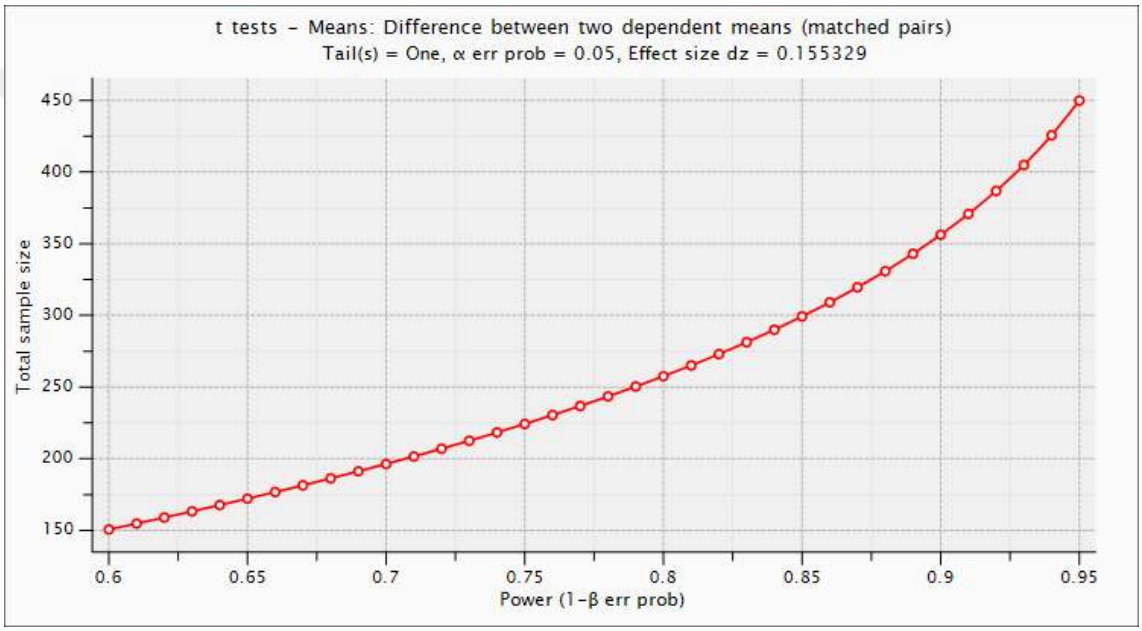


Figure 3.1 G.power analysis

4. RESULTS

This chapter extensively introduces the outcomes of the research in tables, and these refer to the objectives of this study, which are as follows:

Table (4.1) represents the descriptive statistics of socio-demographic information of the people with lower back pain in terms of frequencies and percentages. Out of (450) Patients participating in this study, their ages ranged from 41 to 50 years old and made up (32 percent) of the total number of participants. In terms of gender, male patients were predominant and made up more than half in comparison with a female, composed (59.3%). Marital status related to the findings, patients were demonstrated as married and constituted the higher percentage (84.4%), and about occupation status, the result show most of the study sample were workers (68.7%); regarding working experience years, the finding revealed that (42.4%) have more than 11 years, It is clear from the findings that majority of the study sample were Illiterate, it reflected (40.9 percent) out the total number, The findings show the distribution of the studied sample according to the weight; results show that most of the patients weighted from 82 to 97 kg (54.7 percent).

Table 4.1 Descriptive statistic of socio-demographic characteristics of the patients with back pain (n=450).

Demographic Data		Freq.	%
Age in groups	<65	299	66.4
	65-75	120	26.7
	>75	31	6.9
	Total	450	100.0
Gender	Male	267	59.3
	Female	183	40.7
	Total	450	100.0
Educational level	Illiterate	184	40.9
	Read and write	115	25.6
	Primary school graduate	64	14.2
	Intermediate school graduate	49	10.9
	Lisans	38	8.4
	Total	450	100.0
Marital Status	Married	380	84.4

	Unmarried	70	15.6
	Total	450	100.0
Occupation	Job	112	24.9
	Worker	309	68.7
	Retired	29	6.4
	Total	450	100.0
Work Experience (years)	> 5	88	19.6
	6-10	171	38.0
	11<	191	42.4
	Total	450	100.0
Previous Diseases	No	165	36.4
	Yes	285	63.6
	Total	450	100.0
Income Status	Low	125	27.8
	Moderate	294	65.3
	High	31	6.9
	Total	450	100.0
Live with Who	With Alone	35	7.8
	With his family	380	84.4
	With others	35	7.8
	Total	450	100.0
Duration	1 to 10	155	34.4
	11 to 20	113	25.1
	21 to 30	17	3.8
	Total	285	63.3
Body mass index	Normal	4	.9
	Overweight	145	32.2
	Obese (Class I)	246	54.7
	Obese (Class II)	55	12.2
	Total	450	100.0

from table (4.2) In the light of statistical analysis mean and stander division, this table illustrated the items geared for those with lower back pain using the Quebec Disability Scale for Back Pain.

Table 4.2 The quebec back pain disability scale (450)

No	Items	Mean	SD
1	Get out of bed	2.54	.985
2	Sleep through the night	2.92	.861

3	Turnover in bed	2.99	.937
4	Ride in a car	2.70	.966
5	Stand up for 20-30 minutes	2.03	.997
6	Sit in a chair for several hours	1.62	.720
7	Climb one flight of stairs	2.86	.954
8	Walk a few blocks (300-400 m)	3.94	.957
9	Walk several kilometers	1.77	1.086
10	Reach up to high shelves	1.40	.737
11	Throw a ball	1.99	.934
12	Run one block (about 100m)	.67	.489
13	Take food out of the refrigerator	4.06	.832
14	Make your bed	3.58	.929
15	Put on socks (pantyhose)	2.97	1.015
16	Bend over to clean the bathtub	2.18	.843
17	Move a chair	2.29	.945
18	Pull or push heavy doors	1.28	.695
19	Carry two bags of groceries	1.69	.784
20	Lift and carry a heavy suitcase	.79	.488

This Table 4.3) Findings according overall from the Quebec Disability Scale for Back Pain indicate that (89.8 %) of patients were severe pain and disability level, followed by those who were very severe pain and disability level (8.2%) and followed by those who were Moderate pain and disability level (2 %).

Table 4.4 Patient responses to overall the quebec back pain disability scale

Overall	Rating	Frequency	Percent
Quebec Back Pain Disability Scale	Moderate	9	2.0
	Sever	404	89.8
	Very severe	37	8.2
	Total	450	100

N (450), 0 – 9 mild pain, 10 - 30 moderate pain, 31 – 54 Sever pain, 55 – 75 very severe pain, 76- 100 extreme pain.

In this table(4.4) in the light of statistical analysis mean and stander division, this table illustrates the items of the Oswestry Index towards people with lower back pain.

Table 4.5 Distribution of study sample by oswestry index

No	Items	Mean	SD
1	Pain intensity	2.24	1.022
2	Personal care (washing, dressing, etc.)	2.81	1.273
3	Lifting	1.53	.988
4	Walking	3.23	.866
5	Sitting	2.22	.755
6	Standing	2.42	1.044
7	Sleeping	3.08	.927
8	Sex life (if applicable)	3.26	1.206
9	Social life	3.14	1.048
10	Traveling	2.22	1.305

İn this table (4.5), findings according of over all of The Oswestry Disability Index indicate that (64 .9 %) of patients were a severe disability level, followed by those who were crippled level (20.2%), and followed by those who were a moderate disability level (2 %), then minimal disability level (0.4%).

Table 4.6 Patient responses to overall the oswestry index

Overall	Rating	Frequency	Percent
Oswestry Index	minimal disability	2	.4
	moderate disability	65	14.4
	severe disability	292	64.9
	Crippled	91	20.2
	Total	450	100.0

N (450), 0 to 20% minimal disability, 21% to 40% moderate disability, 42% to 60% severe disability, 61 % to 80 crippled, and 81% to 100% exaggerating.

In this table (4.6), Findings according of over all of The International Physical Activity Questionnaire indicate that (56.9%) of patients were low activity levels level, followed by those who were moderate activity levels (38.7%), followed by those who were high activity levels (4.4 %).

Table 4.7 Patient responses to the international physical activity questionnaire overall.

Overall	**Rating**	**Frequency**	**Percent**
The International Physical Activity Questionnaire	low activity level	256	56.9
	moderate activity level	174	38.7
	high activity level	20	4.4
	Total	450	100

This table(4.7) shows statistical significance between patients' age, Educational Status, Occupation, Previous Disease, duration of diagnosis, Weight, and Live with Who with overall Quebec Back Pain Disability Scale with a significance level of 0.05 or below.

Table 4.8 Mean differences (ANOVA) between the overall quebec back pain disability scale and patient demographic characteristics.

Demographic Data		**N**	**Mean**	**SD**	**F**	**P value**
Age	<65	299	47.72	5.35	49.28	.000
	65-75	120	44.75	5.24		
	>75	31	38.06	7.72		
	Total	450	130.53	18.31		
Educational Status	Illiterate	184	44.4674	6.76046	2.407	.000
	Read and write	115	46.2522	5.41901		
	Primary school graduate	64	48.3594	4.54385		
	Intermediate school graduate	49	48.1020	4.43116		
	Lisans	38	49.1842	5.86725		
	Total	450	46.2711	6.07909		
Occupation	Job	112	48.9196	4.79327	1.455	.050
	Worker	309	45.4401	6.40722		
	Retired	29	44.8966	3.50861		
	Total	450	46.2711	6.07909		
Work Experience (years)	5	88	47.6477	6.58113	1.602	.019
	6-10	171	47.0994	5.43589		
	11<	191	44.8953	6.13699		
	Total	450	46.2711	6.07909		
	Low	125	44.4880	6.50262	1.208	.200

Income Status	Moderate	294	46.8095	5.80259		
	High	31	48.3548	5.37617		
	Total	450	46.2711	6.07909		
duration diagnosis	1 to 10	320	47.4906	5.37671	3.965	.000
	11 to 20	113	43.7611	6.25253		
	21 to 30	17	40.0000	8.42615		
	Total	450	46.2711	6.07909		
Body mass index	Normal	4	50.5000	1.29099	1.651	.014
	Overweight	145	47.7724	6.64658		
	Obese (Class I)	246	45.5894	5.72696		
	Obese (Class II)	55	45.0545	5.43793		
	Total	450	46.2711	6.07909		

In Table (4.8), participants aged >75 years had significantly higher back pain disability than other participants of different ages ($p < 0.05$). the correlation was negative between the participants with lisans education level significantly higher back pain than the other participants ($p < 0.05$). Also, the retirees had significantly higher back pain than the other participants ($p < 0.05$); also, workers 11 had <0.05. back pain was significantly higher than the other participants ($p < 0.05$).

Participants with a diagnostic duration of 21 to 30 had significantly higher back pain than other control participants ($P < 0.05$), and Obese (Class II) participants had significantly higher back pain than other participants ($P < 0.05$).

Table 4.9 Multiple comparisons post hoc tests between overall quebec back pain disability scale and patients' demographic characteristics.

Multiple Comparisons							
Dependent Variable: Quebec Back Pain Disability							
LSD							
Group 1		**Group 2**	**Mean Difference**	**Std. Error**	**Sig.**	**95% Confidence Interval**	
						Lower Bound	**Upper Bound**
Age	<65	65-75	2.97076*	.59596	.000	1.7995	4.1420
		>75	9.66458*	1.04058	.000	7.6195	11.7096

	65-75	<65	-2.97076*	.59596	.000	-4.1420	-1.7995
		>75	6.69382*	1.11110	.000	4.5102	8.8774
	>75	<65	-9.66458*	1.04058	.000	-11.7096	-7.6195
		65-75	-6.69382*	1.11110	.000	-8.8774	-4.5102
Educational Status	Illiteracy	Read and write	-1.78478*	0.69538	0.011	-3.1514	-0.4181
		Primary school graduate	-3.89198*	0.84894	0.000	-5.5604	-2.2236
		Intermediate school graduate	-3.63465*	0.94041	0.000	-5.4829	-1.7864
		Lisans	-4.71682*	1.04237	0.000	-6.7654	-2.6682
	Read and write	Illiteracy	1.78478*	0.69538	0.011	0.4181	3.1514
		Primary school graduate	-2.10720*	0.91229	0.021	-3.9001	-0.3143
		Intermediate school graduate	-1.84987	0.99798	0.064	-3.8112	0.1115
		Lisans	-2.93204*	1.09459	0.008	-5.0832	-0.7808
	Primary school graduate	Illiteracy	3.89198*	0.84894	0.000	2.2236	5.5604
		Read and write	2.10720*	0.91229	0.021	0.3143	3.9001
		Intermediate school graduate	0.25733	1.11045	0.817	-1.9250	2.4397
		Lisans	-0.82484	1.19802	0.491	-3.1793	1.5297
	Interme diate school graduate	Illiteracy	3.63465*	0.94041	0.000	1.7864	5.4829
		Read and write	1.84987	0.99798	0.064	-0.1115	3.8112
		Primary school graduate	-0.25733	1.11045	0.817	-2.4397	1.9250
		Lisans	-1.08217	1.26450	0.393	-3.5673	1.4030
	Lisans	Illiteracy	4.71682*	1.04237	0.000	2.6682	6.7654
		Read and write	2.93204*	1.09459	0.008	0.7808	5.0832
		Primary school graduate	0.82484	1.19802	0.491	-1.5297	3.1793

		Intermediate school graduate	1.08217	1.26450	0.393	-1.4030	3.5673
Occupation	Job	Worker	3.47951*	0.65030	0.000	2.2015	4.7575
		Retired	4.02309*	1.22846	0.001	1.6088	6.4374
	Worker	Job	-3.47951*	0.65030	0.000	-4.7575	-2.2015
		Retired	0.54358	1.14509	0.635	-1.7068	2.7940
	Retired	Job	-4.02309*	1.22846	0.001	-6.4374	-1.6088
		Worker	-0.54358	1.14509	0.635	-2.7940	1.7068
Work Experience (years)	< 5	6-10	0.54831	0.78361	0.484	-0.9917	2.0883
		11<	2.75244*	0.76954	0.000	1.2401	4.2648
	6-10	<5	-0.54831	0.78361	0.484	-2.0883	0.9917
		11<	2.20413*	0.62882	0.001	0.9683	3.4399
	11<	<5	-2.75244*	0.76954	0.000	-4.2648	-1.2401
		6-10	-2.20413*	0.62882	0.001	-3.4399	-0.9683
Duration diagnosis	1 to 10	11 to 20	3.72956*	0.62831	0.000	2.4948	4.9644
		21 to 30	7.49063*	1.42909	0.000	4.6821	10.2992
	11 to 20	1 to 10	-3.72956*	0.62831	0.000	-4.9644	-2.4948
		21 to 30	3.76106*	1.49366	0.012	0.8256	6.6965
	21 to 30	1 to 10	-7.49063*	1.42909	0.000	-10.2992	-4.6821
		11 to 20	-3.76106*	1.49366	0.012	-6.6965	-0.8256
BMI	Normal	Overweight	2.72759	3.03568	0.369	-3.2384	8.6936
		Obese (Class I)	4.91057	3.01891	0.105	-1.0225	10.8436
		Obese (Class II)	5.44545	3.10164	0.080	-0.6502	11.5411
	Overweight	Normal	-2.72759	3.03568	0.369	-8.6936	3.2384
		Obese (Class I)	2.18298*	0.62707	0.001	0.9506	3.4154
		Obese (Class II)	2.71787*	0.94848	0.004	0.8538	4.5819
	Obese (Class I)	Normal	-4.91057	3.01891	0.105	-10.8436	1.0225
		Overweight	-2.18298*	0.62707	0.001	-3.4154	-0.9506
		Obese (Class II)	0.53489	0.89333	0.550	-1.2208	2.2905
	Obese (Class II)	Normal	-5.44545	3.10164	0.080	-11.5411	0.6502

		Overweight	-2.71787*	0.94848	0.004	-4.5819	-0.8538
		Obese (Class I)	-0.53489	0.89333	0.550	-2.2905	1.2208

This table(4.9) shows a statistically significant relationship between patients' marital status and the presence of preexisting conditions on the whole Quebec back pain disability scale (p-value 0.05).

Table 4.10 shows mean differences (t-test) between the quebec back pain disability scale and the patient's gender, marital status, and previous diseases.

Variables		**N**	**Mean**	**SD**	**t**	**df**	**Sig.**
Gender	Male	267	46.3596	6.21467	.372	448	.710
	Female	183	46.1421	5.89016			
Marital Status	Married	380	45.7895	6.12817	-3.980	448	.000
	Single	70	48.8857	5.09772			
Previous Diseases	Yes	164	48.9207	5.30075	7.410	448	.000
	No	286	44.7517	5.98283			

(n) number, (Std) stander deviation,(Ns): Non-significant, (S): significant, (T value): independent t-test, (df): degree of freedom.

This table (4.10) shows statistical significance between patients' age, Educational Status, Occupation, Work Experience (years, duration of diagnosis, and Weight, with an overall Oswestry Disability Index with a significance level of 0.05 or below.

Table 4.11 Mean Differences (ANOVA) between overall Oswestry Index and patients' demographic characteristics.

Demographic Data		**N**	**Mean**	**SD**	**F**	**P value**
Age	<65	299	28.0100	4.89383	72.349	.000
	65-75	120	23.2583	4.32405		
	>75	31	19.3871	6.61653		
	Total	450	70.6554	15.8344		
Educational Status	Illiterate	184	24.1848	5.74490	4.341	.000
	Read and write	115	25.6609	4.52844		

	Primary school graduate	64	27.5156	4.30574		
	Intermediate school graduate	49	29.3265	5.46728		
	Lisans	38	30.7368	5.19711		
	Total	450	26.1489	5.61001		
Occupation	Job	112	29.0179	4.75903	2.313	.000
	Worker	309	25.3754	5.67189		
	Retired	29	23.3103	3.62633		
	Total	450	26.1489	5.61001		
Work Experience (years)	> 5	88	30.0341	5.15161	5.417	.000
	6-10	171	26.8480	5.22553		
	11<	191	23.7330	4.94889		
	Total	450	26.1489	5.61001		
Income Status	Low	125	24.9200	5.24189	1.173	.251
	Moderate	294	26.4218	5.64227		
	High	31	28.5161	5.80730		
	Total	450	26.1489	5.61001		
Live with Who	With Alone	35	25.6857	2.93830	.899	.617
	With his family	380	26.3763	5.77210		
	With others	35	24.1429	5.53674		
	Total	450	26.1489	5.61001		
duration diagnosis	1 to 10	320	27.7594	4.93801	9.155	.000
	11 to 20	113	22.4071	4.90924		
	21 to 30	17	20.7059	6.78937		
	Total	450	26.1489	5.61001		
Body mass index	Normal	4	33.0000	3.36650	4.704	.000
	Overweight	145	27.9931	6.41883		
	Obese (Class I)	246	25.4715	4.86273		
	Obese (Class II)	55	23.8182	4.86519		
	Total	450	26.1489	5.61001		

In Table (4.11), participants over 75 years of age had significantly higher physical disabilities than other participants of different ages ($p < 0.05$). Participants with a significantly higher BA level of education had a negative association with physical disability than other participants ($p < 0.05$), and retirees also had significantly higher

physical disability than other participants (P < 0.05); in addition, workers 11< had physical disability significantly higher than the other participants (p < 0.05).

Participants with a diagnosis length of 21 to 30 had significantly higher physical disabilities than other participants in the control group (p < 0.05), and obese (class II) participants had significantly higher physical disabilities than other participants (p < 0.05).

Table 4.12 Multiple comparisons post hoc tests between overall oswestry index and patients demographic characteristics

Multiple Comparisons							
Dependent Variable: Oswestry Index and patients							
Group 1		**Group 2**	**Mean Difference**	**Std. Error**	**Sig.**	**95% Confidence Interval**	
						Lower Bound	**Upper Bound**
Age	<65	65-75	4.75170*	.52810	.000	3.7138	5.7896
		>75	8.62294*	.92210	.000	6.8108	10.4351
	65-75	<65	-4.75170*	.52810	.000	-5.7896	-3.7138
		>75	3.87124*	.98459	.000	1.9362	5.8062
	>75	<65	-8.62294*	.92210	.000	-10.4351	-6.8108
		65-75	-3.87124*	.98459	.000	-5.8062	-1.9362
Educational Status	Illiterate	Read and write	-1.47609*	.61676	.017	-2.6882	-.2640
		Primary school graduate	-3.33084*	.75295	.000	-4.8106	-1.8511
		Intermediate school graduate	-5.14175*	.83409	.000	-6.7810	-3.5025
		Lisans	-6.55206*	.92452	.000	-8.3690	-4.7351
	Read and write	Illiterate	1.47609*	.61676	.017	.2640	2.6882
		Primary school graduate	-1.85476*	.80915	.022	-3.4450	-.2645
		Intermediate school graduate	-3.66566*	.88515	.000	-5.4053	-1.9261
		Lisans	-5.07597*	.97084	.000	-6.9840	-3.1680
	Primary school graduate	Illiterate	3.33084*	.75295	.000	1.8511	4.8106

		Read and write	1.85476*	.80915	.022	.2645	3.4450
		Intermediate school graduate	-1.81091	.98490	.067	-3.7465	.1247
		Lisans	-3.22122*	1.06258	.003	-5.3095	-1.1329
	Intermediate school graduate	Illiterate	5.14175*	.83409	.000	3.5025	6.7810
		Read and write	3.66566*	.88515	.000	1.9261	5.4053
		Primary school graduate	1.81091	.98490	.067	-.1247	3.7465
		Lisans	-1.41031	1.12153	.209	-3.6145	.7938
	Lisans	Illiterate	6.55206*	.92452	.000	4.7351	8.3690
		Read and write	5.07597*	.97084	.000	3.1680	6.9840
		Primary school graduate	3.22122*	1.06258	.003	1.1329	5.3095
		Intermediate school graduate	1.41031	1.12153	.209	-.7938	3.6145
Occupation	Job	Worker	3.64245*	.58999	.000	2.4830	4.8020
		Retired	5.70751*	1.11453	.000	3.5171	7.8979
	Worker	Job	-3.64245*	.58999	.000	-4.8020	-2.4830
		Retired	2.06506*	1.03890	.047	.0233	4.1068
	Retired	Job	-5.70751*	1.11453	.000	-7.8979	-3.5171
		Worker	-2.06506*	1.03890	.047	-4.1068	-.0233
Work Experience (years)	5	6-10	3.18614*	.66845	.000	1.8724	4.4998
		11<	6.30111*	.65645	.000	5.0110	7.5912
	6-10	> 5	-3.18614*	.66845	.000	-4.4998	-1.8724
		11<	3.11497*	.53641	.000	2.0608	4.1692
	11<	5	-6.30111*	.65645	.000	-7.5912	-5.0110
duration diagnosis	1 to 10	11 to 20	5.35230*	.54813	.000	4.2751	6.4295
		21 to 30	7.05349*	1.24671	.000	4.6033	9.5036
	11 to 20	1 to 10	-5.35230*	.54813	.000	-6.4295	-4.2751
		21 to 30	1.70120	1.30304	.192	-.8597	4.2621
	21 to 30	1 to 10	-7.05349*	1.24671	.000	-9.5036	-4.6033
		11 to 20	-1.70120	1.30304	.192	-4.2621	.8597
BMI	Normal	Overweight	5.00690	2.74047	.068	-.3789	10.3927
		Obese (Class I)	7.52846*	2.72533	.006	2.1724	12.8845

		Obese (Class II)	9.18182*	2.80002	.001	3.6790	14.6847
	Overweight	Normal	-5.00690	2.74047	.068	-10.3927	.3789
		Obese (Class I)	2.52156*	.56609	.000	1.4090	3.6341
		Obese (Class II)	4.17492*	.85624	.000	2.4922	5.8577
	Obese (Class I)	Normal	-7.52846*	2.72533	.006	-12.8845	-2.1724
		Overweight	-2.52156*	.56609	.000	-3.6341	-1.4090
		Obese (Class II)	1.65336*	.80646	.041	.0684	3.2383
	Obese (Class II)	Normal	-9.18182*	2.80002	.001	-14.6847	-3.6790
		Overweight	-4.17492*	.85624	.000	-5.8577	-2.4922
		Obese (Class I)	-1.65336*	.80646	.041	-3.2383	-.0684

Table (4.12) data shows a statistically significant correlation between patients' marital status and their cumulative Oswestry Disability Index scores when p is less than 0.05.

Table 4.13 Mean differences (t-test) between the overall oswestry index and patient's gender, marital status, and previous diseases

Variables		**N**	**Mean**	**SD**	**t**	**df**	**Sig.**
gender	Male	267	25.8090	5.23122	-1.555	448	.121
	Female	183	26.6448	6.10166			
Marital Status	Married	380	25.2132	5.25642	-8.939	448	.000
	Unmarried	70	31.2286	4.69403			
Previous Diseases	Yes	164	29.7622	4.72542	11.842	448	.000
	No	286	24.0769	4.99906			

(N) number, (SD) stander deviation,(Ns): Non-significant, (S): significant, (T value): independent t-test, (df): degree of freedom.

This table (4.13) shows statistical significance between patients' educational status, occupation, and work experience (years, duration of diagnosis, weight, income status) with a comprehensive international physical activity questionnaire at a significance level of 0.05 or below.

Table 4.14 Mean Differences (ANOVA) between the overall international physical activity questionnaire and patients' demographic characteristics.

Demographic Data		**N**	**Mean**	**SD**	**Std. Error**	**F**	**P value**
Age	<65	299	13.1003	6.59850	4.61110	2.314	.000
	65-75	120	10.8000	3.87103	2.66466		
	>75	31	8.7742	4.03906	2.43690		
	Total	450	12.1889	5.98605	1.45689		
Educational Status	Illiterate	184	40.2065	22.86527	1.68565	2.056	.000
	Read and write	115	54.8870	26.65266	2.48537		
	Primary school graduate	64	61.2813	32.50469	4.06309		
	Intermediate school graduate	49	73.7143	36.85557	5.26508		
	Lisans	38	82.0263	29.89304	4.84929		
	Total	450	54.1356	30.90537	1.45689	1.379	.014
Occupation	Job	112	65.2768	31.25317	2.95315		
	Worker	309	51.4854	30.51385	1.73587		
	Retired	29	39.3448	20.03974	3.72129		
	Total	450	54.1356	30.90537	1.45689		
Work Experience (years)	> 5	88	68.4432	38.10749	4.06227	1.454	.005
	6-10	171	58.2573	28.56002	2.18404		
	11<	191	43.8534	25.41673	1.83909		
	Total	450	54.1356	30.90537	1.45689		
Income Status	Low	125	46.9680	26.57823	2.37723	1.425	.008
	Moderate	294	54.7347	30.92009	1.80330		
	High	31	77.3548	35.54391	6.38388		
	Total	450	54.1356	30.90537	1.45689		
Live with Who	With Alone	35	51.0857	23.12164	3.90827	.857	.838
	With his family	380	55.6237	31.50563	1.61620		
	With others	35	41.0286	28.33880	4.79013		
	Total	450	54.1356	30.90537	1.45689		
duration diagnosis	1 to 10	320	61.6375	30.87958	1.72622	2.060	.000
	11 to 20	113	36.6814	22.60462	2.12646		
	21 to 30	17	28.9412	16.24604	3.94024		
	Total	450	54.1356	30.90537	1.45689		
Body mass index	Normal	4	69.0000	23.93045	11.96523	1.514	.002
	Overweight	145	67.9517	35.80567	2.97350		

	Obese (Class I)	246	47.8374	26.09367	1.66367		
	Obese (Class II)	55	44.8000	24.56918	3.31291		
	Total	450	54.1356	30.90537	1.45689		

In Table (4.14), participants over 65 years of age had significantly higher physical activity than other participants of different ages ($p < 0.05$). Participants with an Intermediate school graduate level had significantly higher physical activity than the other participants ($P < 0.05$), and workers had significantly higher physical activity than the other participants ($P < 0.05$). In addition, those with work experience >5 had Significantly higher physical activity than the other participants ($P < 0.05$).

Participants with a diagnostic length of 1 to 10 had significantly higher physical activity than other participants in the control group ($P < 0.05$), and high-income participants had significantly higher physical activity than the control group ($P < 0.05$).
Participants living with others were more physically active than others ($P < 0.05$). Participants with a normal BMI had significantly higher physical activity than the other participants ($P < 0.05$).

Table 4.15 Multiple comparisons post hoc tests between the overall international physical activity questionnaire and patients' demographic characteristics.

Multiple Comparisons							
Dependent Variable: International Physical Activity							
LSD							
Independent variables			**Mean Difference (I-J)**	**Std. Error**	**Sig.**	**95% Confidence Interval**	
						Lower Bound	**Upper Bound**
Age	<65	65-75	2.30033*	.63114	.000	1.0600	3.5407
		>75	4.32614*	1.10202	.000	2.1604	6.4919
	65-75	<65	-2.30033*	.63114	.000	-3.5407	-1.0600
		>75	2.02581	1.17670	.086	-.2867	4.3383
	>75	<65	-4.32614*	1.10202	.000	-	-

						6.4919	2.1604
		65-75	-2.02581	1.17670	.086	-4.3383	.2867
Educational Status	Illiterate	Read and write	-2.05326*	.66876	.002	-3.3676	-.7389
		Primary school graduate	-2.02310*	.81643	.014	-3.6276	-.4186
		Intermediate school graduate	-6.90384*	.90441	.000	-8.6813	-5.1264
		Lisans	-3.60040*	1.00247	.000	-5.5706	-1.6302
	Read and write	Illiterate	2.05326*	.66876	.002	.7389	3.3676
		Primary school graduate	.03016	.87737	.973	-1.6941	1.7545
		Intermediate school graduate	-4.85058*	.95977	.000	-6.7368	-2.9643
		Lisans	-1.54714	1.05269	.142	-3.6160	.5217
	Primary school graduate	Illiterate	2.02310*	.81643	.014	.4186	3.6276
		Read and write	-.03016	.87737	.973	-1.7545	1.6941
		Intermediate school graduate	-4.88074*	1.06794	.000	-6.9796	-2.7819
		Lisans	-1.57730	1.15216	.172	-3.8417	.6870
	Intermediate school graduate	Illiterate	6.90384*	.90441	.000	5.1264	8.6813
		Read and write	4.85058*	.95977	.000	2.9643	6.7368
		Primary school graduate	4.88074*	1.06794	.000	2.7819	6.9796
		Lisans	3.30344*	1.21609	.007	.9135	5.6934
	Lisans	Illiterate	3.60040*	1.00247	.000	1.6302	5.5706
		Read and write	1.54714	1.05269	.142	-.5217	3.6160
		Primary school graduate	1.57730	1.15216	.172	-.6870	3.8417
		Intermediate school graduate	-3.30344*	1.21609	.007	-5.6934	-.9135
Occupation	Job	Worker	1.90343*	.65479	.004	.6166	3.1903
		Retired	2.55727*	1.23695	.039	.1263	4.9882
	Worker	Job	-1.90343*	.65479	.004	-3.1903	-.6166
		Retired	.65383	1.15300	.571	-1.6121	2.9198

	Retired	Job	-2.55727*	1.23695	.039	-4.9882	-.1263
		Worker	-.65383	1.15300	.571	-2.9198	1.6121
Work Experience (years)	5	6-10	2.09151*	.76240	.006	.5932	3.5898
		11<	3.97412*	.74871	.000	2.5027	5.4456
	6-10	> 5	-2.09151*	.76240	.006	-3.5898	-.5932
		11<	1.88261*	.61180	.002	.6803	3.0850
	11<	> 5	-3.97412*	.74871	.000	-5.4456	-2.5027
		6-10	-1.88261*	.61180	.002	-3.0850	-.6803
Duration diagnosis	1 to 10	11 to 20	3.27232*	.63650	.000	2.0214	4.5232
		21 to 30	2.94540*	1.44771	.042	.1002	5.7906
	11 to 20	1 to 10	-3.27232*	.63650	.000	-4.5232	-2.0214
		21 to 30	-.32691	1.51313	.829	-3.3006	2.6468
	21 to 30	1 to 10	-2.94540*	1.44771	.042	-5.7906	-.1002
		11 to 20	.32691	1.51313	.829	-2.6468	3.3006
Income Status	Low	Moderate	-1.46220*	.63525	.022	-2.7106	-.2138
		High	-2.69394*	1.19369	.025	-5.0399	-.3480
	Moderate	Low	1.46220*	.63525	.022	.2138	2.7106
		High	-1.23173	1.12345	.273	-3.4396	.9762
	High	Low	2.69394*	1.19369	.025	.3480	5.0399
		Moderate	1.23173	1.12345	.273	-.9762	3.4396
Live with Who	With Alone	With his family	.35865	1.05065	.733	-1.7062	2.4235
		With others	3.22857*	1.42180	.024	.4343	6.0228
	With his family	With Alone	-.35865	1.05065	.733	-2.4235	1.7062
		With others	2.86992*	1.05065	.007	.8051	4.9347
	With others	With Alone	-3.22857*	1.42180	.024	-6.0228	-.4343
		With his family	-2.86992*	1.05065	.007	-4.9347	-.8051
BMI	Normal	Overweight	-3.75690	2.97608	.207	-9.6058	2.0920
		Obese (Class I)	-1.07114	2.95963	.718	-6.8877	4.7454

		Obese (Class II)	-1.16818	3.04074	.701	-7.1441	4.8078
	Overweight	Normal	3.75690	2.97608	.207	-2.0920	9.6058
		Obese (Class I)	2.68576*	.61475	.000	1.4776	3.8939
		Obese (Class II)	2.58871*	.92985	.006	.7613	4.4162
	Obese (Class I)	Normal	1.07114	2.95963	.718	-4.7454	6.8877
		Overweight	-2.68576*	.61475	.000	-3.8939	-1.4776
		Obese (Class II)	-.09704	.87579	.912	-1.8182	1.6241
	Obese (Class II)	Normal	1.16818	3.04074	.701	-4.8078	7.1441
		Overweight	-2.58871*	.92985	.006	-4.4162	-.7613
		Obese (Class I)	.09704	.87579	.912	-1.6241	1.8182
	*. The mean difference is significant at the 0.05 level.						

This table (4.15) shows that there is statistical significance between patients' previous diseases and with overall international physical activity questionnaire at a significance level of 0.05 or below.

Table 4.16 Mean differences (t-test) between the overall international physical activity questionnaire and patient's gender, marital status, and previous diseases.

Variables		**N**	**Mean**	**SD**	**t**	**df**	**Sig.**
gender	Male	267	52.0899	27.87444	-1.700	448	.090
	Female	183	57.1202	34.72287			
Marital Status	Married	380	50.4737	27.74796	-1.700	448	.090
	Unmarried	70	74.0143	38.87755			
Previous Diseases	Yes	164	72.5610	32.13873	-6.087	448	.000
	No	286	43.5699	24.63004			

(n) number, (SD) stander deviation,(Ns): Non-significant, (S): significant, (T value): independent t-test, (df): degree of freedom.

5. DISCUSSION

This study aimed to assess the level of disability among people with low back pain. The study was conducted in Al-Diwaniyah Teaching Hospital in Al-Qadisiya / Iraq

The study showed that the patients in our study were > 65 years old, and this comes along with the study of Kaptan et *al.* (2020), which showed that the majority of the study sample, 82.5%, was between the ages of 55-64 years. This result is similar to the study Papageorgiou et *al*. (1995); Croft et *al*. (1999); Ilhan et *al*. (2010), who showed that the majority of patients with back pain were less than 65 years old.

The majority of the study sample were males, who constituted 59.3%. This result is consistent with Smeets et *al*. (2006), Wijnhoven et *al*. (2007), and Silva and Inumaru (2015), who showed that the majority of males have LBP.

In this study, the majority of the study sample suffered from illiteracy. This result is similar to the study Srinivas et *al*. (2012); Chou et *al*. (2013), Bener et *al*. (2013); Lima et *al*. (2014); Grobschadl et *al*. (2015); Do Nascimento and Costa (2015); Bento et *al*. (2020). Who showed that the majority of their study sample had low levels of formal education and had LBP.

The majority of the study sample were married, making up 84.4%. This result is consistent with many studies Webb et *al*., (2003) Ganesan et *al*., (2017), which showed that the majority of back pain patients were married

The majority of this study was workers, who made up 68.7%. This finding is consistent with a study Björck-van Dijken et *al*. (2008), Oksuz (2006), Landry et *al*. (2008), Ilhan et *al*. (2010) Stewart Williams et *al*. (2015). The majority of their study sample were workers.

The results of this study showed that 56.9% of the participants in the study suffered from lower back pain have low activity levels Croft et *al*. (1999), Kopec et *al*. (2003), Yip (2004), Bergstrom et *al*. (2007). This result is similar to what he found. The reason for this difference is due to the nature of the Iraqi population and the high temperatures, which means that they have little physical activity

The results of this study among participants >65 years of age had a significantly higher LBP than other participants of different ages. This may be because age dramatically affects the patient and increases LBP in many ways in Iraq, and this age group in Iraq is exposed to physical activities such as hard work, frequent bending, sudden complicated movements, repetitive tasks, and weight lifting ($p<0.05$). This result is similar to a study (Hoy et *al*. 2010) (Stewart et *al*. 2015), (Kaptan et *al*. 2020) who showed that there is a significant relationship between age and back pain, and the pain was more in the ages of 55-64 years due to the hard work that this age group performs in addition to the lack of physical activity

To varying degrees, participants with a Lisan education level had significantly higher LBP than the other participants ($P<0.05$). This result is similar to a study. The reason for this is that those with a bachelor's degree have less physical activity than others, which increases their LBP, in addition to the fact that they often do office work that requires long sitting, which increases back pain.

The results of this study showed that the employees participating in the study suffered from lower back pain $p < 0.05$ Björck-van Dijken et *al*., (2008); Oksuz, 2006; Landry et *al*., (2008); Ilhan et *al*., (2010); Stewart Williams et *al*.,(2015). This result is similar to what he found. The reason for this difference is due to the nature of the work of the Iraqi population, which requires hard effort and long working hours, which increases lower back pain

This study showed that males have LBP Most of females ($p<0.05$). This result is similar to the study of Smeets et *al*. (2006); Wijnhoven et *al*. (2007); Silva and Inumaru (2015); Nascimento and Costa ,(2015). Who showed that men are more susceptible to LBP than

females. This is because men are more likely to suffer from lumbar spine injuries, which increases LBP.

There was a significant relationship between marital status and lower back pain, which was higher for married couples ($p<0.05$). This result is consistent with Webb et *al*., (2003); Ganesan et *al*., (2017). Those who showed that married people have lower back pain much more than single people. This is because married people have many obligations in terms of life partner and terms of children and work if they are employed.

The study's results showed a significant effect between the variable age >65, as they had a higher effect on physical activity than the rest of the age groups ($p<0.05$). This finding is similar to previous studies by Breivik, (2006) Moore, (2014) Leadley et *al*., (2014) Perruchoud et *al*., (2014), which found that lower back pain increases with age and that there is a significant relationship between age and physical activity. This is because physical activity in Iraq results from hard work, so it often increases back pain, and it must be commensurate with the patient's condition, as the person must. After he reaches the age of less than 65, he should consult doctors to find out the appropriate exercises for them

This study showed that females have higher physical activity than males and that there is a significant effect between physical activity and gender ($p<0.05$). This result is similar to what he found Regnaux et *al*., (2015), Geneen et *al*., (2017). Those who found that females have higher physical activity than males. The reason for this is that females have housework, transportation, and childcare, so they have higher physical activity than males

6. CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

1. Lower back pain is more common in people under the age of 65, males, and the illiterate.
2. Married couples, working people, and people with chronic diseases more often experience lower back pain.
3. According to the Quebec Disability Back Pain Scale, most participants were in severe pain.
4. According to the Oswestry Disability Index, more than half of the participants were experiencing severe pain.
5. More than half of the participants have low activity levels, according to the overall results of the International Physical Activity Questionnaire.
6. Participants with an Intermediate school graduate level had significantly higher physical activity than the other participants.
7. the correlation was negative between the participants with lisans education level significantly higher back pain than the other participants
8. Participants with a significantly higher BA level of education had a negative association with physical disability than other participants.

6.2 Recommendations

1. Exercise is the basis for treating chronic back pain. It is one of the first treatments that the patient should apply. However, the same set of exercises does not work for

everyone. Exercises should be tailored to your specific symptoms and condition. Maintaining an exercise routine at home is also a big part of success.

2. People who stay active despite lower back pain are more resilient than those who play it safe and stay in bed for a week. Exercises that strengthen and stretch your body are the most beneficial.
3. You may want to go swimming, ride a stationary bike, or try low-impact aerobics. In addition to yoga, stretching exercises can relieve pain and improve back mobility.
4. Physical therapy for chronic back pain includes retraining your posture, testing the limits of your pain tolerance, and stretching, flexibility, and core-strengthening exercises.
5. Chronic back pain results in both physical and emotional stress. To manage frustration, irritability, depression, and other psychological aspects of dealing with chronic pain, you may be referred to a psychiatrist for rehabilitation. This specialist may recommend meditation, yoga, and other cognitive and relaxation strategies to keep your mind from focusing on the pain.
6. Some diets are highly inflammatory, especially those high in Trans fats, refined sugars, and processed foods.
7. Keeping your weight healthy can also help ease back pain by putting less pressure on your spine.
8. Accepting your limitations and adapting to them when you have chronic pain is essential. We suggest that you listen to your body and learn to regulate yourself. Get away from hard work and take several trips when carrying groceries.
9. Note the activities that aggravate the pain and avoid them if possible. Not only will this help improve your back, but it can also prevent the underlying condition from developing.
10. Another important lifestyle change to try is to quit smoking. It is scientifically known that nicotine increases pain and delays recovery.
11. Analgesics, non-steroidal anti-inflammatory drugs, muscle relaxants, and other medications may be used to help manage chronic back pain. Most of them, though, have unwanted side effects and are not meant to be used for a long time.

REFERENCES

Ainsworth, B. E., Macera, C. A., Jones, D. A., Reis, J. P., Addy, C. L., Bowles, H. R., & Kohl 3rd, H. W. 2006. Comparison of the 2001 BRFSS and the IPAQ Physical Activity Questionnaires. Medicine and science in sports and exercise, 38(9), 1584-1592.

Airaksinen, O., Brox, J. I., Cedraschi, C. et al , .2006. Airaksinen, O., Brox, J. I., Cedraschi, C., Hildebrandt, J., Klaber-Moffett, J., Kovacs, F., ... & COST B13 Working Group on Guidelines for Chronic Low Back Pain. (2006). European guidelines for the management of chronic nonspecific low back pain. European spine journal, 15(Suppl 2), s192.

Al-Awadhi, A. M., Olusi, S. O., Al-Saeid, K., Moussa, M., Shehab, D., Al-Zaid, N., ... & Al-Jarallah, K. 2005. Incidence of musculoskeletal pain in adult Kuwaitis using the validated Arabic version of the WHO-ILAR COPCORD core questionnaire. Annals of Saudi Medicine, 25(6), 459-462.

Almalki, M. A. O., Almatroudi, N. S. A., Almutairi, R. N. S., Alshareef, Y. A., Alkhuwaylidi, H. M., Alruwaili, R. Z. A., ... & Hanash, A. A. 2021. Review on Chronic Low Back Pain Management Approach in Primary Care. Archives of Pharmacy Practice, 1, 141.

Almeida ICGB, Sá KN, Silva M, Baptista A, Matos MA, Lessa I. Prevalência de dor lombar crônica na população da cidade de Salvador. Rev Bras Ortop. 2008; 43(3):96-102.

Almeida, M., Saragiotto, B., Richards, B., & Maher, C. G. 2018. Primary care management of non- specific low back pain: key messages from recent clinical guidelines. Medical Journal of Australia, 208(6), 272-275.

Alnahhal, A., & May, S. 2012. Validation of the Arabic version of the Quebec Back Pain,Disability,Scale. Spine, 37(26),E1645–E1650. https://doi.org/10.1097/BRS.0b013e3182765a3f

Alperovitch-Najenson, D., Weiner, C., Ribak, J., & Kalichman, L. 2020. Sliding sheet use in nursing practice: An intervention study. Workplace health & safety, 68(4), 171-181.

Altınel L, Köse K, Altınel EC. Prevalence of back pain and pain related factors in Professional healtycare worker. J Med Investig 2007;5:115-20. Back to cited text no. 9

Assendelft, W. J., Morton, S. C., Emily, I. Y., Suttorp, M. J., & Shekelle, P. G. 2004. Spinal manipulative therapy for low- back pain. Cochrane Database of Systematic Reviews, (1).

Barr, K. P., Standaert, C. J., Johnson, S. C., & Sandhu, N. S. 2021. Low Back Disorders. In Braddom's Physical Medicine and Rehabilitation (pp. 651-689). Elsevier.

Bayraktar, D., Guclu-Gunduz, A., Lambeck, J., Yazici, G., Aykol, S., & Demirci, H. 2016. A comparison of water-based and land-based core stability exercises in patients with lumbar disc herniation: a pilot study. Disability and rehabilitation, 38(12), 1163-1171.

Belitskaya-Levy, I., Clark, J. D., Shih, M. C., & Bair, M. J. 2021. Treatment preferences for chronic low back pain: Views of veterans and their providers. Journal of Pain Research, 14, 161.

Bener A., Dafeeah E.E., Alnaqbi K. An epidemiologic analysis of low back pain in primary care: a hot humid country and global comparison. J Prim Care Community Health. 2013;4(3):220–227.

Benson, R. T., Tavares, S. P., Robertson, S. C., Sharp, R., & Marshall, R. W. 2010. Conservatively treated massive prolapsed discs: a 7-year follow-up. The Annals of The Royal College of Surgeons of England, 92(2), 147-153.

Bento, T., Genebra, C., Maciel, N., Cornelio, G.,Simeão, S. c and Vittaa, A.2020.Low back pain and some associated factors: is there any difference between genders?, Braz J Phys Ther.; 24(1): 79–87. doi: 10.1016/j.bjpt.2019.01.012

Bergstrom G, Bodin L, Bertilsson H, Jensen IB. Risk factors for new episodes of sick leave due to neck or back pain in a working population. A prospective study with an 18-month and a three-year follow-up. Occup Environ Med. 2007;64(4):279–287. doi: 10.1136/oem.2006.026583

Björck-van Dijken C, Fjellman-Wiklund A, Hildingsson C. Low back pain, lifestyle factors and physical activity: A population based-study. J Rehabil Med 2008;40:864-9. Back to cited text no. 26

Breivik H, Collett B, Ventafridda V, Cohen R, Gallacher D. Survey of chronic pain in Europe: prevalence, impact on daily life, and treatment. European Journal of Pain 2006;10(4):287- 333. [PUBMED: 16095934]

Buchbinder, R., van Tulder, M., Öberg, B., Costa, L. M., Woolf, A., Schoene, M., ... & Turner, J. A. 2018. Low back pain: a call for action. The Lancet, 391(10137), 2384-2388..

Bunzli, S., Smith, A., Watkins, R., Schütze, R., & O'Sullivan, P. 2015. What do people who score highly on the Tampa Scale of kinesiophobia really believe?. The Clinical journal of pain, 31(7), 621-632.

Chou Y.C., Shih C.C., Lin J.G., Chen T.L., Liao C.C. Low back pain associated with sociodemographic factors, lifestyle and osteoporosis: a population-based study. J Rehabil Med. 2013;45:76–80

Chung, E. J., Hur, Y. G., & Lee, B. H. (2013). A study of the relationship among fear-avoidance beliefs, pain and disability index in patients with low back pain. Journal of exercise rehabilitation, 9(6), 532.

Co, Y. Y., Eaton, S., & Maxwell, M. W. 1993. The relationship between the St. Thomas and Oswestry disability scores and the severity of low back pain. Journal of Manipulative and Physiological Therapeutics, 16(1), 14-18.

Coggon, D., Ntani, G., Palmer, K. T., Felli, V. E., Harari, R., Barrero, L. H., ... & Gray, A. 2013. Disabling musculoskeletal pain in working populations: is it the job, the person, or the culture?. Pain®, 154(6), 856-863.

Costa, L. D. C. M., Maher, C. G., Hancock, M. J., McAuley, J. H., Herbert, R. D., & Costa, L. O. 2012. The prognosis of acute and persistent low-back pain: a meta-analysis. Cmaj, 184(11), E613-E624.

Croft PR, Papageorgiou AC, Thomas E, Macfarlane GJ, Silman AJ. Short-term physical risk factors for new episodes of low back pain. Prospective evidence from the South Manchester Back Pain Study. Spine. 1999;24(15):1556–1561. doi: 10.1097/00007632-199908010-00009.

Croft, p. Ferreira, M.; Kongstead, A.; Anima, J.R.; Chu, R.; Ferreira, P.H.; Koes, B.W.; Wolf, A.; Menezes Costa, L.; Lou, S.; What is lower back pain and why we should pay attention. The Lancet 2018, 391, 2356-2367.

Currie, S. R., & Wang, J. 2004. Chronic back pain and major depression in the general Canadian population. Pain, 107(1-2), 54-60.

Do Nascimento P.R.C., Costa L.O.P. Low back pain prevalence in Brazil: a systematic review. Cad Saúde Pública. 2015;31(6):1141–1156Silva, P. and Inumaru, S. 2015. Assessment of pain in patients with chronic low back pain before and after application of the isostreching method, Fisioter. mov. 28 (4) , https://doi.org/10.1590/0103-5150.028.004.AO14

Dunn, K. M., Jordan, K., & Croft, P. R. 2006. Characterizing the course of low back pain: a latent class analysis. American journal of epidemiology, 163(8), 754-761

Fillingim, R. B. 2017. Individual differences in pain: understanding the mosaic that makes pain personal. Pain, 158(Suppl 1), S11.

Foster, N. E., Anema, J. R., Cherkin, D., Chou, R., Cohen, S. P., Gross, D. P., ... & Woolf, A. 2018. Prevention and treatment of low back pain: evidence, challenges, and promising directions. The Lancet, 391(10137), 2368-2383.

Ganesan, S., Acharya, A. S., Chauhan, R., & Acharya, S. 2017. Prevalence and risk factors for low back pain in 1,355 young adults: a cross-sectional study. Asian spine journal, 11(4), 610.

Ganesan, S., Acharya, A., Chauhan, R. and Acharya, S. 2017. Prevalence and Risk Factors for Low Back Pain in 1,355 Young Adults: A Cross-Sectional Study, Asian Spine J. 11(4): 610–617. doi: 10.4184/asj.2017.11.4.610

Geneen, L., Moore, A., Clarke, C., Martin, D., Colvin, L. and Smith, B. 2017. Physical activity and exercise for chronic pain in adults: an overview of Cochrane Reviews, Cochrane Database Syst Rev. 2017 Apr; 2017(4): CD011279. doi: 10.1002/14651858.CD011279.pub3

Glombiewski, J. A., Riecke, J., Holzapfel, S., Rief, W., König, S., Lachnit, H., & Seifart, U. 2015. Do patients with chronic pain show autonomic arousal when confronted with feared movements? An experimental investigation of the fear–avoidance model. Pain, 156(3), 547-554.

Grobschadl F., Stolz E., Mayerl H., Rasky É., Freidl W., Stronegger W. Educational inequality as a predictor of rising back pain prevalence in Austria – sex differences. Eur J Public Health. 2015;26(2):248–253.

Hadlandsmyth, K., Mosher, H., Vander Weg, M. W., & Lund, B. C. 2018. Decline in prescription opioids attributable to decreases in long-term use: a retrospective study in the Veterans Health Administration 2010–2016. Journal of general internal medicine, 33(6), 818-824.

Hall, H. 2021. Low Back Patterns of Pain: Classification Based on Clinical Presentation. Handbook of Spine Technology, 3-25.

Hartvigsen J, Hancock MJ, Kongsted A, Louw Q, Ferreira ML, Genevay S, et al. What low back pain is and why we need to pay attention. Lancet 2018;391:2356–67. https://doi.org/10.1016/S0140-6736(18) 30480-X.

Hartvigsen J, Natvig B, Ferreira M. Is it all about a pain in the back? Best Pract Res Clin Rheum 2013; 27: 613–23.

Hartvigsen, J., Hancock, M. J., Kongsted, A., Louw, Q., Ferreira, M. L., Genevay, S., ... & Woolf, A. 2018. What low back pain is and why we need to pay attention. The Lancet, 391(10137), 2356-2367.

Hartvigsen, J., Natvig, B., & Ferreira, M. 2013. Is it all about a pain in the back?. Best practice & research Clinical rheumatology, 27(5), 613-623.

Heliövaara M, Mäkelä M, Knekt P et al. Determinants of sciatica and low back pain. Spine 1991; 16:608-614.

Hendrick, P., Milosavljevic, S., Hale, L., Hurley, D. A., McDonough, S., Ryan, B., & Baxter, G. D. 2011. The relationship between physical activity and low back pain outcomes: a systematic review of observational studies. European Spine Journal, 20(3), 464-474.

Hestbaek L, Leboef-Yde C, Manniche C. Low back pain: what is the long term course? A review of studies of general patient populations. Eur Spine J 2003;12:149–65.

Hill, J. J., & Keating, J. L. 2015. Daily exercises and education for preventing low back pain in children: cluster randomized controlled trial. Physical therapy, 95(4), 507-516.

Hoy, D., Bain, C., Williams, G., March, L., Brooks, P., Blyth, F., ... & Buchbinder, R. 2012. A systematic review of the global prevalence of low back pain. Arthritis & Rheumatism, 64(6), 2028-2037.

Hoy, D., March, L., Brooks, P., Woolf, A., Blyth, F., Vos, T., & Buchbinder, R. 2010. Measuring the global burden of low back pain. Best practice & research Clinical rheumatology, 24(2), 155-165.

Hu, K., Ding, P., Wu, Y., Tian, W., Pan, T., & Zhang, S. 2019. Global patterns and trends in the breast cancer incidence and mortality according to sociodemographic indices: an observational study based on the global burden of diseases. BMJ open, 9(10), e028461.

Ilhan MN, Aksakal N, Kaptan H, Ceyhan MN, Durukan E, İlhan F, et al. Social and occupat ional factors associated: Life time prevalence of low back pain in primary care. Gazi Med J 2010;21:107-10. Back to cited text no. 8

Ilhan MN, Aksakal N, Kaptan H, Ceyhan MN, Durukan E, İlhan F, et al. Social and occupat ional factors associated: Life time prevalence of low back pain in primary care. Gazi Med J 2010;21:107-10.

James, S. L., Abate, D., Abate, K. H., Abay, S. M., Abbafati, C., Abbasi, N., ... & Briggs, A. M. 2018. Global, regional, and national incidence, prevalence, and years lived with disability for 354 diseases and injuries for 195 countries and territories, 1990–2017: a systematic analysis for the Global Burden of Disease Study 2017. The Lancet, 392(10159), 1789-1858.

Jeyakumar, A. K., & Segaran, F. 2018. Prevalence and risk factors of low back pain and disability index among operating room nurses. Journal of Perioperative Nursing, 31(3), 21-24.

Jorgensen, J. E., Afzali, T., & Riis, A. 2018. Effect of differentiating exercise guidance based on a patient's level of low back pain in primary care: a mixed-methods systematic review protocol. BMJ open, 8(1), e019742.

Jradi, H., Alanazi, H., & Mohammad, Y. 2020. Psychosocial and occupational factors associated with low back pain among nurses in Saudi Arabia. Journal of occupational health, 62(1), e12126..

Kaptan, H., Dikmen, A., Ekmekci, H. and Ozbas, C.2020. Evaluation of low back pain frequency and related factors among people over 18 years of age, Nigerian Journal of clinical practice, 9(23): 1295-1304

Karran, E. L., Grant, A. R., & Moseley, G. L. 2020. Low back pain and the social determinants of health: a systematic review and narrative synthesis. Pain, 161(11), 2476-2493.

Kliziene, I., Sipaviciene, S., Klizas, S., & Imbrasiene, D. (2015). Effects of core stability exercises on multifidus muscles in healthy women and women with chronic low-back pain. Journal of back and musculoskeletal rehabilitation, 28(4), 841-847.

Koes, B. W., Van Tulder, M., Lin, C. W. C., Macedo, L. G., McAuley, J., & Maher, C. 2010. An updated overview of clinical guidelines for the management of non-

specific low back pain in primary care. European Spine Journal, 19(12), 2075-2094

Kong Alnaami, I., Awadalla, N. J., Alkhairy, M., Alburidy, S., Alqarni, A., Algarni, A., ... & Mahfouz, A. A. 2019. Prevalence and factors associated with low back pain among health care workers in southwestern Saudi Arabia. BMC musculoskeletal disorders, 20(1), 1-7

Kopec JA, Sayre EC, Esdaile JM. Predictors of back pain in a general population cohort. Spine. 2003;29(1):70–77. doi: 10.1097/01.BRS.0000103942.81227.7F.

Kopec, J. A., Sayre, E. C., & Esdaile, J. M. (2004). Predictors of back pain in a general population cohort. Spine, 29(1), 70-77.

Landry MD, Raman SR, Sulway C, Golightly YM, Hamdan E. Prevalence and risk factors associated with low back pain among health care providers in a Kuwait hospital. Spine (Phila Pa 1976) 2008;33:539-45. Back to cited text no. 25

Leadley RM, Armstrong N, Reid KJ, Allen A, Misso KV, Kleijnen J. Healthy aging in relation to chronic pain and quality of life in Europe. Pain Practice 2014;14(6):547- 58.

Lee P, Helewa A, Goldsmith CH, Smythe HA, Stitt LW.Low back pain: prevalence and risk factors in an industrial setting. Rheumatology. 2001;28(2):346-51.

Leeuw, M., Goossens, M. E., Linton, S. J., Crombez, G., Boersma, K., & Vlaeyen, J. W. 2007. The fear-avoidance model of musculoskeletal pain: current state of scientific evidence. Journal of behavioral medicine, 30(1), 77-94.

Leonard, J. H., Paungmali, A., Sitilertpisan, P., Pirunsan, U., & Uthaikhup, S. 2015. Changes in Transversus Abdominis Muscle Thickness after Lumbo-Pelvic Core Stabilization Training among Chronic Low Back Pain Individuals. La Clinica terapeutica, 166(5), e312-6.

Lima M.C.S., Barbosa M.F., Diniz T.A., Codogno J.S., Freitas Júnior I.F., Fernandes R.A. Early and current physical activity: relationship with intima-media thickness and metabolic variables in adulthood. Braz J Phys Ther. 2014;18(5):462–469

Lin, C. W. C., McAuley, J. H., Macedo, L., Barnett, D. C., Smeets, R. J., & Verbunt, J. A. 2011. Relationship between physical activity and disability in low back pain: a systematic review and meta-analysis. PAIN®, 152(3), 607-613.

López-Medina, C., & Moltó, A. 2020. Comorbid pain in axial spondyloarthritis, including fibromyalgia. Therapeutic advances in musculoskeletal disease, 12, 1759720X20966123.

Lundberg, M., Grimby-Ekman, A., Verbunt, J., & Simmonds, M. J. 2011. Pain-related fear: a critical review of the related measures. Pain research and treatment, 2011.

Lusa, S., Miranda, H., Luukkonen, R., & Punakallio, A. 2015. Sleep disturbances predict long-term changes in low back pain among Finnish firefighters: 13-year follow-up study. International Archives of Occupational and Environmental Health, 88(3), 369-379.

Macfarlane, G. J., Jones, G. T., & Hannaford, P. C. 2006. Managing low back pain presenting to primary care: where do we go from here?. Pain, 122(3), 219-222.

Maher C, Underwood M, Bushbandar R. Nonspecific low back pain. Lancet 2017; 389: 736–47 The musculoskeletal system. https://doi.org/10.1016/ S0140-6736 (16) 30970-9.

Maher, C., Underwood, M., & Buchbinder, R. 2017. Non-specific low back pain. The Lancet, 389(10070), 736-747.

Mather, L., Ropponen, A., Mittendorfer-Rutz, E., Narusyte, J., & Svedberg, P. 2019. Health, work and demographic factors associated with a lower risk of work disability and unemployment in employees with lower back, neck and shoulder pain. BMC Musculoskeletal Disorders, 20(1), 1-10.

Matsudaira, K., Konishi, H., Miyoshi, K., Isomura, T., & Inuzuka, K. 2014. Potential risk factors of persistent low back pain developing from mild low back pain in urban Japanese workers. PloS one, 9(4), e93924.

Matsudaira, K., Konishi, H., Miyoshi, K., Isomura, T., Takeshita, K., Hara, N., ... & Machida, H. 2012. Potential risk factors for new onset of back pain disability in

Japanese workers: findings from the Japan epidemiological research of occupation-related back pain study. Spine, 37(15), 1324-1333.

Meucci, R. D., Fassa, A. G., & Faria, N. M. X. 2015. Prevalence of chronic low back pain: systematic review. Revista de saude publica, 49, 73.

Milanese, S. F., & Grimmer-Somers, K. A. 2007. Epidemiology of adolescent spinal pain: a systematic overview of the research literature. Spine, 32(23), 2630-2637.

Moore RA, Derry S, Taylor RS, Straube S, Phillips CJ. The costs and consequences of adequately managed chronic non- cancer pain and chronic neuropathic pain. Pain Practice 2014;14(1):79- 94

Nair, R.S. Prevalence and risk factors associated with low back pain among nurses in a tertiary care hospital in south India. Int. J. Orthop. 2020, 6, 301–306.

National Academies of Sciences, Engineering, and Medicine. 2017. Pain management and the opioid epidemic: balancing societal and individual benefits and risks of prescription opioid use.

Ng, L., Campbell, A., Burnett, A., Smith, A., & O'Sullivan, P. 2015. Spinal kinematics of adolescent male rowers with back pain in comparison with matched controls during ergometer rowing. Journal of applied biomechanics, 31(6), 459-468

Noormohammadpour, P., Kordi, M., Mansournia, M. A., Akbari-Fakhrabadi, M., & Kordi, R. 2018. The role of a multi-step core stability exercise program in the treatment of nurses with chronic low back pain: a single-blinded randomized controlled trial. Asian spine journal, 12(3), 490.

O'Sullivan, P. B., Caneiro, J. P., O'Keeffe, M., Smith, A., Dankaerts, W., Fersum, K., & O'Sullivan, K. 2018. Cognitive functional therapy: an integrated behavioral approach for the targeted management of disabling low back pain. Physical therapy, 98(5), 408-423.

Okifuji, A., & Hare, B. D. 2015. The association between chronic pain and obesity. Journal of pain research, 8, 399.

Oksuz E. Prevalance, risk factors and preference-based health states of low back pain in a Turkish population. Spine 2006;31:E968-72.

Pakbaz, M., Hosseini, M. A., Aemmi, S. Z., & Gholami, S. 2019. Effectiveness of the back school program on the low back pain and functional disability of Iranian nurse. Journal of exercise rehabilitation, 15(1), 134.

Papageorgiou AC, Croft PR, Ferry S, Jayson MI, Silman AJ. Estimating the prevalence of low back pain in the general population. Evidence from the South Manchester Back Pain Survey. Spine (Phila Pa 1976) 1995;20:1889-94.

Parsons, S., Breen, A., Foster, N. E., Letley, L., Pincus, T., Vogel, S., & Underwood, M. 2007. Prevalence and comparative troublesomeness by age of musculoskeletal pain in different body locations. Family practice, 24(4), 308-316.

Perruchoud C, Buchser E, Johanek LM, Aminian K, Paraschiv- Ionescu A, Taylor RS. Assessment of physical activity of patients with chronic pain. Neuromodulation 2014;17:42- 7.

Peters, M. L., Vlaeyen, J. W., & Weber, W. E. 2005. The joint contribution of physical pathology, pain-related fear and catastrophizing to chronic back pain disability. Pain, 113(1-2), 45-50.

Posch, M., Schranz, A., Lener, M., Senn, W., Äng, B. O., Burtscher, M., & Ruedl, G. 2019. Prevalence and potential risk factors of flight-related neck, shoulder and low back pain among helicopter pilots and crewmembers: a questionnaire-based study. BMC musculoskeletal disorders, 20(1), 1-10.

Rabey, M., Beales, D., Slater, H., & O'Sullivan, P. 2015. Multidimensional pain profiles in four cases of chronic non-specific axial low back pain: an examination of the limitations of contemporary classification systems. Manual therapy, 20(1), 138-147.

Rabey, M., Slater, H., O'Sullivan, P., Beales, D., & Smith, A. 2015. Somatosensory nociceptive characteristics differentiate subgroups in people with chronic low back pain: a cluster analysis. Pain, 156(10), 1874-1884.

Rabey, M., Smith, A., Beales, D., Slater, H., & O'Sullivan, P. 2017. Pain provocation following sagittal plane repeated movements in people with chronic low back pain: Associations with pain sensitivity and psychological profiles. Scandinavian journal of pain, 16(1), 22-28.

Regnaux JP, Lefevre- Colau MM, Trinquart L, Nguyen C, Boutron I, Brosseau L, et al. High- intensity versus low- intensity physical activity or exercise in people with hip or knee osteoarthritis. Cochrane Database of Systematic Reviews 2015, Issue 10. [DOI: 10.1002/14651858.CD010203.pub2

Samwel, H. J., Evers, A. W., Crul, B. J., & Kraaimaat, F. W. 2006. The role of helplessness, fear of pain, and passive pain-coping in chronic pain patients. The Clinical journal of pain, 22(3), 245-251.

Schofield, D. J., Callander, E. J., Shrestha, R. N., Passey, M. E., Kelly, S. J., & Percival, R. 2015. Back problems, comorbidities, and their association with wealth. The Spine Journal, 15(1), 34-41.

Schofield, D. J., Shrestha, R. N., Percival, R., Callander, E. J., Kelly, S. J., & Passey, M. E. 2011. Early retirement and the financial assets of individuals with back problems. European Spine Journal, 20(5), 731-736.

Searle, A.; Spink, M.; Ho, A.; Chuter, V. Exercise interventions for the treatment of chronic low back pain: A systematic review and meta-analysis of randomised controlled trials. Clin. Rehabil. 2015, 29, 1155–1167.

Shipton, E. A. (2018). Physical therapy approaches in the treatment of low back pain. Pain and therapy, 7(2), 127-137.

Shiri, R., Coggon, D., & Falah-Hassani, K. 2018. Exercise for the prevention of low back pain: systematic review and meta-analysis of controlled trials. American journal of epidemiology, 187(5), 1093-1101.

Shmagel, A., Foley, R., & Ibrahim, H. 2016. Epidemiology of chronic low back pain in US adults: data from the 2009–2010 National Health and Nutrition Examination Survey. Arthritis care & research, 68(11), 1688-1694.

Silva MC, Fassa ACG, Valle NCJ. Dor lombar crônica em uma população adulta do sul do Brasil: prevalência e fatores associados. Cad Saúde Pública. 2004; 20(2):377-85.

Smeets RJEM, Wittink H, Hidding A, Knottnerus JA. Do patients with chronic low back pain have a lower level of aerobic fitness than healthy controls? Spine. 2006;31(1):90-7.

Srinivas S.V., Deyo R.A., Berger Z.D. Application of "less is more" to low back pain. Arch Intern Med. 2012;172(13):1016–1020

Steffens, D., Hancock, M. J., Maher, C. G., Williams, C., Jensen, T. S., & Latimer, J. 2014. Does magnetic resonance imaging predict future low back pain? A systematic review. European journal of pain, 18(6), 755-765.

Stewart Williams J, Ng N, Peltzer K, Yawson A, Biritwum R, Maximova T, et al. Risk factors and disability associated with low back pain in older adults in low- and middle-income countries. Results from the WHO Study on Global AGEing and Adult Health (SAGE). PLoS One 2015;10:e0127880.

Strudwick, K., McPhee, M., Bell, A., Martin- Khan, M., & Russell, T. 2018. Best practice management of low back pain in the emergency department (part 1 of the musculoskeletal injuries rapid review series). Emergency Medicine Australasia, 30(1), 18-35.

Sun, W., Zhang, H., Lv, C., Tang, L., & Tian, S. 2021. Comparative efficacy of 12 non-drug interventions on non-specific chronic low back pain in nurses: a systematic review and network meta-analysis. Journal of Back and Musculoskeletal Rehabilitation, (Preprint), 1-12.

Sundell, C. G., Bergström, E., & Larsén, K. 2019. Low back pain and associated disability in Swedish adolescents. Scandinavian journal of medicine & science in sports, 29(3), 393-399.

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

Thiese, M. S., Lu, M. L., Merryweather, A., Tang, R., Ferguson, S. A., Malloy, E. J., ... & Kapellusch, J. 2020. Psychosocial factors and low back pain outcomes in a pooled analysis of low back pain studies. Journal of Occupational and Environmental Medicine, 62(10), 810-815..

Tomkins-Lane, C., Melloh, M., Lurie, J., Smuck, M., Battie, M., Freeman, B., ... & Sandella, D. 2016. Consensus on the clinical diagnosis of lumbar spinal stenosis: results of an international Delphi study. Spine, 41(15), 1239

Tonosu, J., Matsudaira, K., Oka, H., Okazaki, H., Oshio, T., Hanaoka, I., ... & Tanaka, S. 2016. A population approach to analyze the effectiveness of a back extension exercise “One Stretch” in patients with low back pain: a replication study. Journal of Orthopaedic Science, 21(4), 414-418

Tsang, S. M., Szeto, G. P., Li, L. M., Wong, D., Yip, M. M., & Lee, R. Y. 2017. The effects of bending speed on the lumbo-pelvic kinematics and movement pattern during forward bending in people with and without low back pain. BMC musculoskeletal disorders, 18(1), 1-11.

Tveito, T. H., & Eriksen, H. R. 2005. United Kingdom back pain exercise and manipulation (UK BEAM) trial: is manipulation the most cost effective addition to “best care”?. BMJ: British Medical Journal, 330(7492), 674.

UK, N. G. C. 2016. Low back pain and sciatica in over 16s: assessment and management. 9 Chou, R., Deyo, R., Friedly, J., Skelly, A., Hashimoto, R., Weimer, M., ... & Brodt, E. 2016. Noninvasive treatments for low back pain.

Verbunt, J. A., Seelen, H. A., Vlaeyen, J. W., van de Heijden, G. J., Heuts, P. H., Pons, K., & Knottnerus, J. A. 2003. Disuse and deconditioning in chronic low back pain: concepts and hypotheses on contributing mechanisms. European journal of pain, 7(1), 9-21.

Vincent, H.K.; Omli, M.R.; Day, T.; Hodges, M.; Vincent, K.R.; George, S.Z. Fear of Movement, Quality of Life, and Self-Reported Disability in Obese Patients with. Pain Med. 2011, 35, 154–164

Vos , T., Allen, C., Arora, M., Barber, R. M., Bhutta, Z. A., Brown, A., ... & Boufous, S. 2016. Global, regional, and national incidence, prevalence, and years lived with disability for 310 diseases and injuries, 1990–2015: a systematic analysis for the Global Burden of Disease Study 2015. The lancet, 388(10053), 1545-1602. -423.

Vos, T., Flaxman, A. D., Naghavi, M., Lozano, R., Michaud, C., Ezzati, M., ... & Harrison, J. E. 2012. Years lived with disability (YLDs) for 1160 sequelae of 289 diseases and injuries 1990–2010: a systematic analysis for the Global Burden of Disease Study 2010. The lancet, 380(9859), 2163-2196.

Webb R, Brammah T, Lunt M, Urwin M, Allison T, Symmons D. Prevalence and predictors of intense, chronic, and disabling neck and back pain in the UK general population. Spine (Phila Pa 1976) 2003;28:1195–1202

Wertli MM, Eugster R, Held U, Steurer J, Kofmehl R, Weiser S. Spine J 2014; 14:2639-57. https: // doi. org/10.1016/j.spinee.2014.03.003. Maher, C., Underwood, M., & Buchbinder, R. 2017. Non-specific low back pain. The Lancet, 389(10070), 736-747.

Wijnhoven HAH, De Vet HCW, Picavet HSJ. Sex differences in consequences of musculoskeletal pain. Spine. 2007;32(12):1360-7.

Yip VY. New low back pain in nurses: work activities, work stress and sedentary lifestyle. J Adv Nurs. 2004;46(4):430–440. doi: 10.1111/j.1365-2648.2004.03009.x.

APPENDICES

APPENDIX 1. Questionnaire

APPENDIX 2. Approval of Cankiri Karatkin University

APPENDIX 3. Approval of Iraqi Ministry of health

APPENDIX 4. Editing Certificate

CURRICULUM VITAE

Personal Information

Name and Surname : AKRAM NAEEM HAMİD HAMID