Title: Assessing the relationship between level of disability and quality of life among patients with low back pain at FOCOS orthopaedic hospital

BY:

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JULY, 2019
DECLARATION

I, Claudia Animwaa Owusu hereby declare that this research work is my own masters’ project work and has not been presented for another degree in any other University or elsewhere. All works cited in this study has been duly acknowledged.

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Claudia Animwaa Owusu  DATE
(STUDENT)

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[Dr. Seth Kwaku Afagbedzi]  DATE
(ACADEMIC SUPERVISOR)
DEDICATION

I dedicate this study to God Almighty for being with me every step of the way. I am grateful.

I dedicate this to my immediate supervisor, Dr Joseph Ogyaadu for his recommendation letter during my admission process and for always pushing me to be a better version of myself

Lastly to Mr Ekow Quaisie, I could not have done this without you, thank you.
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Foremost, I would like to express my sincere gratitude to my supervisor, Dr Seth Kwaku Afagbedzi for his continuous support, patience, motivation and immense knowledge during this study. His guidance helped me in all the time of the research and writing of the thesis.

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I am grateful for the immense support and assistance from my data collection team at FOCOS orthopaedic hospital

Lastly, I would like to thank my family for the emotional, physical, financial and spiritual support throughout this journey.
ABSTRACT

Background

Low back pain (LBP) is a common musculoskeletal disorder that comes about as a result of injuries and disorders involving the musculoskeletal system. Causes of LBP include poor posture, improper lifting, arthritis etc.

Objective

The main aim of the study was to assess the effect of the level of disability (LOD) on the quality of life (QOL) among patients with LBP at FOCOS orthopaedic hospital.

Method

The study made use of a descriptive cross-sectional design and involved 222 patients with LBP from FOCOS orthopaedic hospital. The study adopted the Oswestry Disability Questionnaire and the Short Form - 36 (SF-36) to measure level of disability and quality of life. STATA software was used to analyse the data. Multivariable Poisson regression model were used to assess the relationship between the LOD and QOL.

Results

The study revealed that 16.2% of respondents had minimal disability and majority (66.6%) of the patients had a severe disability. Again, most 170 (76.6%) of the respondents had a low QOL and 52 (23.4%) had a high QOL. Also, patients with moderate disability have a higher odds (a OR =35.00) of having a low QOL as compared with patients with minimal disability. Similarly, patient with severe disability have a higher odds(a OR =19.44, 95% CI =7.478-50.558) of having a low QOL than patients with minimal disability.

Conclusion
The study revealed a significant relationship between the LOD and QOL among patients with LBP.
# TABLE OF CONTENTS

DECLARATION ............................................................................................................................. i  
DEDICATION ................................................................................................................................ ii  
ACKNOWLEDGEMENT ............................................................................................................. iii  
LIST OF TABLES .......................................................................................................................... x  
LIST OF FIGURES ....................................................................................................................... xi  
LIST OF ACRONYMS ................................................................................................................ xii  
CHAPTER ONE ............................................................................................................................. 1  
INTRODUCTION .......................................................................................................................... 1  
  1.1 Background of study ....................................................................................................... 1  
  1.2 Problem statement ........................................................................................................... 4  
  1.3 General Objective ........................................................................................................... 4  
  1.4 Justification of the study ................................................................................................. 5  
  1.5 Conceptual framework .................................................................................................... 5  
CHAPTER TWO ............................................................................................................................ 8  
LITERATURE REVIEW ............................................................................................................... 8  
  2.0 Introduction ..................................................................................................................... 8  
  2.1 Concepts and Definition of Terms .................................................................................. 8  
  2.2 Assessing quality of life of patients with low back pain .............................................. 12  
  2.3 Assessing the level of disability ..................................................................................... 14
The studies utilized (Koc et al., 2017; Hand, 2016; Alizad, 2017 & Glavor, 2018) indicated that quality of life could be measured through the Short Form Health Survey, Roland Morris Questionnaire, the World Health Organization Quality of Life Scale, Dartmouth COOP Functional Assessment Charts, the Duke Health Profile and the Personal well-being index. It was observed that the studies covered patients with varying conditions such as chronic low back pain, hernia disc herniation and multiple sclerosis. Thus, this study would rather focus on individuals with low back pain.

2.6 Relationship between the quality of life and level of disability in patients

CHAPTER THREE

METHODOLOGY

3.1 Introduction

3.2 Study design

3.3 Study population

3.4 Study Setting

3.5 Variables

3.6 Sample size and sampling techniques

3.7 Data collection methods

3.8 Data collection tools

3.9 Quality control

3.10 Data entry and processing

3.11 Data analysis
3.12 Ethical consideration/issues ................................................................. 30
3.13 Potential risks/benefits compensation .................................................. 31
3.14 Privacy/confidentiality .......................................................................... 31
3.15 Data storage and usage ......................................................................... 32
3.16 Compensation ....................................................................................... 32

CHAPTER FOUR ......................................................................................................................... 33

RESULTS AND FINDINGS ........................................................................................................ 33
4.1 Introduction .............................................................................................. 33
4.2 Demographic profile of respondents ..................................................... 33
4.3 Determining Level of Disability among Patients with Low Back Pain .... 35
4.4 Quality of Life in Patients with Low Back Pain ...................................... 41

CHAPTER FIVE .......................................................................................................................... 46

DISCUSSIONS ............................................................................................................................. 46
5.1 Introduction .............................................................................................. 46
5.2 The Level of Disability among Patients with Low Back Pain ................ 46
5.3 The Quality of Life in Patients with Low Back Pain .............................. 47
5.4 The Relationship between quality of life and level of disability in patients with low back pain ................................................................. 48
5.5 Limitations of the study .......................................................................... 49

CHAPTER SIX ............................................................................................................................. 51
LIST OF TABLES

Table 4.1: Demographic profile of the respondents................................................................. 33

Table 4.2 Composite variables of Levels of Disability among Patients with Low Back Pain
.................................................................................................................................................. Error! Bookmark not defined.

Table 4.3 Quality of Life ........................................................................................................ Error! Bookmark not defined.

Table 4.4 Quality of Life against level of disability Responses .............................................. Error! Bookmark not defined.

Table 4.5 Relationship between quality of life and level of disability ............... Error! Bookmark not defined.
LIST OF FIGURES

Figure 2.1: Conceptual framework on the quality of life and level of disability in patients who have LBP at FOCOS Orthopedic Hospital

Figure 4.2 Level of Disability
<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>WHO</td>
<td>World Health Organization</td>
</tr>
<tr>
<td>MoH</td>
<td>Ministry of Health</td>
</tr>
<tr>
<td>GHS</td>
<td>Ghana Health Service</td>
</tr>
<tr>
<td>VAS</td>
<td>Visual analogue scale</td>
</tr>
<tr>
<td>LBP</td>
<td>Low back pain</td>
</tr>
<tr>
<td>ODI</td>
<td>Oswestry Disability Index</td>
</tr>
<tr>
<td>HSS</td>
<td>Hospital for Special Surgery</td>
</tr>
<tr>
<td>LOD</td>
<td>Level of disability</td>
</tr>
<tr>
<td>QOL</td>
<td>Quality of Life</td>
</tr>
</tbody>
</table>
CHAPTER ONE

INTRODUCTION

1.1 Background of study

Pain is an unpleasant feeling that is triggered by the nervous system and is multidimensional and subjective. This implies that people who are in pain are to be treated holistically and individually (Garbi et al., 2014). In other words, in addressing the issue of pain in people, there is a need to take into account social and mental factors, and not just the symptoms of the disease, and this should be done exclusively. For pain in the lumbar region or lower back area, one cannot go over the top about or exaggerate its incidence (Adorno & Brasil-Neto, 2013). This is because of its commonness and associated rising costs in terms of treatment and management (Adorno & Brasil-Neto, 2013). As stated by Mancin, Bonvicine, Gonçalves and Barboza (2008), 50% to 80% of the world’s population suffers from low back pain (LBP). Furthermore, Murray, Vos & Lozano (2012) adds that the main cause of disability related to musculoskeletal disorder is LBP. Almost half (49.6%) of the years lived with disability related to musculoskeletal disorder is as a result of LBP (Smith, Hoy & Cross, 2014). This is followed by neck pain (20.1%), other musculoskeletal disorders which is approximately 17%, osteoarthritis which is approximately 11%, rheumatoid arthritis which is 2% and gout (0.1%) (Smith et al., 2014). In addition, a 2013 report by the World Health Organization (WHO) revealed that LBP reached an estimated prevalence of 60% to 70% (WHO, 2013). This makes it (LBP) an important public health issue.
Low back pain is a common musculoskeletal disorder which comes about as a result of injuries and disorders involving the musculoskeletal system such as the nerves, muscles, ligaments, discs, joints and bones of the back (Vogt, Pfeifer, Portscher & Banzer, 2001). Low back pain is categorized according to the length or duration of pain. Pain in the lower back that lasts less than six (6) weeks is considered acute, while pain lasting between six (6) weeks to twelve (12) weeks is considered sub-chronic (Koes et al., 2010). On the other hand, LBP is considered chronic when it lasts for more than 12 weeks (Koes et al., 2010). In a clear and simple way, the intensity of pain and for that matter LBP varies from one person to another. The most common causes of LBP are poor posture, improper lifting, arthritis, ruptured disc, fracture and lack of regular exercise. One way of managing or treating LBP, is sometime to leave it and do nothing since the pain in the lower back may go away on its own within two (2) to four (4) weeks. Also, pain relievers and most importantly physiotherapy are useful, and in cases of LBP that are severe cases, surgery may be required (Oppong-Yeboah & May, 2014). However, with respect to physiotherapy, practices such as exercise therapy, electro-physical modalities, patient education or advice, massage and mechanical traction are considered crucial to management of LBP (Oppong-Yeboah & May, 2014).

People with LBP do not only go through discomforts that are physical but also functional limitations that may well lead to disability, which subsequently inhibits their quality of life [QOL] (Horng et al., 2005). Here, QOL refers to the overall well-being of people and societies (Baracaccia, 2013). From the perspective of healthcare, QOL is seen as how a particular ailment
or disease affects a patient on an individual level. In this sense, the QOL of people who have LBP is determined by disability, which is influenced by factors such as psychological distress, physical impairment, patients’ attitudes and beliefs and type of employment (Okokon et al., 2016). In other words, when LBP occurs, it gets in the way of daily life activities, including work-related functions.

Previous studies have explored the relationship between the level of disability (LOD) and QOL in patients who have LBP. One of such studies was conducted by Klemenc-Ketis (2010) who revealed that LBP led to greater levels of disability and lower QOL in terms of pain intensity, depression and anxiety in patients in Slovenia. In another study, Okokon et al., (2016) revealed a moderate LOD in terms of pain intensity and psychological distress in patients with LBP, and this subsequently resulted in lower quality life such as poor mental health status and obesity in patients in a Family Practice Clinic in Calabar Nigeria. Though the studies may not represent global trends on the QOL and LOD in patients with LBP, they confirm the notion that LBP and pain in general leads to disability, which in turn reduces movement or prevents people from doing their day to day activities, hence QOL is affected. Thus, this necessitates the need to put forward, the responses of patients with LBP on how this common musculoskeletal condition (low back pain) contributes to their LOD and in turn affect their QOL, using FOCOS Orthopedic Hospital as a case study.
1.2 **Problem statement**

Anecdotal observation reveals that most patients who visit FOCOS Orthopedic Hospital complain of not being able to undertake basic life activities due to LBP. At the hospital, it has been noted that constrained body position, prolonged sitting, poor postures, continual repetition of movements and excessive contraction of muscles are some of the common causes of LBP, and these often lead to difficulties in movement, loss of balance and coordination, depressions, poor family relations, social isolation and poor productivity in the long run.

Notwithstanding this knowledge and general sentiments expressed by patients who visit the hospital, there is no comprehensive data or information on LBP and how it affects the QOL and LOD of patients. There is, therefore, the need for a comprehensive data on LBP and how it affects patients LOD and QOL, using FOCOS Orthopedic Hospital as the study area.

1.3 **General Objective**

To assess the relationship existing between LOD and QOL in patients who have LBP at FOCOS Orthopedic Hospital.

1.3.1 **Specific Objective**

I. To assess the LOD among patients with LBP

II. To measure the quality of life in patients with LBP

III. To Determine the relationship between LOD and quality of life in patients with LBP
1.4 **Justification of the study**

Just like several other musculoskeletal disorders, LBP poses significant physical, psychological and social burdens on sufferers. As the commonest musculoskeletal disorder that affects over 630 million people globally (Vox, Flaxgham & Naghavi, 2012), LBP is of major concern as it is responsible for activity restrictions in many persons, especially below 45 years of age (Van den Bosch, Hollingworth & Kinmouth, 2004). This suggests that LBP gets in the way of the daily life activities of people in adulthood. This stage (adulthood) of life is crucial because it is during that time the body is at its peak of physical performance. In Ghana, although over 60% of the adult population suffer or complain of pain in their lumber region or low back area (Osei, 2000), there is paucity of data on how this particular musculoskeletal disorder (LBP) affects the QOL and LOD. Therefore, the outcomes of the study will serve as an awareness tool for caregivers, patients who have LBP, the Ministry of Health (MoH), the Ghana Health Service (GHS) and related stakeholders on how LBP affects the QOL and LOD of patients. The results of the study are expected to serve as a reference source for students and researchers who may have the desire to undertake a study in the area of QOL and LOD.

1.5 **Conceptual framework**

The diagram below describes the relationship between the main concepts or variables of the study, thus QOL and LOD in patients who have LBP.
The figure 2.1 shows the association between the two variables, thus QOL and LOD in patients who have LBP. Precisely, the framework above identifies the QOL and LOD in patients who have LBP. The above framework shows that a number of factors influence or cause LBP, which could be minimal, moderate, severe, crippled or bedridden. These factors are age, prolonged...
sitting, smoking, poor postures, previous injury history, continual repetition of movements and excessive contraction of muscles, which subsequently affect QOL by leading to depression, social isolation, poor productivity, obesity, poor family relations, anxiety and loss of balance and coordination.
CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

A review of related literature is presented in this chapter. Materials for this section were retrieved from relevant sources such as textbooks, related articles, journals, speeches, web sites and other sources. The chapter is organized into segments to helps us understand how the QOL of patients who have LBP are affected by examining the level of their disability, determining factors that influence the QOL of these patients and assess the relationship between the LOD and QOL. Hence, this chapter would review studies that have been done by other researchers concerning the segments aforementioned.

2.1 Concepts and Definition of Terms

2.1.1 Low Back Pain

One leading cause of disability is LBP. In all cultures, disability occurs in proportions that are similar and it has the tendency of interfering with QOL and the performance of work (Ehrlich, 2003). Most individuals who experience LBP in most case rely on medical consultations. Similarly, most cases of back pain are as a result of peculiar causes although some are due to non-specific causes. Non-specific LBP has to do with tension, soreness or stiffness in the lower back region of the body for which it is almost always difficult to determine an exact cause of the
pain being experienced. One of the most common presentations is acute LBP and is usually self-limitation and lasts less than three months irrespective of treatment. Also, Duthey (2004) states that lower back pain refers to pain that is encountered above the interior gluteal folds with referred leg pain in some cases and below the costal margin. It is also explained that people with lower back pain usually exhibit symptoms such as stabbing, burning, vague with varying intensities and aching in various circumstances. This pain may progress gradually or starts suddenly. Additionally, non-specific low back pain can be referred to as low back pain that cannot be ascribed to identifiable specific pathology such as fractures, inflammatory processes, osteoporosis, infections, tumours, ankylosing, spondylitis, cauda equine syndrome and radicular syndrome. This implies that causes that cannot be attributed to the stated conditions can be labelled as non-specific low back pain. As stated by the National Institute of Neurological Disorder and Stroke (2019), people who are not physically active, advancing in age, overweight, genetically susceptible, children with overloaded backpacks, pregnant women and individuals who have pre-existing health factors have a higher risk of developing low back pain.

Furthermore, Hayashi (2004) explains that lower back pain can be caused by inflammation, trauma, degeneration, tumours, trauma, and other causes that were derived from intra-abdominal organs such as the pancreas, gallbladder, posterior abdominal organs like urine bladder, ovaries uterus and referred pain. Following this, the lower back pain can be treated through procedures such as surgery, conservative therapy, radiation therapy and anticancer drugs. Additionally, Macfarlane, Jones and Hannaford (2006), state that chronic LBP is a major problem and often
has strong psychological consequence. Hence, these psychological effects can be addressed using psychological counselling for assistance concerning their everyday living.

2.1.2 Quality of Life (QOL)

According to Chaturvedi (2016), the concept of quality of life had its inception from individuals who were undergoing cancer treatment. The anticancer chemotherapy, radiation therapy led to excessive toxicity. These treatments as well as mutilating surgery were undertaken by patients to increase their rate of survival and extend their lives. However, the effects of these treatments created doubts among caregivers, health care professionals and patients about the quantity of life as compared to the quality of life. It was perceived that the cost of survival would have to be traded for poor quality of life. Following this realization, there have been attempts to obtain less toxic and more successful drugs, surgical methods and treatment practices (Chaturvedi, 2016). Even though the quality was historically related to cancer patients and their treatments, currently, quality of life can be applied to other individuals and factors that affect their performance of daily activities. Individuals have the day to day activities they perform on regular bases and they expect that these activities can be performed unhindered. In the case where any of these activities are hindered, they perceive their quality of life to be reduced. Quality of life is essential to everyone and Fallowfield (2009), explains QOL as a concept which has diverse philosophical, political as well as health-related meanings. It is a wide multi-dimensional concept that in most
case encompasses subjective evaluations of positive as well as negative aspects of life. The most important domain of overall QOL is the health of an individual. The health-related QOL in this regard is the domain that has components that include the physical, functional, social and mental well-being of an individual with examples including energy level and mood among others.

Massam (2002) explains that the belief that Quality of Life can be altered through human actions has become an essential contemporary view of the quality of life in planning. The claim is that quality of life can be enhanced, modified and controlled. This suggests that quality of life is a tangible outcome or commodity. Furthermore, quality of life can be affected by both internal and external perceptions, attitudes, encounters, beliefs and the genetic structure of an individual that influences how an individual perceives his or her well-being that they only experience. The quality of life is constituent of integrated elements such as self-esteem, happiness, satisfaction, well-being, sense of self-worth and the general identity of a person. In order to determine these factors, however, instruments must be applied in measuring the quality of life of a person.

In line with this, Theofilou (2013) explains that the use of an instrument depends on the major concepts of interest and the reason for measuring the quality of life. For instance, in determining the impact of a new analgesic for arthritis, an instrument such as the generic SF-36 can be used as well as instruments that are specialized for the disease such as the Arthritis Impact Measurement Scales (AIMS) to assess the effect of pain on the various aspects of quality of life whilst comparing with other conditions which utilize analgesic interventions. In other situations
such as the measurement of the impact of specialist nurse counselling, measures such as a depression scale or an anxiety scale might be more suitable. This suggests that considerations of various factors must be assessed before the selection of an instrument.

2.2 Assessing quality of life of patients with low back pain

There have been many comparative studies concerning the QOL of patients who have LBP and one of such is the study conducted by Bensten, Hanestad, Rustoen and Wahl (2007). The authors looked at the QOL in patients with problems related to LBP. The study aimed at examining pain and QOL amongst a group of preoperative patients who have chronic LBP and a group of postoperative patients who have chronic LBP treated with instrumented fusion within a space of 8 years in Norway. The study used the comparative survey approach where the main instrument used was the McGill pain questionnaire and the SF-36 Health Survey. The study results revealed significantly less pain and better physical, as well as the mental health of persons in the postoperative category, whiles the opposite can be said about the preoperative patients. It can be inferred that QOL, although improved, is still affected in terms of pain, physical and mental health even with surgery.

In another study, Al-Disoky, El-Ghoul, Heissam and Mohammed (2015) estimated the prevalence of LBP and the effect it has on the QOL among patients at Ismailia Governorate, Egypt. The study used the cross-sectional approach with a semi-structured questionnaire to
collect data involving 259 patients. The study results showed that there was a significant change in the QOL of the affected persons concerning their work, lifestyle and social well-being. Thus it can be inferred from the study that individuals who experienced a certain level of pain in the lower back region had reduced QOL.

According to Panahi, Mohammadi, Kazemi and Geshti (2016) study on LBP disability on the QOL of among university students, it was found that most students in the university were living with LBP. Therefore the QOL of students was being affected by LBP they experience. The study aimed at investigating aspects of life quality among students who have LBP. With this objective, the study made use of cross-sectional descriptive study design. The study included 200 eligible students using purposive sampling method. The study concluded that LBP affects the physical, social and psychological aspects of students which decrease their QOL.

Also, Robin, Islam, Akhiruzzaman and Morshed (2018) study on the QOL of LBP patients revealed that housewives are usually affected with LBP. The study aimed at assessing the QOL of low back patients’. Thus the study adopted a quasi-experimental study design among adults aged 15 to 59 years. The study concluded that self back care is one of the effective interventions that improve the QOL of LBP patients.

Similarly, Husky, Farin, Compagnone, Fermanian and Kovess-Masfety (2018) study on chronic back pain and its influence on the QOL revealed that LBP affected the QOL of patients as they are unable to function as they used to. The study aimed at assessing chronic back pain being a
burden on the QOL of patients in France. The study adopted a cross-sectional survey with a sample age range from 18 to 98 years. The study concluded that there is the burden of chronic back pain and this affects the QOL of patients. Thus, early diagnosis and proper management minimize the burden associated with chronic pain.

2.3 Assessing the level of disability

Hanadrakis, Friel, Heffner, Akinkunle, Genova, et al., (2012) conducted a research focused on adults in college with characteristics of LBP and disability. The study made use of convenience sampling method to select 84 English speaking students.

Visual analogue scale (VAS) was used to assess the subjects for lower back pain (LBP) and the Oswestry Disability Index (ODI) was used for disability from LBP. The results of the study showed that the number of disability and disability groups were different in back endurance. Also, in comparison with the normative thoracic group, subjects with hyperkyphotic postures had higher depression scores and less hamstring flexibility.

In another study, Ogunalana, Odunaiya, Diaro and Ihekuna, (2012) observed patients with non-specific low back pain (LBP), which was a disability and their quality of life (QOL). The study examined health-related QOL in patients with non–specific LBP in Nigeria using a descriptive and cross-sectional survey approach and involving 169 patients. The study made use of the SF36, Oswestry disability questionnaire and the visual analogue scale as well as multiple linear regression analysis to estimate the data. The study found out that the LOD, age of respondent
significantly affected the health-related QOL of the patients. Numbness in the lower arm was found to have had a significant effect on all aspects of the patients' health-related QOL.

A related study conducted by Pereira, Roios and Pereira (2017) revealed that the leading cause of disability is LBP and it increases as the years go by. This is as a result of age, gender and occupation. The study had as its primary aim to assess the LOD in LBP patients. The study, therefore, adopted a quantitative study approach where a sample of 213 patients was included in the study. The study concluded that physical therapy treatment should be encouraged in disability in patients who have LBP.

Doualla et al (2019) also conducted a study on disability in patients who have chronic LBP. The study aimed at assessing disability due to LBP among patients attending a tertiary Hospital in sub-Saharan Africa. Therefore, the study adopted a hospital-based cross-sectional study using patients suffering from LBP. From the study, it was found that a disability in patients who have chronic LBP was high.

Similarly, Stefane, Munari dos Santos, Marinovic and Hortense (2013) conducted a study on chronic LBP, disability and QOL. The study aimed at assessing the perceived pain, disability and the QOL in patients who have chronic back pain. The study, therefore, adopted a cross-sectional study design using a sample size of 97 participants. The study found that due to chronic back pain, there was an increase in disability among patients.
2.4 Approaches to measuring disability

In a study conducted by Jacobs, Hoof, Fairbank and Limbeek (2015), the measures such as the Oswestry Disability of index (ODI) constructed into an electronic web-based system, the Roland Morris Disability Questionnaire for numerically rating scale for pain severity and the Short-form 36 –item health survey questionnaire for quality of life and the hospital depression and anxiety scale were assessed using the baseline data taken from two hundred and forty-four patients with chronic low back pain. The results of the study indicated that 88% of the patients were severely to moderately disable using the Oswestry Disability Index. Also, the Roland Morris Disability Questionnaire and the ODI indicated a strong significant correlation ($r = 0.68$, $P < 0.001$) and an overlap: mean difference of $-18$ (95% limits of agreement: $-44$ to $8$). It was concluded that the Oswestry Disability Index was an essential and valid instrument for measuring the disability and functional status of patients with chronic low back pain in the Netherlands.

Similarly, a study was carried out by Chin-Pang, Tsai-Sheng, Chia-Yiah and Ching (2017) among two hundred and twenty adult orthopaedic outpatients with chronic low back pain. The study performed confirmatory factor analysis, reliability analysis, Mokken scale analysis and bi-factor analysis of the Oswestry Disability Index. Furthermore, instruments such as the Visual Analog Scale (VAS) and the Short-Form 36 questionnaire were utilized to validate the Oswestry Disability Index. The results of the study indicated that the ODI had a good level of construct and discriminate validities and reliability. The ODI was also observed to be positively correlated to the Visual Analog Scale and negatively correlated to the collective scores of the Short-form 36
questionnaire. Also, the results of the study showed that the Oswestry Disability Index was a valid and reliable scale for measuring disability among patients with low back pain.

Also, Azimi and Benzel (2017) carried out a study to assess the Oswestry Disability Index (ODI) and the Low-Back Outcome Scale (LBOS) of Greenough and Fraser in comparison the patient Satisfaction Index in lumbar disc herniation (LDH) surgery. One hundred and thirty-four patients were assessed using the LBOS, ODI and PSI to for patient satisfaction before and after surgery. The correlation between LBOS, ODI and PSI score of patients were examined using correlation analysis. The pre – to post-operative ODI scores were observed to have significant improvement. Also, Post-surgical satisfaction was recorded as 81.3%, 76.8% and 70.9% for LBOS, ODI and PSI respectively. Concerning patient satisfaction however, there were found to be weak associations between the instruments. The study concluded that the instruments were not representative of the satisfaction of patients after discectomy.

Additionally, Smeets, Koke, Lin, Ferreira, Demoulin (2011) conducted a study to investigate the activity of lifting that was affected by low back pain. Instruments such as the Oswestry Disability Index (ODI) and the Low Back Pain Rating Scale (LBPRS), Quebec Back Pain Disability Scale (QBPDS), Progressive Isoinertial Lifting Evaluation (PILE) and Roland- Morris Disability Questionnaire (RDQ) were used to examine the limitation and pain that occurred in an individual’s daily and work activities. The results of the study showed that the Low Back Rating Scale was able to provide information on the pain dimension of the patients at varying timelines.
It was also responsive and preferred as compared to the numerical rating scale. In regards to the Oswestry Disability Index, (ODI), the instrument was observed to be appropriate in measuring pain-related disability. It also decreased the burden of the administrator and the respondents. The RDQ was also seen to be more sensitive to changes in patients with moderate to mild disability. Nonetheless, the ODI was comparatively more sensitive to patients who had persistent severe disability.

The studies stated (Jacobs et al., 2015; Chiang-Pang et al., 2017; Azimi et al., 2017 & Smeets et al., 2011) reveal that disability can be measured through approaches such as the Oswestry Disability Index, Roland Morris Disability Questionnaire, the Short Form 36 –item health survey questionnaire, the Visual Analog Scale, Low-Back Outcome Scale, Low Back Pain Rating Scale, and the Quebec Back Pain Disability Scale. These measures were observed to be suitable for measuring disability. Nonetheless, it was observed that in the studies that the instruments were not appropriate to measure the satisfaction of patients after the disabilities were addressed.

2.5 Approaches to measuring the quality of life

Koc, Bayar and Bayar (2017) carried out a study among one hundred and twenty patients being given in-patient and outpatient treatment in a State hospital, specifically the physiotherapy and rehabilitation units. Instruments stated as the Roland Morris Questionnaire (RMQ), Oswestry
Disability Index (ODI) and Short Form 36-Health Survey (SF-36) were applied in assessing the quality of life of the patients with low back pain in comparison with the Back Pain Functional Scale (BPFS). The findings of the study showed that there was a good correlation among the five outcome measures correlation $r = -0.693$ for BPFS/RMQ, $r = -0.794$ for BPFS/ODI, $r = 0.697$ for BPFS/SF-36 Physical function and $r = 0.540$ for BPFS/SF-36 Pain). Additionally, there was a good correlation with SF-36 physical function, Roland Disability Questionnaire, SF-36 pain and the Oswestry Disability Index.

Also, Hand (2016) performed a study to examine instruments that are used to measure the quality of life of adults in the primary care environment with chronic conditions. The World Health Organization Quality of Life Scale (WHOQOL-BREF), Dartmouth COOP Functional Assessment Charts, the NHP, the SF-12, the Duke Health Profile and the SF-36 were selected as suitable tools. The WHOQOL-BREF was observed to be based on the standards of the World Health Organization whilst the SF-36 was applied in the evaluation of the health status in research and clinical practice. The results of the study indicate that there was psychometric evidence that encouraged the use of the SR-36 and the WHOQOL-BREF. Furthermore, the SF-36 was observed to have the greatest evidence of responsiveness however, the SF-36 had some ceiling and floor effects. Also, the WHOQOL-BREF was recorded to have a greater proportion of individualized items and did not have ceiling to floor effects even though responsiveness was limited. In a study conducted by Alizad, Azkhosh, Asgari and Gonano (2017), the factor structure of the Short Form Health Survey (SF-36) was assessed concerning older individuals.
Three hundred and ninety-one participants between the ages of 60 and 89 years were taken as participants for the study. Factors such as the mental, physical and well-being of the participants were investigated. Exploratory factor analysis and confirmatory factor analysis were utilized in the study to viability and appropriateness of the instrument. The results of the study indicated that there was strong evidence that the SF-36 had the capacity to determine the well-being of older people. It was also confirmed that the SF-36 was able to meet the psychometric standards for physical and mental health.

Glavor, Titlic and Vuletic (2018) carried out a study to examine and compare the general subjective quality of life in patients with multiple sclerosis. Thirty patients engaged with immunomodulatory therapy and Glatiramer Acetate (GA) at various ages were selected to participate in the study. The quality of life of the respondents was evaluated using the Short-Form 36 item Health Survey (SF-36) questionnaire as well as the Personal well-being Index (PWI). The results of the study indicated that individuals with multiple sclerosis recorded similar experiences of the quality of life as compared to the general adult population. The study also revealed that mental health had a significant influence on the subjective perspective of the quality of life.
The studies utilized (Koc et al., 2017; Hand, 2016; Alizad, 2017 & Glavor, 2018) indicated that quality of life could be measured through the Short Form Health Survey, Roland Morris Questionnaire, the World Health Organization Quality of Life Scale, Dartmouth COOP Functional Assessment Charts, the Duke Health Profile and the Personal well–being index. It was observed that the studies covered patients with varying conditions such as chronic low back pain, hernia disc herniation and multiple sclerosis. Thus, this study would rather focus on individuals with low back pain.

2.6 Relationship between the quality of life and level of disability in patients

A cross-sectional study by Rahimi, Vazini, Alhani and Anoosheh (2015) examined the relationship that exists between low back pain (LBP) type of disability and quality of life (QOL) and aimed to measure the magnitude of back pains among medical technicians in Egypt. The study involved about 180 nurses and the short-form health (SF-36) among others were used to measure the prevalence. The findings from the study revealed a positive association between QOL and LOD. It can be inferred that the higher the LOD, the more the general well-being of the person decreases.

Another study conducted by Araujo, Carvalho and Martins (2016) on low back pain (LBP) and level of disability (LOD) amongst workers who are into construction. The authors aimed to estimate the prevalence of LBP and describe the levels of disability associated with it. The study involved 84 construction workers and used a well-structured questionnaire by Roland Morris to measure the functional incapacity and used SPSS and Spearman correlation test to analyze the
data collected. Furthermore, the Mann Whitney U test was to describe LBP. The study identified that strenuous activities can cause higher prevalence of LBP and affected time used for work as well as incapacitated the workers. This implies that the rate of work done would be slow concerning the level of pain being endured by the workers as their general well-being deteriorates.

In a related study conducted by Santos et al (2015) on the relationship existing between the QOL and LOD revealed that the lower level of disability affects the QOL of patients. The study aimed at identifying the relationship between functional activity limitation and the QOL of patients in Northeastern Brazil. Based on the objective, the study adopted a cross-sectional survey where 104 respondents were selected for the study. The study revealed that a relationship exists between QOL and LOD.

Again Comachio, Magalhães, Silva and Marques (2018) conducted a study which investigated the relationship existing between disability and QOL. The study aimed at investigating the relationship between disability and QOL in people who have chronic back pain. The study, therefore, adopted a cross-sectional study design. Questionnaires were administered to 132 individuals who have chronic back pain who are between the ages of eighteen and sixty-five years old. The study found that a relationship existed between disability and QOL of patients.

Similarly, Shamsul et al (2013) study revealed that a relationship existed between disability and QOL. The study aimed at determining the relationship between disability and QOL among
teenagers in Kuala Lumpur in Malaysia. The study adopted a cross-sectional study design in conducting the study. The study was conducted from December 2009 to May 2019.

Argyriou, Kapsoritakis, Oikonomou, Manolakis, Tsakiridou and Potamianos (2017) also conducted a study on the correlations between disability in patients and QOL. The study aimed at assessing the relationship between patients’ disability and QOL. The study made use of a quantitative research approach in answering the research objectives. The study also used a period of two years dating 2013 to 2015. Again, the study selected 200 patients to obtain the necessary data for further analysis. The study results indicated that a relationship exists between disability and QOL.
CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter outlines the method or procedure that was used to gather data from the respondents. The chapter presents the study design, study population, study setting, variables, sample size and technique, data collection method and tools, quality control, data collection stage, data entry and processing, analysis, limitation of the study and ethical consideration.

3.2 Study design

The study used a descriptive cross-sectional study design to assess the LOD and QOL in patients who have LBP at FOCOS Orthopedic Hospital. The study was for a period of 21 days and involved quantitative data collection.

3.3 Study population

The hospital renders service to about 7000 patients annually. On the other hand, 500 patients who have spine problems visit the hospital monthly to seek medical treatment. Thus, the population of the study was patients who have spine problems.

3.4 Study Setting

The Foundation of Orthopaedics and Complex Spine (FOCOS) Hospital was established in 2012.
in the city of Accra, Ghana. Currently, the hospital has over 50 ultra-modern bed facility rendering services to adults and paediatric patients in need of orthopaedic care. The hospital specializes in complex spine deformity surgery, joint replacement surgeries as well as conducts research and educates the public on other spine and joint disorders. The hospital is fully accredited to operate an inpatient and out-patient department. In 2014, the hospital was affiliated to a renowned hospital by name Hospital for Special Surgery (HSS) in New York. The hospital also has volunteers and staff from USA who organise educative programmes to raise funds to support the operation of the facility. The mission of the hospital is to improve the living condition of patients throughout the world by providing optimum orthopaedic care. The hospital also intends to provide affordable and comprehensive medical care to patients suffering from spine disorder. The vision of the hospital is to have a sustainable infrastructure that will provide state of the art orthopaedic care, education, research and training (FOCOS Orthopaedic Hospital, 2017).

3.5 Variables

3.5.1 Independent variables

The independent variable was the level of disability (LOD) in patients who have LBP which was measured by the level of discomfort in the lower back area and categorized into minimal, moderate and severe.

3.5.2 Dependent variable
The dependent variable was the QOL of patients who have lower back pain. QOL was measured and categorized into lower QOL and higher QOL.

### 3.6 Sample size and sampling techniques

In relation to the research objectives the sample size was calculated as shown below:

#### Sample size determination

The study used Slovin’s sample size formula because it is easy to use, and most importantly, the computation is based almost solely on the population size which was known. The sample size formula is given as:

\[ n = \frac{N}{1 + N \cdot e^2} \]

*Source: Slovin (1960)*

Where:

- \( N \) = Total Population of the patients diagnosed with LBP
- \( l \) = Constant, \( e \) = Margin of error (0.05) and \( n \) = Sample Size

\[ n = \frac{500}{1 + 500(0.05)^2} \]

\[ n = \frac{750}{1 + 0.1975} \]

\[ n = \frac{750}{1.1975} \]
n = 222.2

The minimum sample size appropriate for the study to draw meaningful conclusion was 222 patients who have LBP at FOCOS Orthopaedic Hospital.

i. **Sampling techniques**

The study used a simple random sampling method in selecting the patients at the hospital. Simple random sampling technique was appropriate for this research because it gave a chance to everyone to take part in the study. Thus, the use of simple random sampling method eliminates all forms of bias on the part of the researcher. This was done by assigning numbers to the names of the 500 patients with spine problems who visit the hospital monthly to seek medical treatment. Random numbers were then generated. The respondents whose numbers were generated were included in the study.

3.7 **Data collection methods**

Prior to the data collection methods, an official letter was sent to the management of FOCOS Orthopedic Hospital. After permission was granted the respondents were administered the questionnaires anytime they accessed the hospital. Data collection procedure was assisted by a professional nurse from the hospital. The professional nurse was taken through the questionnaire to ensure she attained a fair idea on the research topic and objectives.
The first two weeks was used to collect data from patients who agreed to be part of the study. The last week was used to select other individuals to replace those who did not want to be part of the study. In all a total period of 21 days was used in the collection of the data for the study.

3.8 Data collection tools

The study adopted the Oswestry Disability Questionnaire and the Short Form - 36 (SF-36). The Oswestry Disability Index (ODI) is an index which is obtained from the Oswestry LBP Questionnaire used by clinicians and researchers to measure disability for LBP. The questionnaire has ten topics encompassing intensity of pain, lifting, ability to care for oneself, ability to walk, ability to sit, sexual function, ability to stand, social life, sleep quality, and ability to travel (Fairbank & Pynsent, 2000). SF-36, on the other hand, is a summarised version of 149 questions which are health-related and have been validated on 22,000 patients in the United States (Tarlov et al., 1989). Essentially, three parameters are measured using this questionnaire; functional ability, well-being and overall health. This enables a patient's physical and mental health from their perspective to be thoroughly assessment. It has been known to be practical, reliable and not time-consuming, usually taking less than 10 minutes to complete (Jenkinson, Coulter & Wright, 1993).

3.9 Quality control

Professional nurses with adequate experience in data collection were selected to assist in the data collection at FOCOSOrthopedic Hospital. As training commenced, laid down principles and
study instruments were explained to the nurses in order for them to have a fair knowledge on the topic. Periodic visits with the researcher’s assistance were done to ensure that the laid down principles are followed.

3.10 Data entry and processing

The data collected from the selected respondents were coded by assigning numbers to the questionnaire to make it easy to identify each questionnaire. Subsequently, the coded questionnaires were keyed into the database of STATA for processing.

3.11 Data analysis

The analysis of data was conducted by making use of both descriptive and inferential statistics. The descriptive involved the use of frequencies and percentages whilst the inferential statistics focused on the use of a multivariable Poisson regression model analysis. In order to give a visual representation of the results obtained in the data analysis tables and graphs was used.

The following are the ways each of the objectives were measured:

i. First objective: Assessing the level of disability in patients with low back pain

The Oswestry Disability Index (ODI) which is an index obtained from the Oswestry LBP Questionnaire was used to access the LOD of patients who have LBP. The LOD was categorised under moderate, severe, crippled or bedridden depending on the score obtained by the respondents
ii. **Second objective: Assessing the quality of life among patients with low back pain**

The SF-36 health survey questionnaire was adopted to access the QOL of patients with disability. The results of each respondent were computed based on the answers given and an index was created where the respondents were grouped under high or low QOL depending on their score.

iii. **Third objective: Determining the relationship between level of disability and QOL in patients with low back pain**

The correlation coefficient was used to investigate the relationship that exists between the LOD and QOL in patients who have LBP. The composite scores of the variables (LOD and QOL) was used in computing the correlation. The multivariable Poisson regression model was then used to measure the relationship between the variables. The dependent variable, in this case, was QOL (measured as low QOL and high QOL) whilst the independent variable was LOD (measured as minimal, moderate and severe disability)

3.12 **Ethical consideration/issues**

**Ghana Health Services Ethical Approval**

An ethical approval was sought from the Ghana Health Services Review Committee before the commencement of the data collection. This was to ensure that data collection procedures were conducted in accordance to approved protocols and good clinical practices.
Approval from study area

An approval was sought from the management of FOCOS Orthopaedic Hospital for the commencement of the study. Also, patient consent was sought before including them in the study.

3.13 Potential risks/benefits compensation

This study will be of benefit to the government, health facilities and the public. The quality of life of people who have LBP will be provided in the study. The study results will help the government and health authorities to come up with policies that will help these affected persons have a meaningful and quality life. Thus patients might feel uncomfortable with regard to certain questions and might withdraw from the study.

3.14 Privacy/confidentiality

Before the commencement of the data collection, the rights of the patients were explained to them and the patients were assured of confidentiality and anonymity. As part of the confidentiality, names and personal details of the respondents were excluded from the questionnaire.
3.15 Data storage and usage

Prior to the data storage and usage, the supervisor was given the mandate to keep the data gathered from the hospital. The questionnaires collected were cross-examined to address any ambiguous questions or responses and then put under lock and key. The computers used for the data analysis were put under lock with a password only known to the researcher. Other relevant information was stored on pen drives, CD as back up and kept safely.

3.16 Compensation

There was no monetary compensation to any participant. However, a show of appreciation was done by thanking participant of the study.
CHAPTER FOUR

RESULTS AND FINDINGS

4.1 Introduction

The current chapter presents the results of the study obtained through the analysis of the data gotten from the use of questionnaire. First of all, the demographic profile of the respondents is explored and presented using descriptive statistics. Additionally, the study used simple descriptive statistics such as mean, frequency; standard deviation to report on the LOD. Multivariable Poisson regression model was used to determine the relationship between LOD and QOL in patients who have LBP.

4.2 Demographic profile of respondents

Table 4.1: Demographic profile of the respondents

<table>
<thead>
<tr>
<th></th>
<th>Frequency (N=222)</th>
<th>Percentages (%)</th>
<th>Mean (std)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>104</td>
<td>46.8</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>118</td>
<td>53.2</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td>61.3(12.5)</td>
</tr>
<tr>
<td>30-49 years</td>
<td>41</td>
<td>18.5</td>
<td></td>
</tr>
<tr>
<td>50-69 years</td>
<td>126</td>
<td>56.8</td>
<td></td>
</tr>
<tr>
<td>70-89 years</td>
<td>55</td>
<td>24.8</td>
<td></td>
</tr>
</tbody>
</table>
As shown in table 4.1, 104 (46.8%) of the respondents were males whilst 118 (53.2%) were females. Again, the results show that most 126 (56.8%) of the respondents are aged 50-69 years whilst 41 (18.5%) are aged 30 to 49. The mean age is 64.3 with a standard deviation of 12.5. The results seem to show that majority of the respondents considered for the study were aged 50 to 69 years.

Furthermore, majority 179 (80.6%) of the respondents were unemployed and 43 (19.4%) were employed. The reason for the respondents being unemployed may be a factor due to the chronic back pain. Also, most 189 (85.2%) of the respondents were single and 33 (14.9%) were married.
4.3 Determining Level of Disability among Patients with Low Back Pain

This section explores the LOD among patients with LBP. The result is present in a Table as shown in Table 4.2

Table 4.2: Disability among Patients with Low Back Pain

<table>
<thead>
<tr>
<th>Pain intensity</th>
<th>Frequency (n=222)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I have no pain at the moment</td>
<td>37</td>
<td>16.7</td>
</tr>
<tr>
<td>The pain is very mild at the moment</td>
<td>26</td>
<td>11.7</td>
</tr>
<tr>
<td>The pain is fairly severe at the moment</td>
<td>22</td>
<td>9.9</td>
</tr>
<tr>
<td>The pain is very severe at the moment</td>
<td>84</td>
<td>37.8</td>
</tr>
<tr>
<td>The pain is the worst imaginable at the moment</td>
<td>53</td>
<td>23.9</td>
</tr>
</tbody>
</table>

**Personal Care (e.g. washing, dressing)**

<table>
<thead>
<tr>
<th></th>
<th>Frequency (n=222)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I can look after myself normally without causing extra pain</td>
<td>11</td>
<td>5.0</td>
</tr>
<tr>
<td>I can look after myself normally but it causes extra pain</td>
<td>17</td>
<td>7.7</td>
</tr>
<tr>
<td>It is painful to look after myself and I am slow and careful</td>
<td>52</td>
<td>23.4</td>
</tr>
<tr>
<td>I need some help but can manage most of my personal care</td>
<td>18</td>
<td>8.1</td>
</tr>
<tr>
<td>I need help every day in most aspects of self-care</td>
<td>113</td>
<td>50.9</td>
</tr>
<tr>
<td>I do not get dressed, wash with difficulty and stay in bed</td>
<td>11</td>
<td>5.0</td>
</tr>
</tbody>
</table>

**Lifting**
<table>
<thead>
<tr>
<th>Activity</th>
<th>Percent</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>I can lift heavy weights without extra pain</td>
<td>16</td>
<td>7.2</td>
</tr>
<tr>
<td>I can lift heavy weights but it gives me extra pain</td>
<td>12</td>
<td>5.4</td>
</tr>
<tr>
<td>Pain prevents me lifting heavy weights off the floor but I can manage if they are conveniently placed eg. on a table</td>
<td>17</td>
<td>7.7</td>
</tr>
<tr>
<td>Pain prevents me lifting heavy weights but I can manage light to medium weights if they are conveniently positioned</td>
<td>22</td>
<td>9.9</td>
</tr>
<tr>
<td>I can only lift very light weights</td>
<td>33</td>
<td>14.9</td>
</tr>
<tr>
<td>I cannot lift or carry anything</td>
<td>122</td>
<td>55.0</td>
</tr>
</tbody>
</table>

**Walking**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Percent</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain does not prevent me walking any distance</td>
<td>15</td>
<td>6.8</td>
</tr>
<tr>
<td>Pain prevents me from walking more than 2 kilometres</td>
<td>19</td>
<td>8.6</td>
</tr>
<tr>
<td>Pain prevents me from walking more than 1 kilometre</td>
<td>35</td>
<td>15.8</td>
</tr>
<tr>
<td>Pain prevents me from walking more than 500 metres</td>
<td>57</td>
<td>25.7</td>
</tr>
<tr>
<td>I can only walk using a stick or crutches</td>
<td>41</td>
<td>18.5</td>
</tr>
<tr>
<td>I am in bed most of the time</td>
<td>55</td>
<td>24.8</td>
</tr>
</tbody>
</table>

**Sitting**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Percent</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>I can sit in any chair as long as I like</td>
<td>34</td>
<td>15.3</td>
</tr>
<tr>
<td>I can only sit in my favourite chair as long as I like</td>
<td>3</td>
<td>1.4</td>
</tr>
<tr>
<td>Pain prevents me sitting more than one hour</td>
<td>55</td>
<td>24.8</td>
</tr>
<tr>
<td>Pain prevents me from sitting more than 30 minutes</td>
<td>33</td>
<td>14.9</td>
</tr>
<tr>
<td>Activity</td>
<td>Percentage</td>
<td>Score</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>------------</td>
<td>-------</td>
</tr>
<tr>
<td>Pain prevents me from sitting more than 10 minutes</td>
<td>53</td>
<td>23.9</td>
</tr>
<tr>
<td>Pain prevents me from sitting at all</td>
<td>44</td>
<td>19.8</td>
</tr>
<tr>
<td><strong>Standing</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I can stand as long as I want without extra pain</td>
<td>17</td>
<td>7.7</td>
</tr>
<tr>
<td>I can stand as long as I want but it gives me extra pain</td>
<td>5</td>
<td>2.3</td>
</tr>
<tr>
<td>Pain prevents me from standing for more than 1 hour</td>
<td>79</td>
<td>35.6</td>
</tr>
<tr>
<td>Pain prevents me from standing for more than 30 minutes</td>
<td>33</td>
<td>14.9</td>
</tr>
<tr>
<td>Pain prevents me from standing for more than 10 minutes</td>
<td>77</td>
<td>34.7</td>
</tr>
<tr>
<td>Pain prevents me from standing at all</td>
<td>11</td>
<td>5.0</td>
</tr>
<tr>
<td><strong>Sleeping</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My sleep is never disturbed by pain</td>
<td>16</td>
<td>7.2</td>
</tr>
<tr>
<td>My sleep is occasionally disturbed by pain</td>
<td>19</td>
<td>8.6</td>
</tr>
<tr>
<td>Because of pain I have less than 6 hours sleep</td>
<td>48</td>
<td>21.6</td>
</tr>
<tr>
<td>Because of pain I have less than 4 hours sleep</td>
<td>63</td>
<td>28.4</td>
</tr>
<tr>
<td>Because of pain I have less than 2 hours sleep</td>
<td>52</td>
<td>23.4</td>
</tr>
<tr>
<td>Pain prevents me from sleeping at all</td>
<td>24</td>
<td>10.8</td>
</tr>
<tr>
<td><strong>Sex Life</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My sex life is normal and causes no extra pain</td>
<td>8</td>
<td>3.6</td>
</tr>
<tr>
<td>My sex life is normal but causes some extra pain</td>
<td>20</td>
<td>9.0</td>
</tr>
<tr>
<td>My sex life is nearly normal but is very painful</td>
<td>25</td>
<td>11.3</td>
</tr>
<tr>
<td>My sex life is severely restricted by pain</td>
<td>46</td>
<td>20.7</td>
</tr>
<tr>
<td>My sex life is nearly absent because of pain</td>
<td>49</td>
<td>22.1</td>
</tr>
<tr>
<td>Pain prevents any sex life at all</td>
<td>74</td>
<td>33.3</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>----</td>
<td>------</td>
</tr>
<tr>
<td><strong>Social life</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My social life is normal and gives me no extra pain</td>
<td>24</td>
<td>10.8</td>
</tr>
<tr>
<td>My social life is normal but increases the degree of pain</td>
<td>17</td>
<td>7.7</td>
</tr>
<tr>
<td>Pain has no significant effect on my social life apart from limiting my more energetic interests e.g. sport</td>
<td>34</td>
<td>15.3</td>
</tr>
<tr>
<td>Pain has restricted my social life and I do not go out as often</td>
<td>47</td>
<td>21.2</td>
</tr>
<tr>
<td>Pain has restricted my social life to my home</td>
<td>57</td>
<td>25.7</td>
</tr>
<tr>
<td>I have no social life because of pain</td>
<td>43</td>
<td>19.4</td>
</tr>
<tr>
<td><strong>Traveling</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I can travel anywhere without pain</td>
<td>15</td>
<td>6.8</td>
</tr>
<tr>
<td>I can travel anywhere but it gives me extra pain</td>
<td>15</td>
<td>6.8</td>
</tr>
<tr>
<td>Pain is bad but I manage journeys over two hours</td>
<td>53</td>
<td>23.9</td>
</tr>
<tr>
<td>Pain restricts me to journeys of less than one hour</td>
<td>36</td>
<td>16.2</td>
</tr>
<tr>
<td>Pain restricts me to short necessary journeys under 30 minutes</td>
<td>29</td>
<td>13.1</td>
</tr>
<tr>
<td>Pain prevents me from travelling except to receive treatment</td>
<td>74</td>
<td>33.3</td>
</tr>
</tbody>
</table>

**Source: Field Data, 2019**

As illustrated in Table 4.2, out of the 222 respondents, 37.8% currently had a severe pain. Meanwhile, 53 (23.9%) currently had an imaginable pain, 37 (16.7%) had no pain at the moment, 26 (11.7%) currently had a mild pain and 22 (9.9%) had a fairly severe pain.

In the same way, most 113 (50.9%) of the respondents needed help every day in most aspects of self-care. Meanwhile, 18 (8.1%) needed some help but can manage most of my personal care, 17
(7.7%) can look after themselves normally but it caused extra pain, 11 (5.0%) could look after themselves normally without causing extra pain and 11 (5.0%) do not get dressed, wash with difficulty and stay in bed.

Furthermore, majority 122 (55.0%) of the respondents could not lift or carry anything. Meanwhile, 33 (14.9%) could carry only very light weights, 22 (9.9%) could manage light to carry medium weights if they are conveniently positioned, 17 (7.7%) could not lift heavy weights of the floor but could manage if they are conveniently placed, 16 (7.2%) could lift weights without extra pain and 12 (5.4%) could lift heavy weight but gives them extra pain.

Out of the 222 respondents, 25.7% were prevented from walking more than 500 metres due to pain. Meanwhile, 55 (24.8%) were in bed most of the time, 41 (18.5%) could only walk using a stick or crutches, 35 (15.8%) were prevented from walking more than 1 kilometre due to pain, 19 (8.6%) were prevented from walking 2 kilometres due to pain and 15 (6.8%) were not prevented from walking any distance by pain.

Out of the 22 respondents, 24.8% were prevented from sitting for more than an hour due to pain. Meanwhile, 53 (23.9%) were prevented from sitting for more than 10 minutes due to pain, 34 (15.3%) could sit in any chair as long as they liked, 33 (14.9%) were prevented from sitting more than 30 minutes due to pain and 3 (14.0%) could sit in their favourite chair as long as they liked.

Out of the 222 respondents, 35.6% were prevented from standing for more than an hour due to pain. Meanwhile, 77 (34.7%) were prevented from standing for more than 10 minutes due to pain.
pain, 33 (34.7%) were prevented from standing for more than 30 minutes due to pain, 17 (7.7%) could stand as long as they want without any pain whatsoever, 11 (5.0%) were prevented from standing at all times and 5 (2.3%) could stand as long as they wanted but received extra pain.

Out of the 222 respondents, 28.4% had less than 4 hours of sleep due to the pain. Meanwhile, 52 (23.4%) had less than 2 hours of sleep due to the pain, 48 (21.6%) had less than 6 hours sleep due to the pain, 24 (10.8%) were prevented to sleep due to the pain, 19 (8.6%) could sleep but were disturbed with pain occasionally and 16 (7.2%) sleeps and were never disturbed with pain.

Out of the 222 respondents 33.3% were prevented from any sexual activities. Meanwhile, 49 (22.1%) sex life was nearly absent due to pain, 46 (20.7%) sex life was severely restricted due to pain, 25 (11.3%) sex life was normal but very painful, 20 (9.0%) sex life was normal but causes some extra pain and 8 (3.6%) had a normal sex life with no pain whatsoever.

Similarly, out of the 22 respondents, 25.7% were restricted by social life to their home. Meanwhile, 47 (21.2%) social life was restricted hence do not go out often due to pain, 43 (19.4%) had no social life due to pain, 43 (19.3%) have no social life whatsoever, 34 (15.3%) pain had no significant effect on their social life apart from limiting them from more energetic interest such as sports, 24 (10.%) had a social life and had no extra pain and 17 (7.7%) had a social life but had an increase in the degree of pain.

Finally, out of the 222 respondents, 33.3% had been prevented from traveling due to pain except to receive treatment. Meanwhile, 53 (23.9%) could manage to travel for over 2 hours but
receives severe pain, 36 (16.2%) were restricted to journey of more than an hour due to pain, 29 (13.1%) were restricted to travel for as short as 30 minutes, 15 (6.8%) could travel but received extra pain and 15 (6.8%) could travel anywhere without pain whatsoever.

Table 4.3: Composite Table of disability among Patients with Low Back Pain

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disability</td>
<td>222</td>
<td>2.00</td>
<td>45.00</td>
<td>31.5901</td>
<td>11.34839</td>
</tr>
</tbody>
</table>

Source: Field Data, 2019

Table 4.3 shows the composite variable of the disability among patients with low back pain. As shown, out of the maximum 45.00 score attainable, there was a mean of 31.59 and a standard deviation of 11.35. This indicated that there was a high level of disability among patients with low back pain.

4.4 Quality of Life in Patients with Low Back Pain

The study also wanted to ascertain the QOL among patients who have LBP. The results from the analysis are presented in Table 4.5.
Table 4.4: Quality of Life in Patients with Low Back Pain

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Functional</td>
<td>222</td>
<td>.00</td>
<td>18.00</td>
<td>6.3108</td>
<td>5.00839</td>
</tr>
<tr>
<td>Role Limitation due to Physical health</td>
<td>222</td>
<td>4.00</td>
<td>16.00</td>
<td>11.3649</td>
<td>3.97016</td>
</tr>
<tr>
<td>Role Limitation due to emotional problems</td>
<td>222</td>
<td>3.00</td>
<td>12.00</td>
<td>8.9910</td>
<td>2.77022</td>
</tr>
<tr>
<td>Energy/Fatigue</td>
<td>222</td>
<td>4.00</td>
<td>11.00</td>
<td>7.5225</td>
<td>2.07919</td>
</tr>
<tr>
<td>Emotional Wellbeing</td>
<td>222</td>
<td>4.00</td>
<td>19.00</td>
<td>13.1802</td>
<td>3.91932</td>
</tr>
<tr>
<td>Social Functioning</td>
<td>222</td>
<td>1.00</td>
<td>9.00</td>
<td>5.6622</td>
<td>1.90696</td>
</tr>
<tr>
<td>Pain</td>
<td>222</td>
<td>2.00</td>
<td>8.00</td>
<td>5.5045</td>
<td>1.95827</td>
</tr>
<tr>
<td>General Health</td>
<td>222</td>
<td>1.00</td>
<td>15.00</td>
<td>9.6622</td>
<td>2.95797</td>
</tr>
</tbody>
</table>

Source: Field Data, 2019

Table 4.4, shows the quality of life among patients with low back pain. As shown in relation with physical function of respondents, out of the maximum score of 18.00 there was a mean of 6.31 and a standard deviation of 5.01. This confirmed that there was a low physical functional activity among patients with low back pain.

Furthermore, in relation to the role limitation due to physical health of the respondents, out of the maximum score 16.00 attainable there was a mean of 11.36 and a standard deviation of 3.97. This confirms that there was a moderate level of limitation of patients with low back pain due to their physical health.
In addition, in relation to the role limitation due to emotional problems of the respondents, out of the maximum score 12.00 attainable, there was a mean of 8.99 and a standard deviation of 2.77. This therefore meant that there was a moderate level of limitation of patients with low back pain due to emotional problems.

Similarly, in relation to the energy and fatigue of respondents, out of the maximum score 11.00 attainable, there was a mean of 7.52 and a standard deviation of 3.92. This meant that there was a high level of fatigue among patients with low back pain.

Likewise, in relation to the emotional wellbeing of respondents, out of the maximum score of 19.00 attainable, there was a mean of 13.18 and a standard deviation of 3.92. This therefore confirms that there was a moderate level of emotional wellbeing of patients with low back pain.

In the same way, in relation to the social functioning of respondents, out of the maximum score of 9.00 attainable, there was a mean of 5.66 and a standard deviation of 1.91. This therefore reveals that there is a low level of social functioning among patients with low back pain.

Also, in relation to pain of respondents, out of the maximum score of 8.00 attainable, there was a mean of 5.50 and a standard deviation of 1.96. This therefore confirms that there is a high level of pain among patients with low back pain.
Finally, in relation to the general health of respondents, out of the 15.00 score attainable, there was a mean of 9.66 and a standard deviation of 2.96. This therefore meant that there was an alarming general health of respondents.

Table 4.5: Descriptive statistics of the Composite variable (quality of Life) in Patients with Low Back Pain

<table>
<thead>
<tr>
<th>Statistic</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>222</td>
</tr>
<tr>
<td>Mean</td>
<td>68.1982</td>
</tr>
<tr>
<td>Median</td>
<td>67.0000</td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>14.45938</td>
</tr>
<tr>
<td>Range</td>
<td>48.00</td>
</tr>
<tr>
<td>Minimum</td>
<td>46.00</td>
</tr>
<tr>
<td>Maximum</td>
<td>94.00</td>
</tr>
</tbody>
</table>

Source: Field Data, 2019

Table 4.5 shows the descriptive statistics of the composite variable the quality of life of patients with low back pain. As shown, out of the 94.00 score attainable, there was a mean of 68.19, a median score of 67 and a standard deviation of 14.46.
Table 4.6: Accessing the effect of disability on quality of life among adult with low back pain

<table>
<thead>
<tr>
<th>Variables</th>
<th>UPR [95% CI]</th>
<th>APR [95% CI]</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Disability status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mild</td>
<td>ref</td>
<td>ref</td>
</tr>
<tr>
<td>Moderate</td>
<td>1.01[0.96-1.05]</td>
<td>1.43[1.30-1.58]</td>
</tr>
<tr>
<td>Severe</td>
<td>0.97[0.91-1.03]</td>
<td>1.41[1.25-1.60]</td>
</tr>
<tr>
<td><strong>Age in years</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 20 years</td>
<td>ref</td>
<td>ref</td>
</tr>
<tr>
<td>20 – 29 years</td>
<td>0.97[0.91-1.04]</td>
<td>0.74[0.66-0.84]</td>
</tr>
<tr>
<td>30 – 39 years</td>
<td>0.80[0.75-0.84]</td>
<td>0.55[0.48-0.63]</td>
</tr>
<tr>
<td>40 – 49 years</td>
<td>0.82[0.76-0.87]</td>
<td>0.58[0.50-0.66]</td>
</tr>
<tr>
<td>50 years and above</td>
<td>0.82[0.77-0.87]</td>
<td>0.61[0.53-0.69]</td>
</tr>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>ref</td>
<td>ref</td>
</tr>
<tr>
<td>Female</td>
<td>0.97[0.96-1.02]</td>
<td>0.97[0.92-1.01]</td>
</tr>
</tbody>
</table>

**Abbreviation:** ref: reference category; UPR: Unadjusted prevalence ratio, APR: Adjusted prevalence ratio.

Table 4.6 shows the results from the multivariable Poisson regression model with robust standard error. The results showed that the prevalence of poor quality of life among patients with severe disability is approximately 1.4 times the prevalence of poor quality of life among patients with no disability controlling for age and sex [95%CI: 1.25 – 1.60, P< 0.001, Table 6].
CHAPTER FIVE

DISCUSSIONS

5.1 Introduction

This chapter presents a discussion of the findings of the study as presented in chapter four. The discussions are done in relation to the results obtained from related studies outlined in chapter 2 of the study. The discussion covers LOD among patients with LBP, QOL among patients with LBP and relationship between LOD and QOL in patients who have LBP.

5.2 The Level of Disability among Patients with Low Back Pain

The results of the study revealed that the respondents had varying levels of disability and it prevented them from undertaking normal daily activities. Thus the results of the study showed that the most of the respondents currently had a severe pain and needed help every day in most aspects of self-care. Also most of the respondents could not lift or carry anything, could not walk more than 500 metres due to pain and could not sit for more than an hour due to pain. Also the respondents could not stand for more than an hour due to pain, had less than 4 hours of sleep due to the pain and could not fully perform sexual activities. Likewise, their disability restricted their social life to their home and prevented them from traveling due to the pain except to receive treatment. A study by Roland-Morris revealed that disability affect the daily activities of individuals. The results of this study showed that most of the respondents had lower back pain (LBD) and this results concurs with findings made by Rahman, et al (2016). According to the
national Institute of Neurological disorder and stroke of Spain, about eighty percent of adults have experience with LBP at one point or the other in their lifetime. According to them, one of the major cause of job-related disability is LBP. Low back pain is essentially caused by injury to a muscle (strain) or ligament (sprain). Thus, some of the identified common causes of LBP is improper lifting and poor posture. Again, other cause imamates from a fracture, lack of regular exercise, a ruptured disc or arthritis. When these pains occur, it inhibits the ability of the individual from performing tasks that under normal circumstances could be undertaking easily.

5.3 The Quality of Life in Patients with Low Back Pain

Results from the analysis showed that three-fourth of patients with LBP sampled have low QOL. That is three (3) out of every four (4) LBP patient is having a decreased standard of living in the absence of basic needs. The low standard of living of these patients has a direct relationship with LOD. Also, 23.4% of the patients had higher QOL. This category of patients may have the financial means to seek further medical attention with regards to their disability than LBP patients who have lower QOL. A cross-sectional study by Rahimi, et al. (2015) examined the relationship between LBP and QOL among medical technicians in Egypt. The findings from the study revealed a positive association between QOL and LOD. It can be inferred that the higher the LOD, the more the general well-being of the person decreases. This is corroborated by the finding from this study. It was discovered that one-third of the patients with LBP who have
minimal disability have lower QOL. Meanwhile, 66.7% of the same category of patients has higher QOL. Furthermore, the study revealed that 47.4% of the LBP patients who are moderately disabled have lower QOL. Whilst about half of the moderately disabled patients as result of LBP have higher standard of living. In a study conducted by Liang et al., (2015) which assessed the relationship between QOL and LOD in patients with LBP concluded that Health-Related Quality of Life (HRQOL) of patients who have LBP relied on functional status as well factors that are psychological rather than just simple physical impairment. The result fairly agrees with the researchers' results from this study depicted a large proportion (94.6%) of the LBP with severe disability have lower QOL. Meanwhile only a little above 5% of the patients with severe disability resulting from LBP have higher QOL. This is not surprising; in that patients with low standard of living often report health related issues including LBP (LBP) very late sometimes at a point of permanent impairment. In sum, as it has been corroborated by most studies in this study area, majority (76.6%) of patients who have LBP have lower QOL as compared to 23.4% of patients with LBP having higher QOL.

5.4 The Relationship between quality of life and level of disability in patients with low back pain

The results of the study revealed when controlling for age and sex, the prevalence of poor quality of life among patients with severe disability is approximately 1.4 times the prevalence of poor quality of life among patients with no or mild disability. This result suggests that the more disabled an individual is, the more likely that individual will have a low QOL. Thus, one would
expect that individuals who have minimal disability are better off than individuals who have moderate disability. Similarly, the results of the study suggest that patients who have severe disability are more likely to have a low QOL than patients with minimal disability. Thus the results seem to suggest that individuals who have a minimal disability and better off than individuals who have severe disability. From the results, it is evident that there is a relationship between QOL and LOD in patients with LBP. In other words, patients with LBP experience disability which affects their QOL. In a related study conducted by Argyriou et al (2017), it was found that a relationship exist between disability and QOL. Santos et al (2015) also revealed that the higher LOD affects the QOL of patients. These studies imply that a persons’ QOL is affected by disability. This affects not only their physical aspect of life but their emotional aspects of life as well.

5.5 Limitations of the study

Language barrier was another limitation of the study whereby assessing respondent understanding of the translation of the questionnaire to enable them select the right responses was difficult.

Furthermore, collection of some of the questionnaire was a challenge at certain points because respondents or research assistants misplaced the questionnaires. Lastly, respondents left some questions unanswered and hence their questionnaires had to be discarded and new respondent recruited with very little available time.
CHAPTER SIX

CONCLUSION AND RECOMMENDATION

6.1 Introduction

This section presents the conclusion and recommendations for the study. The conclusion is first presented followed by the recommendations which are based on the results obtained in the study.

6.2 Summary

The study assessed the relationship between LOD and QOL among patients with LBP at FOCOS orthopaedic hospital. To address the specific objectives of determining LOD among patients with LBP, assessing the QOL in patients with LBP and assessing the relationship between QOL and LOD in patients who have LBP, primary data was used. The study made use of a descriptive cross-sectional which was used to assess the LOD and QOL in patients with LBP at FOCOS Orthopaedic Hospital. The study also made use of a qualitative study. Simple random sampling technique was used to select the patients at the hospital. In all, a calculated number of 222 patients with LBP at FOCOS Orthopaedic Hospital were selected. The independent variable was the LOD in patients with LBP which was measured by the level of discomfort in the lower back area and categorized into minimal, moderate and severe. The dependent variable was QOL of patients with lower back pain. QOL was measured and categorized into lower QOL and higher QOL.
From the study, the researcher found out that 36 representing 16.2% have minimal disability whilst, 38 representing one-sixth of the respondents have moderate disability. Majority (66.6%) of the patients with LBP have severe disability. The LOD among patients with LBP is very high since two-third of the patients with LBP stated that they have severe disability. Again, the study also revealed that most 170 (76.6%) of the respondents had lower QOL and 52 (23.4%) had higher QOL. Finally, 33.3% of the patients who minimal disabilities have lower QOL. Two-third of the respondents with minimal disability has higher QOL.

The multivariable analysis showed that patients moderate disability have a higher odds (a OR =35.00) of having low QOL as compared with patients with minimal disability. Similarly, the multivariable analysis depicts that patient with LBP who have severe disability have a higher odds (a OR =19.44, 95% CI =7.478-50.558) of having a low QOL that patients with minimal disability.

6.3 Conclusion

The study concludes that there is a high LOD among patients with LBP. Also, there is a low QOL in patients with LBP.

There is a relationship between QOL and LOD of patients with LBP. Respondents with moderate or severe disability have higher odds than patients with minimal disability to have low QOL.

6.3 Recommendation

Based on the objectives of the study, the following recommendations are made;
i. The study revealed that most patients with severe pain tend to be depressed. It is recommended that to ensure that patient’s pain is addressed effectively, there must be a multidisciplinary team which must include a physiotherapist and psychologist to address the biopsychosocial elements of each patient to achieve optimum care.

ii. In addition, most of the participant spent more time on rigorous activities which strained them physically and led to fatigue. The study, therefore, recommends that patients with LBP should be provided with occupational therapist to reevaluate them on their daily activities and recommend better working schedules/plans which best suits their condition. Also, frequent back school education and implementation of ergonomic solutions should be encouraged in organizations to reduce an individual's exposure to work hazards.

iii. The study also recommends studies that will be carried out in the future on this topic should include more than one hospital to make a better generalizing of the results from the study.

iv. Also, future studies should use mixed-method study approach so as to obtain in-depth results of the issues being investigated.
REFERENCES


Argyriou K, Kapsoritakis A, Oikonomou K, Manolakis A, Tsakiridou, E., & Potamianos S., (2017). Disability in Patients with Inflammatory Bowel Disease: Correlations with Quality of Life and Patient’s Characteristics. Available at


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**APPENDIX A**

**Questionnaire**

**Age/Sex:**

**Patient Name:**

**Doctor:**

Instructions: This survey asks for your views about your health. This information will help keep track of how you feel and how well you are able to do your usual activities. Answer every question by marking the answer as indicated.

If you are unsure about how to answer a question, please give the best answer you can.

**Physical functioning**

P1. Vigorous activities, such as running, lifting heavy objects, participating in strenuous sports
   a. Yes, Limited A Lot [ ]
   b. Yes, Limited A Little [ ]
   c. No, Not Limited at all [ ]

P2. Moderate activities, such as moving a table, pushing a vacuum cleaner, bowling or playing golf
a. Yes, Limited A Lot [ ]   b. Yes, Limited A Little [ ]   c. No, Not Limited at all [ ]

P3. Lifting or carrying groceries
a. Yes, Limited A Lot [ ]   b. Yes, Limited A Little [ ]   c. No, Not Limited at all [ ]

P4. Climbing several flights of stairs
a. Yes, Limited A Lot [ ]   b. Yes, Limited A Little [ ]   c. No, Not Limited at all [ ]

P5. Climbing one flight of stairs
a. Yes, Limited A Lot [ ]   b. Yes, Limited A Little [ ]   c. No, Not Limited at all [ ]

P6. Bending, kneeling or stooping
a. Yes, Limited A Lot [ ]   b. Yes, Limited A Little [ ]   c. No, Not Limited at all [ ]

P7. Walking more than one mile
a. Yes, Limited A Lot [ ]   b. Yes, Limited A Little [ ]   c. No, Not Limited at all [ ]

P8. Walking several blocks
a. Yes, Limited A Lot [ ]  b. Yes, Limited A Little [ ]  
c. No, Not Limited at all [ ]

P 9. Walking one block I
a. Yes, Limited A Lot [ ]  b. Yes, Limited A Little [ ]  
c. No, Not Limited at all [ ]

P10. Bathing or dressing yourself
a. Yes, Limited A Lot [ ]  b. Yes, Limited A Little [ ]  
c. No, Not Limited at all [ ]

Role limitations due to physical health

R1. Cut down on the amount of time you spent on work or other activities
a. All of the time [ ]  b. Most of the time [ ]  c. Some of the time [ ]  
d. A little of the time [ ]  e. None of the time [ ]

R2. Accomplished less than you would like
a. All of the time [ ]  b. Most of the time [ ]  c. Some of the time [ ]  
d. A little of the time [ ]  e. None of the time [ ]

R3. Were limited in the kind of work or other activities
a. All of the time [ ]  b. Most of the time [ ]  c. Some of the time [ ]  
d. A little of the time [ ]  e. None of the time [ ]

R4. Had difficulty performing the work or other activities (for example, it took extra effort)

66
Role limitations due to physical health emotional problems

H1. Cut down on the amount of time you spent on work or other activities
   a. All of the time [ ]    b. Most of the time [ ]    c. Some of the time [ ]
      d. A little of the time [ ]    e. None of the time [ ]

H2. Accomplished less than you would like I
   a. All of the time [ ]    b. Most of the time [ ]    c. Some of the time [ ]
      d. A little of the time [ ]    e. None of the time [ ]

H3. Did work or other activities less carefully than usual
   a. All of the time [ ]    b. Most of the time [ ]    c. Some of the time [ ]
      d. A little of the time [ ]    e. None of the time [ ]

Energy/fatigue

E1. Did you feel full of life?
   a. All of the time [ ]    b. Most of the time [ ]    c. Some of the time [ ]
      d. A little of the time [ ]    e. None of the time [ ]

E2. Did you have a lot of energy?
E3. Did you feel worn out?

a. All of the time [ ]  
   b. Most of the time [ ]  
   c. Some of the time [ ]  
   d. A little of the time [ ]  
   e. None of the time [ ]

E4. Did you feel tired?

a. All of the time [ ]  
   b. Most of the time [ ]  
   c. Some of the time [ ]  
   d. A little of the time [ ]  
   e. None of the time [ ]

**Emotional well being**

W1. Have you been very nervous?

a. All of the time [ ]  
   b. Most of the time [ ]  
   c. Some of the time [ ]  
   d. A little of the time [ ]  
   e. None of the time [ ]

W2. Have you felt so down in the dumps that nothing could cheer you up?

a. All of the time [ ]  
   b. Most of the time [ ]  
   c. Some of the time [ ]  
   d. A little of the time [ ]  
   e. None of the time [ ]

W3. Have you felt calm and peaceful?

a. All of the time [ ]  
   b. Most of the time [ ]  
   c. Some of the time [ ]  
   d. A little of the time [ ]  
   e. None of the time [ ]

W4. Have you felt downhearted and blue?
a. All of the time [ ]  b. Most of the time [ ]  c. Some of the time [ ]

d. A little of the time [ ]  e. None of the time [ ]

ws. Have you been a happy person?

a. All of the time [ ]  b. Most of the time [ ]  c. Some of the time [ ]

d. A little of the time [ ]  e. None of the time [ ]

Social functioning

S1. During the past four weeks, to what extent has your physical health or emotional problems interfered with your normal social activities with family, friends, neighbors or groups? (circle one)

a. Not at all [ ]  b. Slightly [ ]  c. Moderately [ ]  d. Quite a bit [ ]

e. Extremely [ ]

S2. During the past four weeks, how much of the time has your physical health or emotional problems interfered with your social activities (like visiting with friends, relatives, etc)?

a. Not at all [ ]  b. Slightly [ ]  c. Moderately [ ]  d. Quite a bit [ ]

e. Extremely [ ]

Pain

A1. How much bodily pain have you had during the past four weeks? (circle one) ___ j

a. None [ ]  b. Very mild [ ]  c. Mild [ ]  d. Moderate [ ]

e. Severe [ ]  f. Very Severe [ ]
A2. During the past four weeks, how much did pain interfere with your normal work (including both work outside the home)?

   a. Not at all [ ]  b. Slightly [ ]  c. Moderately [ ]  d. Quite a bit [ ]
   e. Extremely [ ]

**General health**

G1. In general, would you say your health is? (circle one):

   a. Excellent [ ]  b. Very good [ ]  c. Good [ ]  d. Fair [ ]  e. Poor [ ]

G2. I seem to get sick a little easier than other people

   a. Definitely True [ ]  b. Mostly True [ ]  c. Don't Know
   d. Mostly False [ ]  e. Definitely False [ ]

G3. I am as healthy as anybody I know

   a. Definitely True [ ]  b. Mostly True [ ]  c. Don't Know
   d. Mostly False [ ]  e. Definitely False [ ]

G4. I expect my health to get worse

   a. Definitely True [ ]  b. Mostly True [ ]  c. Don't Know
   d. Mostly False [ ]  e. Definitely False [ ]

G5. My health is excellent

   a. Definitely True [ ]  b. Mostly True [ ]  c. Don't Know
Oswestry Disability Questionnaire

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

Section 1: Pain Intensity

a. I have no pain at the moment [ ]

b. The pain is very mild at the moment [ ]

c. The pain is moderate at the moment [ ]

d. The pain is fairly severe at the moment [ ]

e. The pain is very severe at the moment [ ]

f. The pain is the worst imaginable at the moment [ ]

g. Mostly False [ ]
e. Definitely False [ ]
Section 2: Personal Care (eg. washing, dressing)

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

Section 3: Lifting

a. I can lift heavy weights without extra pain [ ]
b. I can lift heavy weights but it gives me extra pain [ ]
c. Pain prevents me lifting heavy weights off the floor but I can manage if they are conveniently placed eg. on a table [ ]
d. Pain prevents me lifting heavy weights but I can manage light to medium weights if they are conveniently positioned [ ]
e. I can only lift very light weights [ ]
f. I cannot lift or carry anything [ ]
Section 4: Walking

a. Pain does not prevent me walking any distance [ ]
b. Pain prevents me from walking more than 2 kilometres [ ]
c. Pain prevents me from walking more than 1 kilometre [ ]
d. Pain prevents me from walking more than 500 metres [ ]
e. I can only walk using a stick or crutches [ ]
f. I am in bed most of the time [ ]

Section 5: Sitting

a. I can sit in any chair as long as I like [ ]
b. I can only sit in my favourite chair as long as I like [ ]
c. Pain prevents me sitting more than one hour [ ]
d. Pain prevents me from sitting more than 30 minutes [ ]
e. Pain prevents me from sitting more than 10 minutes [ ]
f. Pain prevents me from sitting at all [ ]

Section 6: Standing

a. I can stand as long as I want without extra pain [ ]
b. I can stand as long as I want but it gives me extra pain [ ]
c. Pain prevents me from standing for more than 1 hour [ ]
d. Pain prevents me from standing for more than 30 minutes [ ]
e. Pain prevents me from standing for more than 10 minutes [ ]

f. Pain prevents me from standing at all [ ]

**Section 7: Sleeping**

a. My sleep is never disturbed by pain [ ]

b. My sleep is occasionally disturbed by pain [ ]

c. Because of pain I have less than 6 hours sleep [ ]

d. Because of pain I have less than 4 hours sleep [ ]

e. Because of pain I have less than 2 hours sleep [ ]

f. Pain prevents me from sleeping at all [ ]

**Section 8: Sex Life (if applicable)**

a. My sex life is normal and causes no extra pain [ ]

b. My sex life is normal but causes some extra pain [ ]

c. My sex life is nearly normal but is very painful [ ]

d. My sex life is severely restricted by pain [ ]

e. My sex life is nearly absent because of pain [ ]

f. Pain prevents any sex life at all [ ]
Section 9: Social Life

a. My social life is normal and gives me no extra pain [ ]
b. My social life is normal but increases the degree of pain [ ]
c. Pain has no significant effect on my social life apart from limiting my more energetic interests e.g. sport [ ]
d. Pain has restricted my social life and I do not go out as often [ ]
e. Pain has restricted my social life to my home [ ]
f. I have no social life because of pain [ ]

Section 10: Travelling

a. I can travel anywhere without pain [ ]
b. I can travel anywhere but it gives me extra pain [ ]
c. Pain is bad but I manage journeys over two hours [ ]
d. Pain restricts me to journeys of less than one hour [ ]
e. Pain restricts me to short necessary journeys under 30 minutes [ ]
f. Pain prevents me from travelling except to receive treatment [ ]

Thank You For Completing These Questions!