QUALITY OF LIFE IN PATIENTS WITH CHRONIC LOW BACK PAIN AT MOI TEACHING AND REFERRAL HOSPITAL, ELDORET

BY

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A THESIS SUBMITTED TO THE MOI UNIVERSITY SCHOOL OF MEDICINE, DEPARTMENT OF MENTAL HEALTH IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF THE DEGREE OF MASTER OF MEDICINE IN PSYCHIATRY

DECLARATION

Declaration by the Candidate

This thesis is my original work and has not been presented for a degree or any academic credit in any other university. No part of this thesis may be reproduced without prior written permission of the author and/or Moi University.

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DEDICATION

I dedicate this research to all those who inspired along the road to acquisition of knowledge.

And to my dear parents for the gift of education.

ACKNOWLEDGEMENT

First, I would like to give praise and honor to the Almighty God for giving me sufficient grace, good health and strength to write this thesis.

I wish to acknowledge in a special way, my supervisors at School of Medicine, Moi University, for their precious mentorship.

I also acknowledge my colleagues for their sincere support and encouragement.

DEFINITION OF TERMS

Chronic back pain: Back Pain that persists for 12 weeks or longer, even after an initial injury or underlying cause of acute low back pain has been treated.

Health related quality of life: A multidimensional dynamic concept and includes multiple components, such as an individual's physical health, psychological state, level of independence and social relationships and interaction with their environment.

Low back pain: Is defined as pain of musculoskeletal origin extending from the lowest rib to the gluteal fold that may at times extend as somatic referred pain into the thigh.

Psychopathological factors: Mental illness or mental distress or the manifestation of behaviours and experiences which may be indicative of mental illness or psychological impairment.

Quality of life: The World Health Organization (WHO) defines QOL as 'the individual's perception of his or her position in life, within the cultural context and value system he or she lives in, and in relation to his or her goals, expectations, parameters and social relation.

Social environmental factors: The immediate physical and social setting in which people live or in which something happens or develops.

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ABBREVIATIONS AND ACRONYMS

CBT	Cognitive behavior therapy
CHS	College of Health Sciences
CLBP	Chronic Low Back Pain
HRQOL	Health Related Quality of Life
IREC	Institutional Research and Ethics committee
MINI-Plus	Mini International Neuropsychiatric Interview
MMSE	Mini Mental State Exam
MTRH	Moi Teaching and Referral Hospital
QOL	Quality of Life
WHOQOL	World Health Organization Quality of Life Questionnaire

ABSTRACT

Background: Chronic low back pain is pain lasting longer than 12 weeks even after an initial injury or underlying cause has been treated. Previous findings have shown a high degree of co-morbid psychopathology in chronic back pain. Doing Quality of life assessment in chronic back pain promotes holistic care by appreciation of the patient's physical, psychological and social-environmental experiences.

Objectives: To determine the quality of life and the relationship between sociodemographic, psychopathological and socio-environmental factors and quality of life in patients with chronic low back pain at the orthopedic spine clinic of Moi Teaching and Referral Hospital, Eldoret.

Methods: Cross-sectional, descriptive study using sociodemographic and WHOQOL-BREF Questionnaires on consenting new adult patients that attended the orthopedic and spine out-patient clinic at Moi Teaching and Referral hospital (MTRH) presenting with chronic back pain, duration over 3 months. Three hundred and eighteen patients were consecutively sampled from January 2018 to December 2019 and data analyzed using computer software. Categorical demographic data was analyzed using frequency and percentages. Socio-demographic factors that were significant in the bi-variate analysis were further analyzed by multivariate linear regression with statistical significance set at p-value of <0.05. Continuous data from the WHOQOL-BREF facet and domain scores was summarized with descriptive statistics including frequency, mean, and standard deviation.

Results: Seventy percent of participants were females while thirty percent were males. The mean Quality of life score for the 4 domains was 50.56(SD=9.55). On a scale of 1-5, the mean score of the Overall Quality of life facet was 2.42 (SD =0.80) while that of the general health facet was 2.31 (SD=0.69). The psychological domain had the highest number of patients with poor scores at n=69. The scores for the physical, psychological, social relationships and environmental health domains were 38.60, 55.47, 58.11 and 50.05 respectively. Older age (46-65) was significantly associated with lower mean QOL at 49.4(SD=9.2) $p<0.001$ compared to younger age groups. This age bracket also reported low physical and psychological health domain scores (mean 36.97 and 54.62, $p<0.0016$ respectively). Patients with a higher income level reported a higher psychological domain score (mean 56.75, $p<0.0076$). Higher level of education was significantly associated with high mean QOL ($p<0.022$). In the multivariate analysis, older age and lower income level were significantly associated with lower QOL.

Conclusion: Patients with chronic back pain have a reduced quality of life. Older age, low level of income and low level of education were significantly associated with low quality of life in patients with chronic back pain at the MTRH orthopaedic outpatient clinic. There is a subset of patients with psychological impairment; and poor social and environmental health domain scores in patients presenting with chronic back pain at MTRH orthopaedic clinic.

Recommendations: A multidisciplinary approach to treatment of this condition by stratification of patients with psychological risk factors and then applying an integrative biopsychosocial approach by consulting mental health practitioners.

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background to the Study

Low back pain is defined as pain of musculoskeletal origin extending from the lowest rib to the gluteal fold that may at times extend as somatic referred pain into the thigh and above the knee.

Low Back Pain can be categorised in one of the three groups:

1) Non-specific LBP

2) Back pain potentially related with radiculopathy or spinal stenosis

3) Back pain related with another specific spinal cause.

Thus, back pain can be classified as Specific or Nonspecific. Specific low back pain is a condition in which pain can be linked to a disorder, disease, infection, injury, trauma, or structural deformity. In these cases, a potential causal relationship can be found between the diagnosis and the pain.

In nonspecific low back pain, no specific cause or structure can be identified to account for the patient's perceived symptoms. Low back pain of non-specific aetiology is the commonest cause of back pain. (Galukande, Muwazi, & Mugisa.,2005).

Chronic back pain is defined as pain that continues for 12 weeks or longer, even after an initial injury or underlying cause of acute low back pain has been treated. In these cases, pain persists even when there is no medically serious underlying cause or one that can be easily identified and treated.

Low back pain is an enormous and important clinical and public health problem throughout the world, with the highest prevalence among female individuals and those aged 40–80 years. (Hoy, Bain, Williams, March, Brooks, Blyth, Woolf, Vos, and

Buchbinder., 2012). From international surveys, 75-85% of all people will experience back pain in some form during their life. (Andersson.,1999).

This condition is classified as a psychosomatic illness with some reports indicating that up to 95% low back pain cases are psychological in origin (Sadock, Sadock, Sadock, & Ruiz., 2015).

Previous findings have shown a high degree of co morbid psychopathology in chronic back pain. Prevalence is reported to be between 40%-100% depending on methods being used, sample or setting (Reme, Tangen, Moe, and Eriksen, 2012). In this regard, psychopathological and socio-environmental risk factors such as psychological distress, depressive mood, and depressive symptoms, low job satisfaction, emotional trauma or abuse in childhood, and pain level have been known to influence progression of sub-acute low back pain to chronic low back pain. (Ikemoto, Miki, Matsubara, & Wakao., 2018).

Quality of life has been described as "the missing measurement in health" because the biomedical model of medicine is only concerned with the eradication of disease and symptoms with a minimal humanistic element (World Health Organisation, 1996) . Therefore, quality of life assessment goes beyond physical health and focuses attention on this aspect of health (W H O, 1996).

Chronic low back pain can affect the physical, psychological, social and occupational aspects of the patient's life. This means that all aspects of life can be affected and the impact on health-related quality of life (HRQOL) has been compared to the HRQOL of patients with chronic liver disease prior to transplant and terminal cancer (Lin, Lin, and Fan., 2013).

Consideration of patient's subjective views about their treatment especially in a chronic illness like chronic back pain could be useful in the decision-making process

regarding interventions. Furthermore, appreciating the patient's physical, psychosocial and emotional experiences, with empathy, rather than displaying paternalistic and authoritarian roles is definitely beneficial in such cases (Kinyanjui, Kathuku, and Mburu, 2013).

1.2 Statement of the Problem

Globally, a world mental health survey found that back pain is one of the most common presenting complaints in medical and surgical out-patient departments with approximately 80% of people experiencing back pain once in their lifetime (Demyttenaere, Bruffaerts, Lee, Posada-Villa, Kovess, Angermeyer, Korff, 2007).

A study at Mulago hospital in Uganda found that Low back pain of non-specific etiology is the commonest cause of back pain (Galukande, Muwazi, & Mugisa, 2005)

From the sick listed records at the MTRH orthopedic spine clinic, 15-20 patients out of the 40 patients seen at the MTRH orthopedic spine clinic every week present with low back pain thus making it the commonest presenting complaint. In a master of medicine in orthopedic surgery study done in 2012 (Thapelo,2012) 9% of all patients presenting at MTRH orthopedic and neurosurgery clinic had a diagnosis of low back pain. Forty-nine per cent of these patients had a diagnosis of chronic low back pain. Further analysis found that sixty three percent of the chronic backache cases were of nonspecific etiology, supporting the findings in the study at Mulago Hospital in Uganda.

Chronic back pain is a therapeutic challenge in the healthcare community and is strongly associated with psychiatric morbidity including depression, anxiety, personality, somatization and substance use (Wand, and Oconnell, 2008). Furthermore, clinical trials offer little support for current management of nonspecific chronic low back (Wand, and Oconnell, 2008).However psychiatry holds an

important role in the care of patients and early intervention will optimize management and outcomes. Despite these, the author has found no studies that measure the subjective domain of chronic back pain in the Kenyan and African setting.

This study will seek to establish the influence chronic back pain has on the physical health, psychological and socio-environmental health domains of QOL in patients presenting with chronic back pain by evaluating these subjective domains using the WHOQOL-BREF questionnaire.

1.3. Justification of the study

Quality of life overshadows the assessment, diagnosis and treatment of chronic back pain due to medical professionals overlooking the subjective patient experience and only focusing on the biomedical outcome measures.

While the general topics of chronic back pain and Quality of Life in different circumstances have been widely researched and published in different parts of the world, sub-Saharan Africa has contributed little to this body of knowledge. In this regard the author has found no information available on QOL of patients with chronic back pain in the Kenyan setting.

Early consideration of the relationships between quality of life, psychopathology and socio-environmental factors will promote a multidisciplinary approach to this condition of multidimensional etiology and hence influence assessment, prevention, treatment and rehabilitation of patients with chronic low back pain.

The study findings in the psychological, social and environmental health domains of quality of life will help clinicians in identifying and prioritizing patient concerns, will facilitate communication on patient's main concerns, facilitate screening for hidden problems and facilitate shared decision making by taking into consideration patient expectations.

This study focuses on the consultation–liaison psychiatry aspect and will have implications for the way liaison psychiatry is delivered at the MTRH orthopedic spine clinic by emphasizing the need for greater consideration of quality of life in the management of chronic back pain by clinicians.

In this regard, assessment of psychological function, social relationships and environment health domains will paint a clearer picture of patient concerns and expectations and thus promote holistic treatment of chronic back pain.

In addition, increased quality of life assessments in patients with chronic back pain in secondary and tertiary care will influence clinicians to choose holistic interventions that promote subjective wellbeing since the evaluations focus on the patient's opinion and wishes rather than the condition.

The study also has implications for community psychiatry practice and disability claims assessment for patients with chronic back pain at MTRH orthopedic spine clinic and will offer a psychiatric perspective in the management of this widespread condition which is mostly considered of nonspecific etiology.

1.4. Research Scope

The study sought to determine quality of life in patients with chronic back pain at the orthopedic spine clinic at Moi Teaching and Referral hospital, Eldoret. The aspects covered in this study include the quality of life and general health perception of patients with chronic back pain. The study also assesses the physical, psychological, social and environment domains of QOL using the WHOQOL-BREF questionnaire. This information was collected from patients presenting with chronic back pain at the orthopedic spine clinic between January 2018 and December 2019.

1.5. Research Question

How are the relationships between quality of life and socio-demographic, psychopathological and socio-environmental factors in patients with chronic back pain at the orthopedic spine clinic of Moi Teaching and Referral hospital, Eldoret?

1.6. Research objectives

1.6.1 Broad Objective

To determine the quality of life in patients presenting with chronic back pain at orthopedic spine outpatient clinic of Moi Teaching and Referral hospital, Eldoret, Kenya.

1.6.2 Specific Objectives

i. To determine the relationship between socio-demographic factors and quality of life in patients with chronic back pain at the orthopedic spine outpatient clinic of Moi Teaching and Referral hospital, Eldoret.

ii. To determine the relationship between psychopathological factors and quality of life in patients with chronic back pain at orthopedic spine outpatient clinic of Moi Teaching and Referral hospital, Eldoret.

iii. To find out the relationship between the social-environmental factors and quality of life in patients with chronic back pain at orthopedic spine clinic of Moi Teaching and Referral Hospital, Eldoret.

1.7. Research hypothesis

Null hypothesis: There is no impairment of quality of life in patients with chronic back pain attending MTRH Orthopedic clinic.

Alternative hypothesis: There is impairment of quality of life in patients with chronic back pain attending MTRH Orthopedic clinic.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Overviews

According to the bio-psychosocial model, the pain experience is a function of interacting combinations of patho-anatomical, neuro-physiological, physical and psychosocial factors (Andersson, 1999).These factors are different for each individual.

The bio-psychosocial models portray low back pain as a sensory-affective response, involving physiological, cognitive, and behavioral components (Wand, and Oconnell, 2008).

Eighty five percent of chronic low back pain (CLBP) disorders have no known diagnosis and are classified as 'non-specific CLBP' that leaves a diagnostic and management vacuum (Lin, X., et al, 2013) .

It is now widely accepted that CLBP disorders are multi-factorial in nature and the pain experience is different for every patient. Besides, no single treatment has been found to be effective and current treatment may be ineffective because it is being misdirected (Wand, and Oconnell , 2008).

2.1.1 Quality of life

The World Health Organization (WHO) defines QOL as 'the individual's perception of his or her position in life, within the cultural context and value system he or she lives in, and in relation to his or her goals, expectations, parameters and social relations (Lin, et al , 2013:WHO,1996).

It is a wide concept affected by a person's physical health, psychological state and level of independence, social relationships and a person’s relationship to their immediate surroundings. In this definition the subjective nature of QOL is given

prominence and defined as an internal experience influenced by what is happening 'out there', but colored by the subject's earlier experiences, mental state, personality, and expectations and, emphasizes the need to extensively examine all areas of life considered as influencing QOL (Lin, et al., 2013: WHO,1996).

2.1.2 Health related quality of life

HRQOL is a multidimensional dynamic concept and includes multiple components, such as an individual's physical health, psychological state, level of independence, social relationships, and interaction with their environment (see Table2.1 page….). These are health related because they are influenced by illness, injury, and treatment (Lin, et al , 2013).

In addition, it is a dynamic concept resulting from past experience, present circumstances, and expectations for the future (Lin,et al , 2013). Perception and achievement of HRQOL are not only dependent on an individual's physical condition but are also dependent on the preferences and priorities in life (Lin,et al, 2013).

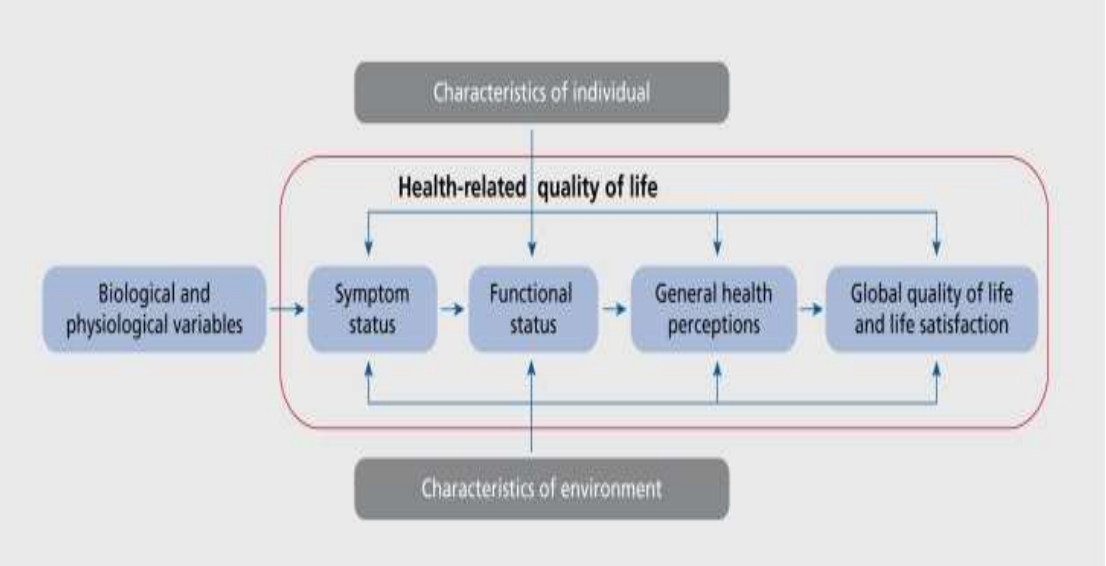

Figure1: Characteristics of Health-Related Quality of Life (Wand, and O'Connell, 2008).

TABLE 1: WHOQOL-BREF DOMAINS (WHO,1996)

Domain	Facets incorporated within domains
1.Physical health	Activities of daily living Dependence on medicinal substances and medical aids Energy and fatigue Mobility Pain and discomfort Sleep and rest Work Capacity
2.Psychological health	Bodily image and appearance Negative feelings Positive feelings Self-esteem Spirituality/Religion/Personal beliefs Thinking, learning, memory and concentration
3.Social relationships	Personal relationships Social support Sexual activity
4.Environmental health	Financial resources Freedom, physical safety and security Health and social care: accessibility and quality Home environment Opportunities for acquiring new information and skills Participation in and opportunities for recreation / leisure activities Physical environment (pollution / noise / traffic / climate) Transport

2.1.3 WHO quality of life survey- BREF (WHOQOL-BREF)

This self-administered instrument was developed using novel, person- centred methods and is a generic patient- reported outcomes measure (PROM) (Skevington, Lotfy, O'Connell; WHOQOL Group., 2004).

The WHOQOL-BREF (WHO,1996) is a 26-item scale assessing an individual's QOL profile. The WHOQOL-BREF assesses four domains: physical, psychological, social relationships, and environment. There are also two items that are examined separately: question 1 asks about an individual's overall perception of quality of life and question 2 asks about an individual's overall perception of their health.

The WHOQOL-BREF has been adapted and used cross-culturally in a variety of countries including Kenya, Nigeria, Brazil, Taiwan and Rwanda (Skevington, et al,2004). The internal consistency ranged between 0.76–0.85 for the Brazilian version and 0.70–0.77 for the Taiwanese version.

This tool is derived from the WHOQOL-100 which was developed as part of a large cross-cultural initiative, and hence is likely to provide a relatively robust measure of QoL in different settings (Skevington, et al,2004). Its equivalence has also been evaluated with a lot of rigor and therefore has the potential to provide valid scores for comparison in different settings (Skevington, et al,2004).

The WHOQOL-BREF has Kiswahili and Kikuyu translations (see page….) and internal consistency is acceptable with Cronbach's $\alpha > .70$ for physical, psychological, and environment domains but 0.68 for social relationships domain (Skevington, et al,2004).

2.2 Sociodemographic factors and quality of life in chronic low back pain

Previous studies have shown a consistent pattern of association between sociodemographic factors and quality of life in patients with chronic low back pain Women have been shown to have a higher prevalence of chronic low back pain across all age groups (Mwawingwa,2012), and this higher prevalence increases further after menopause (Wang, and Kaplar.,2016). This has been attributed to the important role oestrogen plays in the aetiology and pathophysiology of musculoskeletal disorders. (Wang, and Kaplar.,2016). Gender also plays an important role in decision making, health perception and overall quality of life (Lee, Xu, and Wu.,2020).

Research suggests that LBP prevalence progressively increases from teenage to 60 years of age and then declines which may be ascribed to occupational exposure among working-age adults or age-related changes in pain perception or stoicism (Makris, Higashi, Marks, Fraenkel, Gill, Friedly, & Reid., 2017).

Darzi, et al., (2013) did a study on Comparison of quality of life in low back pain patients and healthy subjects by using WHOQOL-BREF. The study used descriptive-analytic study among 256 low back pain patients and healthy people in Shahid Beheshti Hospital, Babol. The participants' age range was from 18 to 63 with the mean ± SD of 36.63 ± 10.99. The results showed that scores of the four domains and general quality of life and general health of WHOQOL-BREF were lower in low back pain patients. These differences were statistically significant in physical health and environmental health.

In Africa, in a cross-sectional study on health-related quality of life and its determinants in patients with chronic low back pain at a tertiary hospital in Cameroon by Aminde, Bija, Lekpa, Kwedi, Yenshu, and Chichom., (2020), HRQOL was measured using the WHO Quality of Life questionnaire (WHOQOL-BREF). Outcome

measures included its four domain (physical health, psychological, social relationships and environmental) scores and two independent scores for overall quality of life (OQOL) and general health satisfaction (GH).

They found that the median OQOL score was 50 (IQR: 25). After multivariable adjustment, tertiary education (β=11.43, 95% CI 3.12 to 19.75), age (β=0.49, 95% CI 0.12 to 0.87) and being a student (β=23.07, 95% CI 0.28 to 45.86) contributed to better OQOL. Age (β=0.57, 95% CI 0.10 to 1.04) and physical-type employment (β=-14.57, 95% CI -25.83 to -3.31) affected GH. Smoking (β=-20.49, 95% CI -35.49 to -5.48) and radiological anomalies (β=-7.57, 95% CI -14.64 to -0.49) affected the physical health domain, while disability (β=-0.67, 95% CI -1.14 to -0.20) and duration of pain (β=-0.13, 95% CI -0.20 to -0.05) affected the psychological domain. Income (β=14.94, 95% CI 4.06 to 25.81) affected the social domain, while education (β=9.96, 95% CI 1.41 to 18.50) and disability (β=-0.75, 95% CI -1.26 to -0.24) affected the environmental domain.

They then concluded that CLBP affects HRQOL and multiple socioeconomic and clinical factors influence its impact on different domains of HRQOL. They thus recommended that multipronged management programs, especially those that reduce disability, could improve HRQOL in patients with CLBP.

2.3 Psychopathological factors and quality of life

Psychopathological and socio-environmental factors have been consistently linked with quality of life in patients with chronic back pain.

Recent evidence that demonstrates changes within the brain in chronic low back pain sufferers (Wand, and Oconnell., 2008) raises the possibility that persistent back pain may be a problem of cortical reorganization and degeneration.

Psychopathology in Chronic back pain can be explained by the consequence and the antecedent hypothesis although the causal mechanisms underlying the temporal relationship between the two remain unclear (Land.,et al, 2011).The antecedent hypothesis can be explained by the argument that having psychopathology such as anxiety may lead to physical symptoms such as pain due to increased physiological arousal.

Additionally, an individual with psychopathology may be more likely to somatize their psychological symptoms, with somatization being a way of expressing their general distress by reporting pain (Land,et al, 2011).Conversely the consequence hypothesis argues that chronic pain of any type may be a general risk factor for the development of psychopathology.

A third hypothesis presupposes that chronic back pain and certain psychiatric disorders share the same pathogenesis. This is supported by the finding that there are neurochemical links between depression and chronic pain in the sense that both serotonin and norepinephrine appear to play a role in the pathogenesis of both chronic pain and depression (Land,et al, 2011).

The endorphin hypothesis predicts that endorphins are related to a positive mood and an overall enhanced sense of well-being. This line of research has not been without criticism. The debate remains as to whether plasma endorphins reflect endorphin activity in the brain. Some (Darzi, Pourhadi, Hosseinzadeh, Ahmadi, Dadian,2014; Felipe, Maria, Jéssica, Artur,1 Ana, and Antonio José, 2013) have argued that even if peripheral endorphin levels are not reflective of brain chemistry, they could still be associated with a change in mood or feelings of depression.

A fourth hypothesis gues that chronic back pain and certain psychiatric disorders may share a common risk factor, such as psychological stress (Thapelo,2012).

Current studies are focused towards better understanding why some people with acute low back pain recover fully while others go on to develop chronic low back pain. Brain imaging studies indicate that people with chronic low back pain have changes in the structure and function of certain brain regions. Other researchers have sought to determine the role of brain circuits important for emotional and motivational learning, as relates to memory, knowledge of which might generate new preventive interventions.

Additional studies are being conducted to identify and characterize bidirectional neural circuits that communicate between the spinal cord to brain, which are aimed at discovering and validating new interventional targets for low back pain.

The impact of psychopathological and socioenvironmental factors on quality of life in chronic low back pain is further demonstrated in a study to examine pain and quality of life in a group of preoperative chronic low back pain patients (n=25) and a group of postoperative chronic low back pain patients (n=101) treated with instrumented fusion 1-8 years earlier, results showed that the postoperative group reported significantly less pain and better physical and mental health compared with the preoperative group. However, despite surgery, the postoperative group reported suffering from pain and reduced quality of life. These findings were relevant to clinical practice in that, psychosocial interventions focusing on psychosocial consequences of pain are needed to modify the pain experience and increase the quality of life in these patients who have undergone this kind of surgery (Bentsen, et al., 2008).

Moreover (Yi-Shiung, Yaw-Huei, Hsin-Chi, & Jung-Der, 2005) did a study on predicting health-related quality of life in patients with low back pain. The study used Cross-sectional surveys of health-related quality of life (HRQOL) in patients with low back pain at ambulatory clinics plus 8 weeks of follow-up. The objective of this study

was to predict the HRQOL in patients with low back pain. Data were collected from 232 patients with low back pain who were consecutively recruited from several clinics of physical medicine and rehabilitation. Every patient received physical examination and completed a set of questionnaires, including the Taiwan version of the Brief Questionnaire of the World Health Organization on quality of life (WHOQOL-BREF), Modified Roland and Morris Disability Questionnaire, and visual analogue scale for pain intensity and for HRQOL. These patients were observed with a mail questionnaire 8 weeks later.

Results showed that there were significant correlations of HRQOL with pain intensity, disability scale, and disability days. Among the results of physical examination, lumbosacral radiculopathy was the only factor with moderate correlation with HRQOL. The significant predictors for HRQOL included physical domain, psychological domain, pain intensity, and family income. The HRQOL of patients with low back pain depended on functional status and psychological factors more than simple physical impairment. This study affirmed that future interventions need to put more emphasis on improving functional status and psychological stress for these patients.

The fact that psychosocial factors influence quality of life in chronic back pain is further supported by studies evaluating the efficacy of psychological interventions on chronic back pain. In a meta-analysis of randomized controlled trials to evaluate the efficacy of psychological interventions for adults with noncancerous chronic low back pain by (Hoffman, Papas, Chatkoff, & Kerns., 2007), positive effects of psychological interventions were noted for pain intensity, pain-related interference, health-related quality of life, and depression when contrasted with control groups. Cognitive-behavioral and self-regulatory treatments were specifically found to be efficacious.

Multidisciplinary approaches that included a psychological component, when compared with active control conditions, were also noted to have positive short-term effects on pain interference and positive long-term effects on return to work. The results demonstrated positive effects of psychological interventions for chronic low back pain.

In a study to review psychological factors in neck and back pain, Linton, (2000) found that psychological factors play a significant role not only in chronic pain, but also in the etiology of acute pain, particularly in the transition to chronic problems. Specific types of psychological variables emerge and may be important in distinct developmental time frames, also implying that assessment and intervention need to reflect these variables. However, he found that psychological factors account for only a portion of the variance, thereby highlighting the multidimensional view of etiology (Linton, 2000).

In an article published in the Japanese society for spine surgery and related research journal focusing on psychological treatment strategy for chronic low back pain (Ikemoto, Miki, Matsubara, & Wakao., 2018), the authors state that psychosocial factors including fear-avoidance behavior, low mood, expectation of passive treatment and negative pain beliefs such as catastrophizing are risk factors for the development of chronicity in low back pain. They further noted that psychiatric problems such as anxiety and depression are well known to be associated with sustained low back pain. They recommended that orthopedic surgeons should apply a multidisciplinary approach to this condition and consult with psychiatrists.

In a systematic review of the usefulness of individual risk factors or risk prediction instruments for identifying patients more likely to develop disabling back pain, Chou, and Shekell., (2010) used electronic searches of MEDLINE 1966-2010 and EMBASE

1974-2010 to independently assess studies and extracted data to estimate Likelihood Ratios (LRs). In this systematic review, a total of 20 studies evaluating 10 842 patients were identified. In this study, presence of nonorganic signs (median [range] LR, 3.0 [1.7-4.6]), high levels of maladaptive pain coping behaviors (median [range] LR, 2.5 [2.2-2.8]), high baseline functional impairment (median [range] LR, 2.1 [1.2-2.7]), presence of psychiatric co-morbidities (median [range] LR, 2.2 [1.9-2.3]), and low general health status (median [range] LR, 1.8 [1.1-2.0]) were the most useful predictors of worse outcomes at 1 year. Low levels of fear avoidance (median [range] LR, 0.39 [0.38-0.40]) and low baseline functional impairment (median [range] LR, 0.40 [0.10-0.52]) were the most useful items for predicting recovery at 1 year. Results were similar for outcomes at 3 to 6 months. Variables related to the work environment, baseline pain, and presence of radiculopathy were less useful for predicting worse outcomes (median LRs approximately 1.5), and a history of prior low back pain episodes and demographic variables were not useful (median LRs approximately 1.0). Several risk prediction instruments were useful for predicting outcomes, but none were extensively validated, and some validation studies showed LRs similar to estimates for individual risk factors. The authors therefore concluded that the most helpful components for predicting persistent disabling low back pain were maladaptive pain coping behaviors, nonorganic signs, functional impairment, general health status, and presence of psychiatric co-morbidities.

WHOQOL and Psychological risk factors (“Yellow flags”) of chronic back pain

It is the author’s view that the facet score findings in the physical, psychological, social and environmental health domains of the WHOQOL-BREF can be substituted with psychological risk factors (“Yellow flags”) of chronic back pain.

Yellow flags are psychosocial factors that have been shown to be indicative of long-term chronicity and disability (Samantha, Kendall, and Samantha., 2003).These include;

i. A negative attitude that back pain is harmful or potentially severely disabling.
ii. Fear avoidance behavior and reduced activity level.
iii. An expectation that passive, rather than active treatment will be beneficial.
iv. A tendency to depression, low morale, and social withdrawal and,
v. Social or financial problems (Samantha, et al,2003)

According to (Ikemoto, et al., 2018), psychotherapeutic strategies that can then be deployed for chronic back pain include:

i. Improvement/establishment of a patient-clinician relationship and clinician's attitude. This entails rapport building. Clinicians who express empathy and build trustworthy relationships with their patients have better outcomes when treating chronic back pain.
ii. Reassurance to remove fears and concerns. Reassurance improves the patient's knowledge and understanding of their condition reduces their worries, which can improve outcomes.
iii. Cognitive behavior therapy (CBT) which has been shown to improve disability and pain catastrophizing. CBT has been shown to be effective in low back pain by reducing pain related anxiety. Anxiety has been shown to be more important than changes in physical capacity in predicting back pain outcome. CBT works by restructuring patients' negative cognitions into realistic appraisal thus helping patients develop better coping mechanisms and strategies. However, CBT should be provided by practitioners who are skilled and experienced in its practice for improved outcomes.

iv. Acceptance and commitment therapy. Mindfulness and relaxation therapy leads to improved acceptance of symptoms. This therapy focuses on the concepts of acceptance, and mindfulness.

v. Encouragement of self-management whereby patients are encouraged to set therapeutic goals and helped to achieve them. Confidence in ability to perform specified activities (or self-efficacy belief) has been correlated with the subsequent performance of those activities in patients with chronic LBP (Ikemoto, et al., 2018).

2.4 Socio-environmental factors and quality of life

The impact of chronic back pain on physical and social functioning was demonstrated in a study to assess and compare the health-related quality of life among patients with bipolar disorder and those suffering chronic back pain and, in turn, to compare these results with those previously generated for the general population. In this study, Lesley, (2000) assessed Health-related quality of life in patients with bipolar disorder (n=44), a comparison group of chronic back pain patients (n=30), and a population-based control sample (n=2,474) using the Medical Outcomes Study 36-Item Short-Form Health Survey (SF-36), a self-administered questionnaire in which lower scores are indicative of greater impairment.

They found that bipolar patients had significantly higher scores than chronic back pain patients in the categories of Physical Functioning and Role Limitations involving Physical, Bodily Pain, and Social Function. Of note was that there were no significant differences between bipolar disorder and chronic back pain groups in the Mental Health and Role Limitations involving Emotional categories.

This study was limited by the relatively small sample sizes of the bipolar and back pain patient groups but concluded that bipolar patients were less compromised in

areas of physical and social functioning than chronic back pain patients but had similar impairment in mental health. When compared to the population- based control sample of n= 2,474, the study found that back pain patients had substantial impairment in health-related quality of life. The major finding of this study was that bipolar patients were less compromised in areas of physical and social functioning than chronic back pain patients but had similar impairment in mental health (Lesley, 2000).

Similarly, in a comparison study on the quality of life in patients with chronic pain in the Indian population using European organization for research and treatment of cancer (EORTC) Questionnaire (Waheed, Bhat, Hameed, and Nabi., 2012), Health-related quality of life was compared in patients of chronic pain with that of general population. A prospective, observational trial in a tertiary care center revealed significantly decreased quality of life in patients with chronic pain as compared to general population ($p < 0.001$). Patients with chronic pain had significantly decreased score in physical functioning, role functioning, emotional and social functioning on functional scales and increased scores of pain, fatigue, sleep disturbances and financial difficulties on symptom scales. The study concluded that patients with chronic pain, especially females ($p=0.05$), have decreased quality of life as compared to the general population.

Chronic low back pain has been linked to the level of satisfaction with health. Pieber, Stein, Herceg, Rieder, Fialka-Moser, and Dorner., (2012) did a study on determinants of satisfaction with individual health in male and female patients with chronic low back pain. Data for subjects aged 15–64 years were sourced from an Austrian representative population-based nationwide survey including 6,194 men and 6,183 women.

Health satisfaction and its determinants were assessed using the World Health Organization Quality of Life Questionnaire-Short Form (WHOQOL-BREF). The results showed that prevalence of chronic low back pain was 8.0% (range 7.6–8.3%; 95% confidence interval (CI)) in men and 8.8% (range 8.5–9.2%) in women. The proportion of men, with and without chronic low back pain, who were dissatisfied with their health was 22.5% and 5.7% ($p < 0.001$), respectively, and in women 28.3% and 5.4% ($p < 0.001$), respectively. In subjects with chronic low back pain a multivariate analysis revealed "not needing medical treatment to function in daily life" with odds ratio (OR) (95% CI) of 6.3 (2.6–15.3) and 4.2 (2.1–8.5) as the strongest predictor for health satisfaction in men and women, respectively. In men additionally "satisfaction with one's sex life" and "satisfaction with work capacity", OR: 6.6 (2.9–14.8) and 3.7 (1.5–9.3) were predictors for health satisfaction. In women, however "satisfaction with living conditions" OR: 3.7 (1.7–7.9) was an additional predictor. The study utilized the Short Form Questionnaire (WHOQOL-BREF) and was carried out among male and female patients in Austria.

In a study to determine the psychosocial predictors of health-related quality of life and health service utilization in people with chronic low back pain (Keeley, Creed, Tomenson, Todd, Borglin, & Dickens., (2008), one hundred and eight patients with chronic low back pain, newly referred to an orthopedic outpatient clinic, completed assessments of demographic characteristics, details of back pain, measures of anxiety and depression (Hospital Anxiety and Depression Scale, HADS), fearful beliefs about pain (Fear Avoidance Beliefs Questionnaire), social stresses (Life Events and Difficulties Schedule) and physical aspects of health-related quality of life (SF-36) Physical Component Summary Score scale (PCS)]. Six months later the subjects

completed the SF-36 PCS and the number of healthcare contacts during follow-up was recorded.

The study found that independent predictors of SF-36 PCS at 6-month follow-up were duration of pain [(standardized regression coefficient (β) = −0.18, p=0.04), HADS score (β) =−0.27, p=0.003] and back pain related social difficulties (β = −0.42, p < 0.0005). Number of healthcare contacts over the 6 months ranged from 1 to 29, and was independently predicted by perceived cause of pain [Incident Rate Ratio (IRR)=1.46, p= 0.03), Fear Avoidance Beliefs about work (IRR=1.02, p=0.009) and back pain related social difficulties (IRR=1.16, p=0.03).

They concluded that anxiety, depression; fear avoidance beliefs relating to work and back pain related stresses predict impairment in subsequent physical health-related quality of life and number of healthcare contacts. Another conclusion was that Interventions targeting these psychosocial variables in clinic patients may lead to improved quality of life and healthcare costs (Keeley,et al., 2008).

Assessment of socio-environmental factors in patients with chronic back pain is further supported by a qualitative study done by Makris, Higashi, Marks, Fraenkel, Gill, Friedly, & Reid., (2017) on the physical, emotional, and social Impacts of restricting back pain in Older Adults. In this study, they found that restricting back pain affected patients physically. psychologically and socially. Patients were affected socially by experiencing isolation, change of social behaviour and inability to pursue hobbies. Thus, they were forced to avoid certain settings and activities and thus miss out on important functions (Makris, et al.,2017).

CHAPTER THREE

3.0 METHODOLOGY

3.1 Study area

Orthopedic spine out-patient clinic, at Moi Teaching and Referral Hospital (MTRH) in Eldoret, Uasin Gishu County. Currently, the Hospital serves as a level six/tertiary level Hospital offering outpatient, inpatient, and specialized healthcare services. MTRH as a level six/tertiary level Hospital offers a range of services to clients including; Mental Health services, Specialized Orthopedics and Trauma, Oncology services, Renal Medicine, Pediatric, Pediatric Surgery, Kidney Transplants, Alcohol and Rehabilitative, Spinal and Neurosurgical operations, Cardiology, and Maternity Services among others.

The catchment area has a population of over 20 million, includes Uasin Gishu County and surrounding counties in Western Kenya and beyond. The orthopedic out-patient spine clinic operates on every Wednesday with a clinic attendance of 40 patients per week translating to annual attendance of about 2000 patients. Most patients are referrals from the catchment area. Services provided include specialized consultation for out-patient and in-patient orthopedic and spinal surgery. The clinic also makes referrals for physiotherapy and occupational therapy services.

3.2 Study Design

This is a descriptive cross-sectional study using questionnaires and standardized structured interviews

3.3 Study population

New adult patients attending the orthopedic spine outpatient clinic at Moi Teaching and Referral hospital (MTRH) presenting with chronic back pain of over 3 months.

3.4 Eligibility criteria

3.4.1 Inclusion criteria

New adult (age >18 years) patients presenting with chronic back pain duration over 3 months

Patients with low back pain limited to somatic referred pain/non-radicular pain limited to above the knee only.

3.4.2 Exclusion criteria

Patients who are cognitively impaired (MMSE less than 22) were excluded since the study used a self- administered questionnaire.

Patients with low back pain due to a definite spinal pathology or condition that explains the back pain such as tumour, infection, metabolic disease, inflammatory arthritis, fracture.

Patients with a diagnosed deformity including spondylolisthesis, spondylosis and scoliosis.

Pain experienced below the knee.

Patients with extra-spinal conditions such as visceral, vascular or genitourinary that present as back pain.

Patients who had undergone prior lumbar surgery in the preceding 3 months

Presence of neurological deficit.

Back pain that is associated with widespread multisite pain >2 sites.

Pregnancy (Kreiner, 2020)

3.5 Sampling technique and Sample size

Patients were recruited as they presented at the clinic over the study period between January 2018 and December 2019.

Reme, et al., (2011) in a study to establish the prevalence of psychiatric disorders in sick listed chronic low back pain patients in secondary care found a prevalence of current psychiatric disorders of 31%. Hence this study adopted 31% as the proportion of psychopathology in the target population.

The sample size was determined according to Fisher, Lang, and Strocker., (1998) formulae:

Where,

$$n = Z^2\, pq/d^2$$

n = the desired sample size if the target population is greater than 10,000

Z = the standard normal deviate at the required confidence level (95%)

P = the proportion in the target population estimated to have the characteristic being measured

q = 1 – p

d = the level of statistical significance set (0.05).

$$n = 1.96^2\ 0.31t\frac{0.69}{0.05^2}$$

$$n = 1.1428 * 276$$

$$n = 316$$

Hence the study adopted 316 as the sample size.

3.6 Data collection tools and technique

3.6.1 Socio-demographic questionnaire

A researcher- designed socio-demographic questionnaire was used. Patient's demographic characteristics including age, gender, level of education, employment status, income, religion, residence, number of children and marital status were recorded. See Appendix.

3.6.2 Mini-Mental state exam (MMSE)

The study participants were screened for cognitive impairment by assessing their mental status using the MMSE. It is an 11-question measure that tests five areas of cognitive function: orientation, registration, attention and calculation, recall, and language. The maximum score is 30. A score of 23 or lower is indicative of cognitive impairment.

Designed in 1975, this instrument is effective as a screening tool for cognitive impairment in adults.

Cognitive dysfunction could adversely impact the physical functioning and quality of life of older adults.

It has been validated and extensively used in both clinical practice and research.

The instrument relies heavily on verbal response, reading and writing hence patients with low English literacy may perform poorly even when cognitively normal.

This instrument is researcher administered and takes only 5-10 minutes to administer.

3.6.3 WHO quality of life survey- BREF (WHOQOL-BREF)

The WHOQOL-BREF was used to assess the health-related quality of life of patients presenting with chronic back pain.

The WHOQOL-BREF (WHO,1996) is a 26-item scale assessing an individual's QOL profile. The WHOQOL-BREF assesses four domains: physical, psychological, social relationships, and environment. There are also two items that are examined separately: question 1 asks about an individual's overall perception of quality of life and question 2 asks about an individual's overall perception of their health.

According to the developers, the instrument should be piloted on at least 300 people. This figure is based on the required numbers of respondents needed for analysis of pilot data (WHO,1996).

Norms adopted for the WHOQOL-BREF domains were 73.5 for the physical domain,70.6 for the psychological domain,71.5 for social relationships domain and 75.1 for environmental domain (Hawthorne, and Herrman, 2006).

A cut off of less than 60 for overall mean quality of life obtains excellent sensitivity and negative predictive value for tracking patients with probable worse QOL and dissatisfaction with health and was adopted as the cut off for this study (Silva, Soares, Santos, & Silva., 2014).

Similarly, Cummins, (1995) proposed a mean of 75± 2.5 as the ``gold standard'' range of normative data for quality-of-life studies.

The instrument is simple to understand and administer. It takes less than 10 minutes to administer. (WHO,1996).

3.7 Study implementation

Approval to administer the questionnaires was sought from the IREC and permission from the Chief Executive Officer MTRH. Upon approval from both, new adult patients with chronic back pain were recruited as they presented at the orthopedic/spine out-patient clinic until a sample of 318 patients were recruited based on the inclusion and exclusion criteria. The study targeted all the patients who presented with chronic back pain between March, 2018 and March, 2019 duration of 1 year. The sample population was obtained from the orthopedic spine out-patient clinic, at Moi Teaching and Referral Hospital (MTRH) which ran on Wednesdays.

3.8 Flow Chart

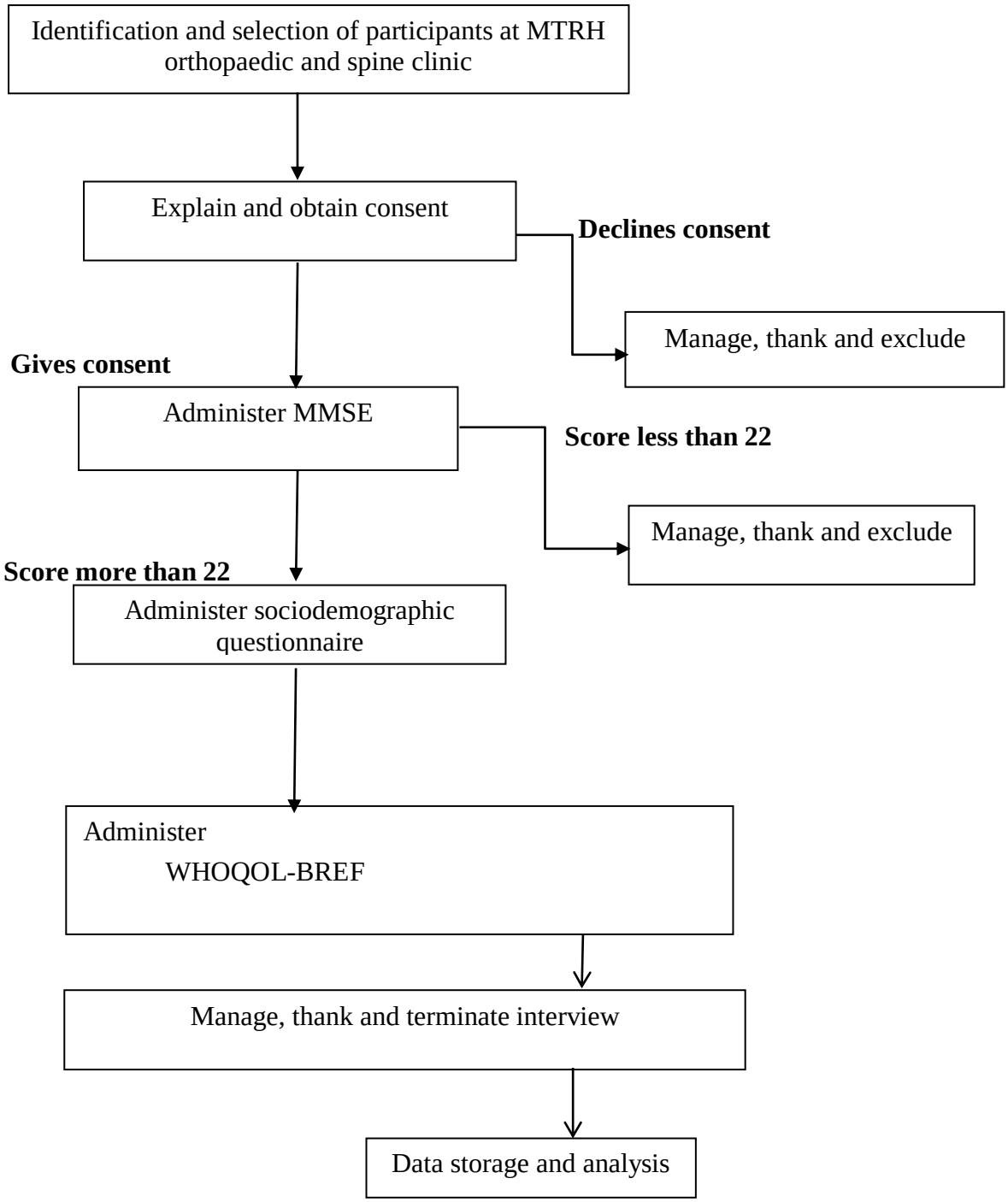

Figure 2: Flow chart

3.9 Data analysis, presentation and dissemination

3.9.1 Data collection and storage

Patients were interviewed after clinical assessment and review by orthopedic surgery registrars and consultants.

Patients who met the criteria for the study were briefed on the nature of the study; informed consent was then sought and consent forms signed. No names were used; instead, a serial number was provided and recorded on the patient's file. The researcher then proceeded to administer the Mini-Mental state exam (MMSE) followed by the socio-demographic questionnaire and finally the self-administered WHOQOL-BREF Questionnaire.

Patients who required help to answer the questionnaires were assisted by the researcher.

After completing the interview, the Researcher thanked the participants. The responses were recorded as answered. The patients requiring further management were referred to the mental health clinic. Management queries were responded to appropriately. Confidentiality after data entry and analysis was maintained and the raw data password protected. All hard copies were stored in a locker only accessible to the researcher to ensure confidentiality while the soft copy of the data was stored in a computer only accessible to the researcher and relevant authorities and was password protected.

3.9.2 Data analysis

All the study participants were subjected to the same questions in the socio-demographic questionnaire and WHOQOL-BREF questionnaire.

The collected data was stored on Computer Media and analyzed using the SPSS computer program version 22. Categorical demographic data was analyzed using

frequency and percentages and presented in tables and figures. Socio-demographic factors that were significant in the bi-variate analysis were further analyzed by multivariate linear regression. This was to further elucidate the association between socio-demographic factors and HRQOL in patients with chronic back pain.

Moreover, continuous data from the WHOQOL-BREF facet and domain scores was summarized with descriptive statistics including frequency, mean, and standard deviation. Item responses are coded from 1 to 5; items 3, 4, and 26 are reverse coded. Mean score of items in each domain is used to calculate a domain score. WHOQOL-BREF recommended manual scoring and conversion of raw to transformed scores, achieving domain scores was done. The domain scores are then multiplied by 4 in order to make WHOQOL-BREF scores comparable to the longer quality of life tool, WHOQOL-100. Cases with greater than 20% missing data from a domain are automatically excluded from analyses.

Each domain bears a range of 0 to 100% with higher values denoting better quality of life. The mean QOL score for the 4 domains was based on untransformed scores by summing scores for each domain and averaging them. All data was Analyzed at 95 percent level of confidence.

3.9.3 Data Presentation

The computed data has been presented in form of pie charts, bar graphs, cross tabulations and descriptive/prose form.

3.9.4 Data dissemination

Data for this study will be available in published/online journals and in written form as a thesis paper displayed in CHS library at Moi University.

3.10 Ethical consideration

Once the proposal was presented and approval obtained from the Moi University School of Medicine, Department of Mental Health. It was then presented to Moi Teaching and Referral Hospital - Research and Ethics Committee for review and approval. Once approved, the study then commenced (see appendix I, page 59: IREC approval). Permission to use the WHOQOL-BREF questionnaire was sought and granted by WHO (see appendix IX, page 95: Permission).

Informed consent was sought from all patients. All information obtained was stored in a locker only accessible to the researcher to ensure confidentiality. Pre-selection of the patients for interview was a centralized register, which used numbers, and the client's name did not feature anywhere. Privacy and confidentiality were maintained all through. There were no anticipated risks in the study. Subjects were informed about the duration it takes to administer the questionnaires when obtaining informed consent. Patients who needed further medical help were assisted accordingly. There were no direct immediate benefits to the participants. Explanation was promptly given in case they had mental health problems that needed attention and referred to the mental health clinic for further interventions. In addition, the necessary and appropriate IREC policies were considered based on the findings.

3.11 Study limitations

Being a cross sectional study, causal correlations between chronic back pain and quality of life cannot be established. Possible confounders were however reduced by the strict inclusion and exclusion criteria.

Even though the study instrument has been demonstrated to have good reliability, validity and internal consistency in similar settings (Skevington, et al,2004), non-

probabilistic testing and lack of a comparison group might have affected the reliability of these study findings since a normal distribution was assumed.

While THE WHOQOL–BREF questionnaire has Kiswahili and kikuyu translations, most participants needed help to complete the questionnaires hence there is possibility of reporting bias. To reduce reporting bias, patients were interviewed after review and assessment by orthopaedic registrars and consultants.

CHAPTER FOUR

4.0 RESULTS

4.1 Demographic characteristics

The study had 380 patients but 62 patients gave incomplete responses or had lower than 22 points on the MMSE leaving 318 patients whose data was analyzed.

By sex 70 percent of the patients were female while 30 percent were male.

By age, 49.2 percent of the patients were aged 46-65 years,24.9 percent were aged 31-45 years,13 percent were aged 18-30 years while a similar percentage- 12.9 percent were aged over 65 years.

By level of income, 48.2 percent of the patients earned less than kshs.5000 per month while 23.9 percent earned more than Kshs.20, 000 per month.

In regards to employment status, 70 percent reported being unemployed while 30 percent were in formal employment. By residence, 69.4 percent reported residing in rural areas while 30.6 percent resided in an urban area.

By family characteristics, 83.5 percent of the patients were married, 11.1 percent were single while 5.3 percent were divorced/separated/widowed. Most (48.6 percent) had 1-4 children, 33.4 percent had 5-9 children, 7.9 percent had over 10 children while 10.1 percent reported having no children.

In terms of educational level, 15.5 percent had no formal education, 37.5 percent had primary school level education, 31.5 percent had secondary school level education, and 12 percent had tertiary level education while 3.2 percent reported having university level education.

Table 2: Demographic characteristics

Variable	Freq	Percentage
Age in years		
18-30	41	12.90%
31-45	79	24.90%
46-65	156	49.20%
>65	41	12.90%
Sex		
Female	222	70.00%
Male	95	30.00%
Residence		
Rural	220	69.40%
Urban	97	30.60%
Marital status		
Married	264	83.50%
Single	35	11.10%
Divorced/Separated/Widowed	17	5.30%
Missing	1	
Number of children		
1-4 Children	154	48.60%
5-9 Children	106	33.40%
>10	25	7.90%
None	32	10.10%
Religion		
Catholic	80	25.20%
Protestant	232	73.10%
Muslim	4	1.30%
Other	1	0.30%
Education		
No education	49	15.50%
Primary	119	37.50%
Secondary	100	31.50%
Tertiary	39	12.30%
University	10	3.20%
Employed		
No	222	70.50%
Yes	93	29.50%
Missing	2	
Income		
<5000	147	48.20%
5001-10000	44	14.40%
10001-15000	25	8.20%
15001-20000	16	5.20%
>20000	73	23.90%
Missing	12	

4.2 Quality of Life

The main objective of this study was to determine the quality of life of patients with chronic back pain at MTRH orthopaedic spine clinic.

Using 75± 2.5 as a cut-off range for normal mean QOL (Cummins,1995), and a cut-off of less than 60 as indicative of poor mean QOL (Silva, et al, 2014), the average Quality of life score for the 4 domains was 50.56 (SD=9.55) for this study at MTRH. WHOQOL-BREF has facets that assess the overall quality of life and perception of general health. On a scale of 1-5, the mean score of the Overall Quality of life facet was 2.42 (SD =0.80) while that of the general health facet was 2.31 (SD=0.69).

4.3 Socio-demographic factors and QoL

The first objective of this study was to determine the relationship between socio-demographic factors and quality of life in patients with chronic back pain at MTRH orthopedic and spine clinic.

4.4 Socio-demographic factors and mean QoL

Comparing overall mean QOL and general health by socio-demographic characteristics, older age (age 46-65) was significantly associated with lower overall mean QOL at 49.4(9.2) $p<0.001$ compared to younger age groups.

Overall mean QOL significantly got better with higher level of education since participants with a university level education reported the highest overall mean QOL and general health at 59.1(8.0) $p<0.017$. See Table 4, page 37 below.

Table 3: Socio-demographic factors and mean QoL

Variable	Overall	
	Mean (std)	***P*-value**
Sex		0.505
Female	50.9 (9.0)	
Male	50.2 (9.5)	
Age		**0.001**
18-30	55.9 (8.9)	
31-45	50.9 (7.9)	
46-65	49.4 (9.2)	
>65	50.3 (9.9)	
Residence		0.644
Rural	50.9 (8.7)	
Urban	50.4 (10.1)	
Employed		0.855
No	67.6 (8.2)	
Yes	67.4 (7.5)	
Income		0.897
<5000	50.8 (9.0)	
5001-10000	50.6 (8.7)	
10001-15000	50.6 (7.5)	
15001-20000	48.4 (9.3)	
>20000	50.9 (9.9)	
Marital status		0.236
Not married	52.0 (12.5)	
Married	50.3 (8.9)	
Education level		**0.017**
None	50.0 (9.5)	
Primary	49.6 (8.6)	
Secondary	50.8 (9.1)	
Tertiary	52.5 (9.7)	
University	59.1 (8.0)	

4.5 Socio-demographic factors and QoL Domains

Comparing QoL by demographic characteristics, patients in the older age bracket, (age 46-65 years) reported significantly lower physical and psychological domain scores (mean 37.0, p <0.0016 and mean 55.3, p<0.0392) respectively.

Patients with high level of income (>Kshs 20,000) reported significantly higher psychological function domain score (mean 57.19 SD 9.7. p<0.008).

Not being married was significantly associated with better physical domain scores at 42.3(2.3) compared to married participants at 37.8(0.8) p<0.035. However, there was no significant statistical difference in the psychological, social and environmental health domains although the married had slightly better social and environmental health domain scores.

Higher level of education was associated with better scores in all domains with patients with a university level education reporting highest scores in the physical, psychological, social and environmental health domains at (47,60.8,71.8,57.0) respectively. This finding was however not statistically significant (p<0.093, 0.171, 0.126, 0.100)

There was no statistically significant association between sex, residence, number of children and employment status with HRQOL domain scores. See table 4 below.

Table 4: socio-demographic factors and HRQoL domain

	Domain							
	Physical		Psychological		Social		Environment	
Variable	Mean (std)	*p*-value	Mean (std)	*p*-value	Mean (std)	*p*-value	Mean (std)	*p*-value
Sex		0.603		0.792		0.558		0.775
Female	39.0 (13.7)		55.7 (9.3)		58.7 (20.0)		50.2 (10.0)	
Male	38.1 (14.7)		55.4 (10.4)		57.3 (19.7)		50.0 (10.6)	
Age		**0.002**		**0.039**		0.119		0.151
18-30	46.4 (15.9)		59.4 (9.7)		64.4 (16.9)		53.2 (11.1)	
31-45	38.5 (13.0)		55.3 (8.3)		59.5 (19.1)		50.3 (10.1)	
46-65	37.0 (13.4)		54.6 (9.9)		56.7 (20.0)		49.2 (9.9)	
>65	38.0 (13.7)		56.4 (10.4)		55.8 (22.8)		50.9 (10.0)	
Residence		0.388		0.519		0.222		0.878
Rural	38.3 (13.4)		55.9 (9.3)		59.2 (19.3)		50.2 (9.7)	
Urban	39.7 (15.3)		55.1 (10.4)		56.2 (21.3)		50.3 (11.2)	
Employed		0.572		0.687		0.490		0.349
No	39.0 (14.1)		55.5 (9.8)		58.8 (19.1)		49.8 (10.0)	
Yes	38.0 (12.3)		56.0 (9.5)		57.1 (21.9)		51.0 (10.7)	
Income		0.558		**0.008**		0.958		0.162
<5000	38.6 (15.2)		56.8 (9.6)		58.4 (19.1)		49.6 (9.3)	
5001-10000	41.1 (11.3)		52.33 (9.5)		59.6 (23.0)		49.3 (9.1)	
10001-15000	39.9 (11.4)		52.9 (8.0)		58.4 (18.4)		51.1 (9.4)	
15001-20000	35.8 (11.2)		51.9 (9.0)		60.1 (21.2)		45.8 (10.4)	
>20000	37.3 (13.2)		57.2 (9.7)		57.0 (20.5)		52.0 (11.6)	
Marital status		**0.035**		0.690		0.478		0.608
Not married	42.3 (2.3)		55.0 (1.7)		59.9 (3.0)		50.7 (1.8)	
Married	37.8 (0.8)		55.6 (0.6)		57.8 (1.2)		49.9 (0.6)	
Education level		0.093		0.171		0.126		0.100
None	38.0 (14.7)		57.5 (10.2)		54.9 (20.6)		49.6 (9.4)	
Primary	37.2 (13.0)		54.9 (9.2)		57.1 (20.0)		49.3 (9.5)	
Secondary	38.6 (13.9)		54.7 (9.9)		59.9 (18.3)		50.0 (10.7)	
Tertiary	42.5 (14.5)		56.5 (9.7)		58.6 (22.8)		52.6 (11.3)	
University	47.0 (17.3)		60.6 (7.9)		71.8 (14.6)		57.0 (9.1)	

4.6 Multivariate linear Regression

Socio-demographic variables that were statistically significant in the bivariate analysis were considered in the multivariate analysis. These variables were age, level of education, marital status and level of income.

When factors associated with overall mean QOL were analysed by multivariate analysis, older age group (age 31-45 and 46-65) was statistically significantly associated with low overall mean QOL scores compared to their younger counterparts in the 18-30 age group (OR Coefficient β -3.25 p<0.041 95% CI -6.38 -0.13 and OR Coefficient β -4.62 p<0.003 95% CI -7.62 -1.62) respectively.

Older age group (age 46-65) was statistically significantly associated with low physical and psychological health domain scores compared to their younger counterparts aged 18-30 (OR coefficient β -4.64, p<0.015 95% CI -8.36 -0.93)

Patients who earned kshs. 5,001-10,000 had significantly less psychological domain scores compared to those who earned less than kshs. 5000 (OR Coefficient β -3.69 p<0.028 95% CI -6.99 -0.39)

The results are shown in the Tables below for each of the domain as well as for the overall quality of life.

Table 5a: Socio-demographic factors associated with Overall mean quality of life

Variable	Coefficient	*p*-value	[95% Confidence Interval]	
Age in years				
31-45 vs 18-30	**-3.80**	**0.038**	**-7.40**	**-0.21**
46-65 vs 18-30	**-5.20**	**0.003**	**-8.65**	**-1.75**
>65 vs 18-30	-4.35	0.059	-8.87	0.17
Education				
Primary vs None	-0.69	0.675	-3.93	2.55
Secondary vs None	-0.18	0.918	-3.62	3.26
Tertiary vs None	0.72	0.738	-3.52	4.96
University vs None	5.54	0.106	-1.19	12.27

Table 5b: Socio-demographic factors associated with Physical domain

Variable	Coefficient	*p*-value	[95% Confidence Interval]	
Age in years				
31-45 vs 18-30	-5.79	0.054	-11.68	0.10
46-65 vs 18-30	**-7.38**	**0.010**	**-12.99**	**-1.76**
>65 vs 18-30	-6.48	0.078	-13.71	0.74
Education				
Primary vs None	-1.52	0.551	-6.52	3.48
Secondary vs None	-1.17	0.666	-6.48	4.15
Tertiary vs None	1.27	0.704	-5.29	7.82
University vs None	2.65	0.618	-7.79	13.09
Marital status				
Married vs Not married	-2.13	0.361	-6.70	2.45

Table 5c: Socio-demographic factors associated with psychological domain

Variable	Coefficient	*p*-value	[95% Confidence Interval]	
Age in years				
31-45 vs 18-30	-3.02	0.132	-6.97	0.92
46-65 vs 18-30	**-4.64**	**0.015**	**-8.36**	**-0.93**
>65 vs 18-30	-4.24	0.084	-9.05	0.58
Education				
Primary vs None	-2.56	0.145	-6.01	0.89
Secondary vs None	-2.83	0.140	-6.60	0.93
Tertiary vs None	-2.20	0.349	-6.81	2.41
University vs None	-0.93	0.800	-8.16	6.30
Income				
5001-10000 vs <5000	-3.69	**0.028**	-6.99	-0.39
10001-15000 vs <5000	-3.23	0.131	-7.43	0.97
15001-20000 vs <5000	-4.05	0.115	-9.09	1.00
>20000 vs <5000	0.93	0.509	-1.83	3.68

Table 5d: Socio-demographic factors associated with social domain

Variable	Coefficient	*p*-value	[95% Confidence Interval]	
Age in years				
31-45 vs 18-30	-3.23	0.426	-11.20	4.74
46-65 vs 18-30	-5.43	0.163	-13.08	2.22
>65 vs 18-30	-5.46	0.284	-15.48	4.56
Education				
Primary vs None	1.35	0.712	-5.83	8.52
Secondary vs None	3.45	0.375	-4.18	11.07
Tertiary vs None	1.19	0.803	-8.21	10.59
University vs None	12.65	0.096	-2.27	27.57

Table 5e: Socio-demographic factors associated with Environmental

Variable	Coefficient	*p*-value	[95% Confidence Interval]	
Age in years				
31-45 vs 18-30	-1.88	0.380	-6.09	2.33
46-65 vs 18-30	-2.43	0.229	-6.40	1.54
>65 vs 18-30	-0.39	0.882	-5.53	4.75
Education				
Primary vs None	0.17	0.927	-3.51	3.86
Secondary vs None	0.68	0.738	-3.34	4.71
Tertiary vs None	2.98	0.235	-1.95	7.91
University vs None	5.90	0.134	-1.83	13.62
Income				
5001-10000 vs <5000	-0.28	0.877	-3.80	3.25
10001-15000 vs <5000	1.42	0.534	-3.07	5.91
15001-20000 vs <5000	-4.34	0.114	-9.74	1.05
>20000 vs <5000	1.80	0.231	-1.15	4.74

4.7 Psychopathological, social and environmental factors

The second and third objectives of this study were to determine the relationship between psychopathological, social and environmental factors and quality of life in patients with chronic back pain at the MTRH orthopaedic and spine outpatient clinic.

Using the proposed WHOQOL-BREF norms of 73.5,70.6,71.5 and 75.1 for the physical health domain, psychological health domain, social relationships domain and environmental health domain respectively (see discussion below), the scores for the physical, psychological, social relationships and environmental health domains were 38.60, 55.47, 58.11 and 50.05 respectively.

Using one SD below the mean as the cut-off standards for low HRQOL, the psychological domain had the highest number of patients with poor scores at n=69 or 21.7 percent.

Table 5 f: HRQOL domain scores

Domain	N	Mean	SD	Number of patients with poor scores[a], n (%)
Physical	318	38.60	14.12	43 (13.52)
Psychological	318	55.47	10.12	69 (21.7)
Social	318	58.11	20.13	58 (18.24)
Environment	318	50.05	10.54	53 (16.86)

[a]Using one SD below the mean as the cut-off standards for low QOL

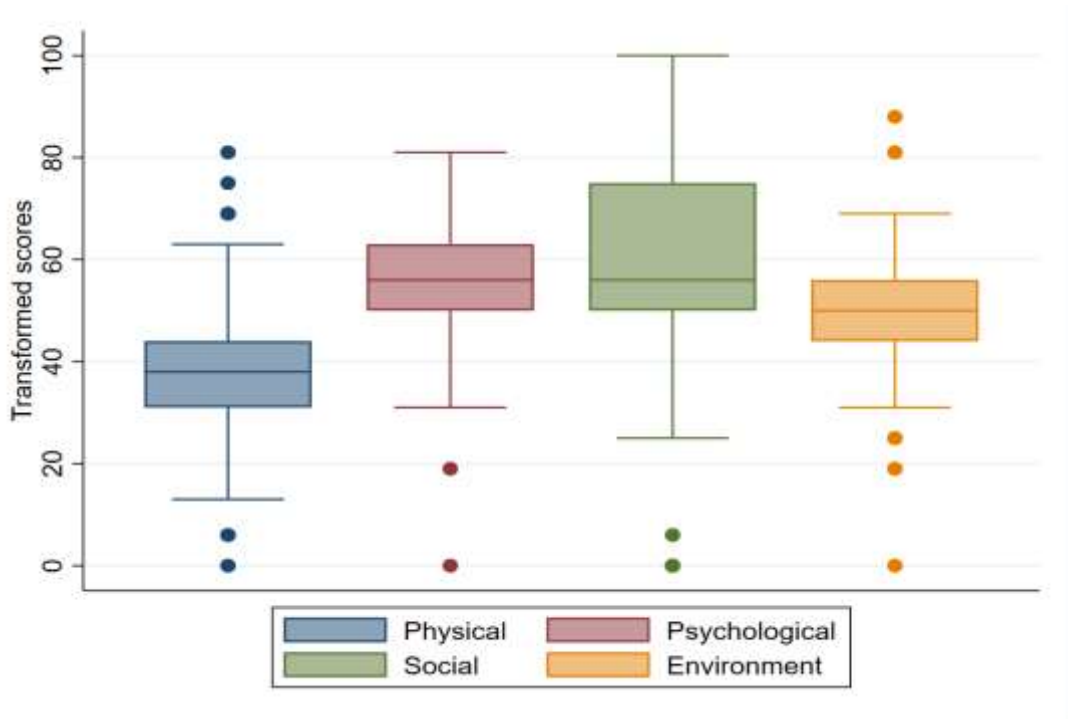

Figure 3: QoL scores per domain

Table 6: Facet scores

Physical health	**Mean**	**SD**
Q3	2.75	0.97
Q4	2.31	1.48
Q10	2.50	0.95
Q15	2.94	0.95
Q16	2.74	1.01
Q17	2.41	0.79
Q18	2.28	0.72
Psychological health		
Q5	3.58	0.73
Q6	2.76	0.90
Q7	3.45	0.74
Q11	3.51	0.87
Q19	2.98	1.53
Q25	3.22	1.02
Social relationships		
Q20	3.58	0.85
Q21	3.26	0.95
Environmental health		
Q8	2.63	0.78
Q9	2.78	0.76
Q12	2.38	0.77
Q13	3.63	1.19
Q14	2.07	0.94
Q22	3.05	0.90
Q23	3.81	0.95
Q24	3.36	0.93

CHAPTER FIVE

5.0 DISCUSSION

5.1 Quality of life

Given the scarcity of good studies on quality of life in chronic back pain, the author is of the view that study findings to determine population norms and cut off scores for low quality of life done in similar settings be adapted to these findings at the MTRH orthopedic clinic.

The author thus proposes that these findings at MTRH be interpreted in comparison to a study by Hawthorne, and Herman., (2006) that sought to provide preliminary population norms as a reference point against which researchers can interpret their findings. Hawthorne, and Herman., (2006) in their study found that general norms for the WHOQOL-BREF domains were 73.5 (SD=18.1) for the Physical health domain, 70.6 (14.0) for psychological wellbeing, 71.5 (18.2) for social relationships and 75.1 (13.0) for the Environment domain. In general scores declined slightly by age group. For females scores were stable across the lifespan with an accelerated decline after the age of 60 years. Males exhibited a more consistent and even decline across the lifespan. There were significant differences in WHOQOL-BREF scores when reported by health status, with those in poor health obtaining scores that were up to 50% lower than those in excellent health. Effect sizes between different health status levels were reported (Hawthorne, G., and Herman., 2006). These preliminary norms and effect sizes may be used as reference points for interpreting WHOQOL-BREF scores and have been extrapolated to this study findings at MTRH.

Similarly, Cummins, (1995) proposed a mean of 75± 2.5 as the ``gold standard'' range of normative data for quality-of-life studies.

Given the foregoing, this study adopted a cut off score of 75 ±2.5 as indicative of low overall mean quality of life. In addition to the above, the findings in this study at MTRH can be further interpreted in comparison to a study that sought to propose a cut off for the WHOQOL-BREF as a predictor of QOL in older adults by Silva, Soares, Santos, and Silva., (2014) who did a cross-sectional study with 391 older adults registered in the Northwest Health District in Belo Horizonte, MG, SouthEastern Brazil, between October 8, 2010 and May 23, 2011. The older adults' quality of life was measured using the WHOQOL-BREF. A Receiver-Operating Characteristic curve (ROC) was created to assess the diagnostic ability of different cut-off points of the WHOQOL-BREF.ROC curve analysis indicated a critical value 60 as the optimal cut-off point for assessing perceived quality of life and satisfaction with health. The area under the curve was 0.758, with a sensitivity of 76.8% and specificity of 63.8% for a cut-off of ≥ 60 for overall quality of life and sensitivity 95.0% and specificity of 54.4% for a cut-off of < 60 for overall quality of life. The study concluded that a cut-off less than 60 for overall quality of life obtained excellent sensitivity and negative predictive value for tracking older adults with probable worse quality of life and dissatisfaction with health (Silva, et al., 2014).

Using 75±2.5 as a cut-off range for normal mean QOL (Cummins,1995), and a cut-off of less than 60 as indicative of poor mean QOL (Silva, et al., 2014), the average Quality of life score for the 4 domains was 50.56 (SD=9.55) for this study at MTRH. WHOQOL-BREF has facets that assess the overall quality of life and perception of general health. On a scale of 1-5, the mean score of the Overall Quality of life facet was 2.42 (SD =0.80) while that of the general health facet was 2.31 (SD=0.69).

These QOL scores at MTRH are in contrast and considerably lower than the proposed norm (Hawthorne, et al., 2006) and cut-off scores and concur with findings by Darzi,

et al., (2014), who did a descriptive-analytical study comparing patients with CLBP and normal subjects. In patients with CLBP, they found a mean of 3.32 (SD 0.99) for the overall quality of life facet and 3.47 (SD 0.81) for the general health facet. Scores of the four domains of WHOQOL-BREF were also lower in low back pain patients with these differences being statistically significant in physical health and environmental health.

In this study at MTRH, patients reported the lowest scores in the physical health domain and were especially dissatisfied with the facets that assessed work capacity (mean 2.28, SD 0.72), dependence on medical substances and medical aids (mean 2.31, SD 1.48) activities of daily living (mean 2.41 SD 0.79) energy and fatigue (mean 2.50, SD 0.95) sleep and rest (mean 2.74 SD 1.01), and pain and discomfort (mean 2.75, SD 0.97; see Table 6). These findings concur with (Pieber, et al., 2012) whose multivariate analysis revealed "not needing medical treatment to function in daily life" with odds ratio (OR) (95% CI) of 6.3 (2.6–15.3) and 4.2 (2.1–8.5) as the strongest predictor for health satisfaction in men and women, respectively. Additionally, "satisfaction with one's sex life" and "satisfaction with work capacity", OR: 6.6 (2.9–14.8) and 3.7 (1.5–9.3) were predictors for health satisfaction (Pieber, et al., 2012).

These findings have implications for clinical practice at the MTRH orthopedic clinic because interventions that reinforce these facets will result in better overall QOL outcomes.

5.2 Sociodemographic factors and QoL

Majority of the patients with chronic back pain were female (70 percent females versus 30 percent males). This concurs with findings of prevalence studies in similar settings (Galukande et al.,2005; Mwawingwa,2012).

The fact that overall, women have a high prevalence of low back pain across all age groups has been attributed to the role female sex hormones play in the pathophysiology of musculoskeletal disorders and has been shown to increase after menopause (Wang, Wang,and Kaplar., 2016). Biologic response to pregnancy and child bearing, physical stress of child bearing, peri-menopausal abdominal weight gain are additional causes of CLBP.

Compared to men, females recorded marginally higher QOL scores across all the 4 domains (p<0.7883). Although not a statistically significant finding, this is in variance with a cross sectional UK HRQOL study that confirmed a statistically significant interaction between QOL and gender (p<0.001) with women reporting better social QOL than men but poorer QOL in other domains. In the UK study, Psychological QOL was poorest for women and the greatest area of gender inequality (Skevington, and McCrate, 2012).This variance is attributed to differing levels of social and economic development, health systems and national life expectancy. The essential role gender plays in the decision-making as well as health perception explains the gender difference in the QOL scores in this study at MTRH (Lee, et al 2020). However, the findings for this study at MTRH were not gender adjusted and the writer could not find comparable studies for the Kenyan setting.

As expected, older age groups (age over 45 years) reported lower overall QOL (mean 66.37 SD 7.73, p<0.008) especially in the physical health and psychological domains (mean 36.97, SD 13.4 and mean 54.62 SD 9.91 p<0.0016 respectively). Conversely,

patients in the lower age bracket had higher quality of life scores in the physical and psychological domains (mean 46.44, SD 5.94, $p<0.0016$ and mean 59.39 SD 9.71, $p<0.0392$ respectively).

In the multivariate analysis, when factors associated with overall QOL were analysed, older age group (age 31-45 and 46-65) was statistically significantly associated with low overall QOL scores compared to their younger counterparts in the 18-30 age group (OR Coefficient β -3.25 $P<0.041$ 95% CI -6.38 -0.13 and OR Coefficient β -4.62 $P<0.003$ 95% CI -7.62 -1.62) respectively. Similarly, older age group (age 46-65) was statistically significantly associated with low psychological domain scores compared to their younger counterparts aged 18-30 (OR coefficient β -4.64, $p<0.015$ 95% CI -8.36 -0.93).

The finding that age affects the overall QOL, physical and psychological health domains concurs with findings by Skevington, and McCrate., (2012) and can be explained by the fact that QOL generally decreases across the lifespan especially for the physical domain; and is better for the younger people in their prime of life (in their 20s and 30s) compared to the elderly (Skevington,and McCrate., 2012).

The finding of a lower QOL in the older age group in this study concurs with findings by Aminde, et al.,2020 and was influenced by the likelihood of co-occurring co-morbidities, polypharmacy and physical frailty (Makris, et al.,2017). This finding is similar to previous study findings and supports the view that older adults have unique treatment goals and expectations about the patient-clinician relationship and/or priorities for quality of life when compared to persons in younger age groups (Makris, et al.,, 2017). Considering the aforementioned, there is need for clinicians to be aware of and screen for low HRQOL in elderly patients with chronic back pain.

As anticipated, the level of income had an impact on QOL, similar to Aminde, et al.,(2020). This was significant for the psychological domain with patients with a higher income (>kshs.20000) reporting a higher psychological domain score (mean 57.19, SD 9.7P<0.0076). Patients who earned more than kshs.20, 000 per month had a better environmental health domain score (mean 52, p<0.1623) compared to patients who earned less. These findings suggest that interventions that do not cause financial hardship will have a positive impact on patient's HRQOL. This can be achieved through interventions at the community level that strengthen financial resources, health and social care accessibility and quality.

The findings in the multivariate analysis concur with findings in a Cameroonian study done in a similar setting. In the Cameroonian study (Aminde, et al.,2020), after multivariable adjustment, tertiary education (β=11.43, 95% CI 3.12 to 19.75), age (β=0.49, 95% CI 0.12 to 0.87) and being a student (β=23.07, 95% CI 0.28 to 45.86) contributed to better Overall QOL. Income (β=14.94, 95% CI 4.06 to 25.81) affected the social domain, while education (β=9.96, 95% CI 1.41 to 18.50) and disability (β=-0.75, 95% CI -1.26 to -0.24) affected the environmental domain.

Given these findings, it can thus be agreed that multiple sociodemographic factors influence the impact of CLBP on different domains of HRQOL.

5.3 Psychopathological factors

Given the robust nature of the WHOQOL study instrument the low quality of life scores in this study indicate poor psychological and socio-environmental health.

The psychological domain score (Mean 55.47) is in contrast and is considerably low compared to the proposed norm of 70.6 (Hawthorne, and Herman., 2006). In addition, the psychological domain had the highest number of patients with poor scores at n=69 or 21.7 percent compared to the physical domain at n= 43 or 13.52 percent. In the psychological domain, patients had particularly low scores in the spirituality/religion/personal beliefs facet (mean 2.76 SD 0.90) and self-esteem facet (mean 2.98 SD 1.53).

Concurrent findings can be found in a study by (Yi-Shiung et al, , 2005)on predicting health-related quality of life in patients with low back pain who found that the HRQOL of patients with low back pain depended on psychological factors more than simple physical impairment. From both studies, it is clear that the HRQOL of patients with low back pain depends on functional status and psychological factors more than simple physical impairment.

The finding that the psychological domain had the highest number of patients with poor scores concurs with previous studies that have supported psychological interventions for chronic low back pain (Hoffman, Papas, Chatkoff, &Kerns., 2007;Ikemoto, et al.,2018).

Psychological interventions have been noted to have positive effects for pain intensity, pain-related interference, health-related quality of life and depression. Cognitive behavioural and self-regulatory treatments have been found to be specifically efficacious (Hoffman, et al.,2007; Ikemoto, et al.,2018).

Further support for psychological interventions for patients with chronic back pain is demonstrated in a study (Bentsen, et al., 2008) to examine pain and quality of life in a group of preoperative chronic low back pain patients and a group of postoperative chronic low back pain patients treated with instrumented fusion 1-8 years earlier; results showed that the postoperative group reported significantly less pain and better physical and mental health compared with the preoperative group. However, despite surgery, the postoperative group reported suffering from pain and reduced quality of life. Findings in both studies are relevant to clinical practice in that, psychosocial interventions focusing on psychosocial consequences of pain are needed to modify the pain experience and increase the quality of life in these patients who have undergone this kind of surgery (Bentsen, et al., 2008). These findings imply that future interventions need to put more emphasis on improving functional status and psychological stress for these patients.

Interventions that specifically target to improve spirituality/religion/personal beliefs and self-esteem will have a positive impact on the QOL of patients with chronic back pain at MTRH.

5.4 Socio-environmental factors

Quality of life is determined by the quality of social relationships and environment. The social relationships domain score (mean 58.11 SD 20.13) contrasts and is lower than the proposed norm of 71.5.(Hawthorne, and Herman., 2006). For this domain, patients reported low scores in the social support facet (mean 3.26 SD 0.95) and the personal relationships facet (mean 3.58 SD 0.85).

The finding that patients with chronic low back pain at the orthopedic spine outpatient clinic of MTRH are dissatisfied with social support and personal relationships concurs with findings by Makris, et al., who found that restricting back pain affected patients socially whereby they experienced social isolation and inability to pursue hobbies thus forcing them to change social behavior.

This finding has clinical implications in that, interventions that incorporate efforts to improve social support for patients with chronic back pain will improve their QoL.

This study at MTRH found comparatively lower environmental health domain scores (mean 50.05, SD 10.27) than the social relationship (mean 58.11, SD 20.13) and psychological (mean 55.47, SD 10.12) domains. The environmental health domain score is also substantially lower than the proposed norm of 75.1.(Hawthorne, and Herman., 2006). For this domain, patients were especially dissatisfied with the facets that assessed participation in and opportunities for recreation (mean 2.07, SD 0.94), financial resources (mean 2.38, SD 0.77), freedom, physical safety and security (mean 2.63, SD 0.78) physical environment (mean 2.78 SD 0.76; see Table 6). This concurs with findings by Pieber, et al., (2012) who found that in women, "satisfaction with living conditions" OR: 3.7 (1.7–7.9) was an additional predictor of low QOL.

The findings in the social and environmental health domains concur with findings by Lesley,2000, who found that chronic low back pain patients were more compromised

in social functioning than patients with bipolar disorder and Waheed, et al.,2012 who found that patients with chronic low back pain have significantly decreased score in social functioning on functional scales and increased financial difficulties on symptom scales.

These findings at MTRH imply that improving participation in and opportunities for recreation / leisure activities, financial resources, freedom, physical safety and security, physical environment (pollution / noise / traffic / climate) will improve the QoL of patients with chronic back pain at the orthopaedic spine outpatient clinic of MTRH.

While the findings in the social relationships and environmental health domains can be explained by the socio-cultural context and demographic characteristics of the study population at orthopedic spine clinic of MTRH, their relative impact on the overall QoL score for this study was not elucidated by stepwise multiple regression since there was no comparison group. However, a systematic review by Chou, et al., (2010) found that variables relating to work environment and demographic variables were less useful for predicting worse outcomes. It can thus be similarly suggested that the most helpful components for predicting chronic low back pain are maladaptive pain coping behaviours, non-organic signs, functional impairment, general health status and presence of psychiatric co-morbidities. All these can be captured by QoL assessments.

5.5 Stratified biopsychosocial approach to chronic back pain

From the foregoing, patients with chronic back pain also suffer from a low quality of life.

It is important to note that the domain scores comprise facets that subjectively capture the multidimensional nature of chronic back pain including the psychosocial and environmental factors.

Biopsychosocial treatment which can be substituted by an integrative multidisciplinary approach is a recommended strategy for treating chronic back pain (Ikemoto, et al.,2018; Maiers., et al.,2010)

After health-related quality of life assessments, stratified patient subgroups at high risk of persistent back pain based on psychological, social and environmental health domain scores can be reviewed by a psychiatrist or mental health practitioner.

CHAPTER SIX

6.0 CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

This study looked at the subjective aspect of chronic low back pain.

Patients with chronic back pain have a reduced quality of life.

The low quality of life findings in this study are indicative of sociodemographic, psychopathological and socio-environmental impairments in patients with chronic low back pain attending the orthopaedic spine outpatient clinic at MTRH, Eldoret, Kenya.

Socio-demographically, older age (age over 35 years), low level of income and low level of education were statistically significantly associated with low quality of life in patients with chronic back pain at the MTRH orthopaedic outpatient clinic.

While the physical health domain had the lowest mean score at 38.6 (SD=14.12), psychopathological factors influence quality of life in patients with chronic back pain as shown by the fact that the psychological domain had the highest number of patients with poor scores at n=69 or 21.7 percent. This means there is a subset of patients with psychological impairment and future interventions need to put more emphasis on improving functional status and psychological distress for patients with chronic back pain at MTRH orthopaedic clinic. Screening for psychopathology in chronic back pain using the WHOQOL would help identify patients that need psychological interventions.

When socio-environmental factors that affect quality of life in patients with chronic back pain are considered, patients reported low scores in the social support and the personal relationships facets and were dissatisfied with the facets that assessed participation in and opportunities for recreation, financial resources, freedom, physical safety, security and physical environment.

6.2 Recommendations

A multidisciplinary approach to treatment of this condition by stratification of patients with sociodemographic, psychopathological and socio-environmental risk factors due to low domain and facet scores and then applying an integrative bio psychosocial approach by consulting mental health practitioners (psychiatrists, psychologists, occupational therapists and medical social workers) is thus warranted and recommended.

Psychosocial interventions focusing on psychopathological and socio-environmental consequences of chronic back pain will improve outcomes and increase the quality of life of patients with chronic back pain at the MTRH orthopaedic and spine outpatient clinic. Psychosocial treatments including CBT are both effective and inexpensive (WHO,1996).

Analytical/comparative studies in other centres to yield cross-culturally comparable scores are recommended. Multicentre collaborative studies to prove simultaneous replications of findings will add to the confidence with which these results at MTRH will be accepted (WHO,1996).

In addition, the author recommends further longitudinal studies that include randomized controlled trials (RCT's) using the WHOQOL-BREF that can help in monitoring changes and response to treatments since interventions deemed as relevant by patients may improve adherence to treatment of chronic back pain.

Indeed, randomized control studies (RCT's) that confirm superiority of the WHOQOL-BREF assessments over the usual standard of care in chronic back pain are needed.

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APPENDICES

Appendix I: IREC Approvals (MTRH)

INSTITUTIONAL RESEARCH AND ETHICS COMMITTEE (IREC)

MOI TEACHING AND REFERRAL HOSPITAL
P.O. BOX 3
ELDORET
Tel: 33471//2/3

MOI UNIVERSITY
COLLEGE OF HEALTH SCIENCES
P.O. BOX 4606
ELDORET

Reference: IREC/2017/219
Approval Number: 0002061

1st March, 2018

Dr. Wekesa Michael Makali,
Moi University,
School of Medicine,
P.O. Box 4606-30100,
ELDORET-KENYA.

INSTITUTIONAL RESEARCH & ETHICS COMMITTEE
01 MAR 2018
APPROVED
P. O. Box 4606 - 30100 ELDORET

Dear Dr. Wekesa,

RE: FORMAL APPROVAL

The Institutional Research and Ethics Committee has reviewed your research proposal titled:-

"Quality of Life in Patients with Chronic Back Pain at Moi Teaching and Referral Hospital, Eldoret – A Pilot Study".

Your proposal has been granted a Formal Approval Number: ***FAN: IREC 2061*** on 1st March, 2018. You are therefore permitted to begin your investigations.

Note that this approval is for 1 year; it will thus expire on 28th February, 2019. If it is necessary to continue with this research beyond the expiry date, a request for continuation should be made in writing to IREC Secretariat two months prior to the expiry date.

You are required to submit progress report(s) regularly as dictated by your proposal. Furthermore, you must notify the Committee of any proposal change (s) or amendment (s), serious or unexpected outcomes related to the conduct of the study, or study termination for any reason. The Committee expects to receive a final report at the end of the study.

Sincerely,

PROF. E. WERE
CHAIRMAN
INSTITUTIONAL RESEARCH AND ETHICS COMMITTEE

cc CEO - MTRH Dean - SOP Dean - SOM
Principal - CHS Dean - SON Dean - SOD

INSTITUTIONAL RESEARCH AND ETHICS COMMITTEE (IREC)

MOI TEACHING AND REFERRAL HOSPITAL
P.O. BOX 3
ELDORET
Tel: 33471//2/3

MOI UNIVERSITY
COLLEGE OF HEALTH SCIENCES
P.O. BOX 4606
ELDORET
Tel: 33471/2/3

Reference: IREC/2017/219
Approval Number: 0002061

1st March, 2019

INSTITUTIONAL RESEARCH & ETHICS COMMITTEE
01 MAR 2019
APPROVED
P. O. Box 4606-30100 ELDORET

Dr. Wekesa Michael Makali,
Moi University,
School of Medicine,
P.O. Box 4606-30100,
ELDORET-KENYA.

Dear Dr. Wekesa,

RE: CONTINUING APPROVAL

The Institutional Research and Ethics Committee has reviewed your request for continuing approval to your study titled:-

"Quality of Life in Patients with Chronic Back Pain at Moi Teaching and Referral Hospital, Eldoret – A Pilot Study".

Your proposal has been granted a Continuing Approval with effect from 1st March, 2019. You are therefore permitted to continue with your study.

Note that this approval is for 1 year; it will thus expire on 28th February, 2020. If it is necessary to continue with this research beyond the expiry date, a request for continuation should be made in writing to IREC Secretariat two months prior to the expiry date.

You are required to submit progress report(s) regularly as dictated by your proposal. Furthermore, you must notify the Committee of any proposal change (s) or amendment (s), serious or unexpected outcomes related to the conduct of the study, or study termination for any reason. The Committee expects to receive a final report at the end of the study.

Sincerely,

DR. S. NYABERA
DEPUTY-CHAIRMAN
INSTITUTIONAL RESEARCH AND ETHICS COMMITTEE

cc:	CEO	-	MTRH	Dean	-	SOD
	Principal	-	CHS	Dean	-	SPH
	Dean	-	SOM	Dean	-	SON

Appendix II: INTRODUCTORY NOTE

Permission is requested from you for your enrolment in a medical research study.

I wish to inform you that you are required to understand the following general principles, which apply to all in medical research whether well subjects or patient volunteers.

(i) Your agreement to enroll is voluntary.

(ii) You may withdraw from the study at any time.

(iii) Refusal to participate will involve no penalty or loss of benefit to which you are otherwise entitled.

(iv) After you read the explanation, please feel free to ask any questions that will allow you to understand clearly the nature of the study.

PURPOSE OF THE STUDY: In this study, I am assessing the impairment of Quality of life among patients suffering from chronic back pain attending the orthopedic out-patient clinic at MTRH.

PROCEDURE: I will ask questions concerning your living conditions, treatment, social support, opinion concerning aspects of daily living and level of satisfaction, over the last 4 weeks. These will be in the form of questionnaires and no invasive procedure will be carried out in the course of the study.

BENEFIT: It is hoped that information emanating from this study will enable better understanding of quality of life in patients suffering chronic back pain and lead to better interventions and comprehensive care of this condition.

RISK: You may find some questions distressing due to individual varying appraisal of your life circumstances. You will be attended to promptly if you need treatment or any other intervention.

CONFIDENTIALITY: All information obtained from this study will be kept confidential and your privacy will be upheld. Your name will not be used in the study or in any resulting publications.

PARTICIPANTS: The expected number of study subjects is 316 people with chronic back pain attending MTRH orthopedic and spine out-patient clinic.

PARTICIPANT'S STATEMENT

I_____ having received adequate information regarding the study research, risks, benefits hereby AGREE / DISAGREE (Circle as appropriate) to participate in the study. I understand that my (our) participation is fully voluntary and that I (we) am/are free to withdraw at any time. I have been given adequate opportunity to ask questions and seek clarification on the study and these have been addressed satisfactorily.

Patient's/guardian's Signature/Thumb Print: _____

Date _____

I DR. WEKESA MICHAEL MAKALI declare that I have adequately explained to the above patient, the study procedure, risks, and benefits and given him /her time to ask questions and seek clarification regarding the study. I have answered all the questions raised to the best of my ability.

Interviewer's Signature_____

Date_____

PROBLEMS OR QUESTIONS:

If you ever have any questions about the study or about the use of the results you can contact the:

Principal investigator,

Dr. Wekesa Michael Makali

Department of mental Health

Moi university

Phone: **0723-686-896.**

If you have any questions on your rights as a research participant, you can contact the **Institutional Research Ethics Committee (IREC)** using contacts below:

The chairman, IREC

Moi University/MTRH

P.O BOX 4606 ELDORET

Appendix III: Questionnaire

SOCIO-DEMOGRAPHIC QUESTIONNAIRE

Date: _____

Case Number: _____

1. Age (years):

(i) 18-30 years ☐

(ii) 31-45 years ☐

(iii) 46-65 years ☐

(iv) Over 65 years ☐

2. Sex:

(i) Male ☐

(ii) Female ☐

3. Residence:

(i) Urban ☐

(ii) Rural ☐

(iii) Outside Kenya ☐

4. Marital status

(i) Married ☐

(ii) Living as married ☐

(iii) Single ☐

(iv) Divorced ☐

(v) Separated ☐

(vi) Widowed ☐

5. How many children do you have?

(i) None ☐

(ii) 1-4 Children ☐

(iii)5-9 Children ☐

(iv) More than 10 children ☐

6. Religion

(i) Protestant ☐

(ii) Catholic ☐

(iii)Muslim ☐

(iv)Other (specify) ☐

7. What is the highest level of education you received?

(i) No formal education ☐

(ii) Primary ☐

(iii)Secondary ☐

(iv)Tertiary ☐

(v) University ☐

8. What is your occupation?

_____

_____

9. (a) Are you currently employed?

(i) Yes ☐

(ii) No ☐

(b) If yes, which type of employment?

(i) Skilled ☐

(ii) Unskilled ☐

(c) What is your average income per month in Kshs?

(i) Below Ksh5000 ☐

(ii) Ksh5001-10000 ☐

(iii) Ksh10001-15000 ☐

(iv) Ksh150001-20000 ☐

(v) Above ksh20000 ☐

If no, in 9(a) (ii) above, what is the main reason?

_____

_____

_____-

10. Whom are you living with now?

_____

_____

_____-

Appendix IV: Mini-Mental State Examination (MMSE) Questionnaire

Orientation (Score 1 correct)

Name this area you are in now

What city are you in now?

What year is it?

If the year is divided into 4, what quarter of the year is it?

What is the date today?

Which country are you in?

What county is this?

What floor of the building are you on?

What day of the week is it?

What month of the year is it?

Registration (score 1 for each object correctly repeated)

Cup, table, book - have patient repeat them

Score number repeated by the patient = 3

Name the three objects several more times if needed for the patient to repeat correctly (record trials)

Attention and Calculation

Subtract 7 from 100 in serial fashion to 65

Maximum score = 5

Recall (score 1 for each object recalled)

Do you recall the three objects named before? = 3

Language tests

Confrontation naming: Watch, pen = 2

Repetition; "No ifs, ands, or buts" = 1

Comprehension:

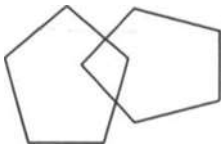
Pick up the paper in your right hand, fold it in half, and set it on the floor = 3

Read and perform the command "Close your eyes" = 1

Write any sentence (Subject, verb, object) = 1

Construction

Copy the design below = 1



Total MMSE questionnaire score (maximum = 30)

Ref: Adopted from Folstein, Folstein S , Mettugh,. (1975). Mini-mental state; A practical method for grading the cognitive state of patients for the clinician.

Scoring

1. <25 - Suggests possible impairment 

2. <20 - Indicates definite impairment 

3. <22 - Exclusion from the study 

APPENDIX V: WHOQOL-BREF QUESTIONNAIRE

Appendix: WHOQOL-BREF

[Questionnaire]

The following questions ask how you feel about your quality of life. I will read out each question to you, along with the response options. Please choose the answer that appears most appropriate. If you are unsure about which response to give to a question, the first response you think of is often the best one (The numbers after responses indicates the scores of the responses).

Please keep in mind your standards, hopes, pleasures and concerns. I ask that you think about your life in the last four weeks (The overall quality of life and general health facet).

1. How would you rate your quality of life?

Very poor: 1

Poor: 2

Neither poor nor good: 3

Good: 4

Very good: 5

2. How satisfied are you with your health?

Very dissatisfied: 1

Dissatisfied: 2

Neither satisfied nor dissatisfied: 3

Satisfied: 4

Very satisfied: 5

The following questions ask about how much you have experienced certain things in the last four weeks.

3. To what extent do you feel that physical pain prevents you from doing what you need to do?

Not at all: 5

A little: 4

A moderate amount: 3

Very much: 2

An extreme amount: 1

4. How much do you need any medical treatment to function in your daily life?

Not at all: 5

A little: 4

A moderate amount: 3

Very much: 2

An extreme amount: 1

5. How much do you enjoy life?

Not at all: 5

A little: 4

A moderate amount: 3

Very much: 2

An extreme amount: 1

6. To what extent do you feel your life to be meaningful?

Not at all: 5

A little: 4

A moderate amount: 3

Very much: 2

An extreme amount: 1

7. How well are you able to concentrate?

Not at all: 1

A little: 2

A moderate amount: 3

Very much: 4

Extremely: 5

8. How safe do you feel in your daily life?

Not at all: 1

A little: 2

A moderate amount: 3

Very much: 4

Extremely: 5

9. How healthy is your physical environment?

Not at all: 1

A little: 2

A moderate amount: 3

Very much: 4

Extremely: 5

The following questions ask about how completely you experience or were able to do certain things in the last four weeks.

10. Do you have enough energy for everyday life?

Not at all: 1

A little: 2

Moderately: 3

Mostly: 4

Completely: 5

11. Are you able to accept your bodily appearance?

Not at all: 1

A little: 2

Moderately: 3

Mostly: 4

Completely: 5

12. Have you enough money to meet your needs?

Not at all: 1

A little: 2

Moderately: 3

Mostly: 4

Completely: 5

13. How available to you is the information that you need in your day-to-day life?

Not at all: 1

A little: 2

Moderately: 3

Mostly: 4

Completely: 5

14. To what extent do you have the opportunity for leisure activities?

Not at all: 1

A little: 2

Moderately: 3

Mostly: 4

Completely: 5

15. How well are you able to get around?

Very poor: 1

Poor: 2

Neither poor nor good: 3

Good: 4

Very good: 5

16. How satisfied are you with your sleep?

Very dissatisfied: 1

Dissatisfied: 2

Neither satisfied nor dissatisfied: 3

Satisfied: 4

Very satisfied: 5

17. How satisfied are you with your ability to perform your daily living activities?

Very dissatisfied: 1

Dissatisfied: 2

Neither satisfied nor dissatisfied: 3

Satisfied: 4

Very satisfied: 5

18. How satisfied are you with your capacity for work?

Very dissatisfied: 1

Dissatisfied: 2

Neither satisfied nor dissatisfied: 3

Satisfied: 4

Very satisfied: 5

19. How satisfied are you with yourself?

Very dissatisfied: 1

Dissatisfied: 2

Neither satisfied nor dissatisfied: 3

Satisfied: 4

Very satisfied: 5

20. How satisfied are you with your personal relationships?

Very dissatisfied: 1

Dissatisfied: 2

Neither satisfied nor dissatisfied: 3

Satisfied: 4

Very satisfied: 5

21. How satisfied are you with the support you get from your friends?

Very dissatisfied: 1

Dissatisfied: 2

Neither satisfied nor dissatisfied: 3

Satisfied: 4

Very satisfied: 5

22. How satisfied are you with the conditions of your living place?

Very dissatisfied: 1

Dissatisfied: 2

Neither satisfied nor dissatisfied: 3

Satisfied: 4

Very satisfied: 5

23. How satisfied are you with your access to health services?

Very dissatisfied: 1

Dissatisfied: 2

Neither satisfied nor dissatisfied: 3

Satisfied: 4

Very satisfied: 5

24. How satisfied are you with your transport?

Very dissatisfied: 1

Dissatisfied: 2

Neither satisfied nor dissatisfied: 3

Satisfied: 4

Very satisfied: 5

The following question refers to how often you have felt or experienced certain things in the last four weeks.

25. How often do you have negative feelings such as blue mood, despair, anxiety, depression?

Never: 5

Seldom: 4

Quite often: 3

Very often: 2

Always: 1

[Scoring method]

Equations for computing domain raw scores:

Domain 1 (physical) score = Q3 + Q4 + Q10 + Q15 + Q16 + Q17 + Q18

Domain 2 (psychological) score = Q5 + Q6 + Q7 + Q11 + Q19 + Q25

Domain 3 (social) score =Q20 + Q21

Domain 4 (environmental) score = Q8 + Q9 + Q12 + Q13 + Q14 + Q22 + Q23 + Q24

Transformed scores were estimated using the following tables for standardizing scores from 0-100 with the lowest score of zero and the highest score of 100 (See Reference 3 for additional information).

Tables for converting raw scores to transformed scores

Raw	Transformed
7	0
8	6
9	6
10	13
11	13
12	19
13	19
14	25
15	31
16	31
17	38
18	38
19	44
20	44
21	50
22	56
23	56
24	63
25	63
26	69
27	69
28	75
29	81
30	81
31	88
32	88
33	94
34	94
35	100

Raw	Transformed
6	0
7	6
8	6
9	13
10	19
11	19
12	25
13	31
14	31
15	38
16	44
17	44
18	50
19	56
20	56
21	63
22	69
23	69
24	75
25	81
26	81
27	88
28	94
29	94
30	100

Raw	Transformed
2	0
3	6
3	19
4	25
5	31
5	44
6	50
7	56
7	69
8	75
9	81
9	94
10	100

Raw	Transformed
8	0
9	6
10	6
11	13
12	13
13	19
14	19
15	25
16	25
17	31
18	31
19	38
20	38
21	44
22	44
23	50
24	50
25	56
26	56
27	63
28	63
29	69
30	69
31	75
32	75
33	81
34	81
35	88
36	88
37	94
38	94
39	100
40	100

Appendix VI: World Health Organization Quality of Life instrument (WHOQOL-BREF)

THE WORLD HEALTH ORGANIZATION

QUALITY OF LIFE (WHOQOL) –BREF

KISWAHILI

The following questions ask how you feel about your quality of life, health, or other areas of your life. I will read out each question to you, along with the response options. Please choose the answer that appears most appropriate. If you are unsure about which response to give to a question, the first response you think of is often the best one.

'Maswali yafuatayo yanajaribu kuchunguza jinsi wewe unavyohisi hali yako ya afya na maisha yako kwa jumla. Nitakusomea maswali na vile vale hiari za majibu ambazo unazo. Tafahdahli chagua jibu ambayo inalingana na maoni yako au ni karibu na jibu lako'

Please keep in mind your standards, hopes, pleasures and concerns. I ask that you think about your life in the last four weeks.

'Ukijibu maswali tafadhali jaribu ukumbuke kanuni, ridhaa, na shaka zako. Vile zakat tungeuliza ukijibu wasali ukumbuke vitu ambazo zimefanyika maishani mwako kuanzia sasa na kurudi nyuma wiki nne vilizo pita'

Codes:

Very poor **(Mbaya sana)**

Poor (**Mbaya)**

Neither poor nor good **(Sio mbaya wala sio mzuri)**

Good **(Nzuri)**

Very good **(Nzuri sana)**

1. How would you rate your quality of life?

Je, ukikaripia hali ya maisha yako, je waweza kusemaje?

1 2 3 4 5

Codes:

Very dissatisfied (**Hai ridhishi sana)**

Dissatisfied (**Hai ridhishi)**

Neither satisfied nor dissatisfied (**Hai ridhishi wala haipendezi)**

Satisfied (**Inaridhisha)**

Very satisfied (**Inaridhisha sana)**

2. How satisfied are you with your health?

Je, unaridhiswa na hali yako ya afya?

1 2 3 4 5

The following questions ask about how much you have experienced certain things in the last four weeks.

'Maswali yafuatayo yana jaribu kupima maarifa zako kuhusu vitu mbali mbali katika wiki nne zilizo pita'

Not at all (**Hakuna hata kidogo)**

A little (**Kidodgo)**

A moderate amount **(Kadiri)**

Very much (**Sana)**

An extreme amount **(Kabisa)**

3. To what extent do you feel that physical pain prevents you from doing what you need to do?

Ni kwa kiasi gani ambayo unaona kwamba maumivu ya mwili imekuzuiya kufanya vitu ambazo ungependa kuyafanya?

5 4 3 2 1

4. How much do you need any medical treatment to function in your daily life?

Ni kwa kiasi gani ambayo unahitaji matibabu katika maisha yako ya kila siku?

5 4 3 2 1

5. How much do you enjoy life?

Ni kwa kadiri/kiasi gani ambayo wewe unafurahia maisha?

1 2 3 4 5

6. To what extent do you feel your life to be meaningful?

Ni kwa kiasi gani ambayo wewe unaona kwamba maisha yako ina muhimu?

1 2 3 4 5

Codes:

Not at all (**Hakuna hata kidogo)**

A little (**Kidodgo)**

A moderate amount **(Kadiri)**

Very much (**Sana)**

An extreme amount **(Kabisa)**

7. How well are you able to concentrate?

Ni kwa kiasi gani ambayo wewe unaweza kukaza fikira ju ya jambo?

1 2 3 4 5

8. How safe do you feel in your daily life?

Ni kwa kiasi gani ambayo wewe unahisi usalama wako katika shughli zako za kila siku?

1 2 3 4 5

9. How healthy is your physical environment?

Je, sifa za mazingira yako unayaonaje?

1 2 3 4 5

The following questions ask about how completely you experience or were able to do certain things in the last four weeks.

Maswali yanayofuata yanauliza uwezo wako wakupima maarifa yako au kufanya vitu fulani kwa wiki nne zilizopita.

Codes:

Not at all (**Hakuna hata kidogo)**

A little (**Kidodgo)**

A moderate amount (**Kadiri)**

Very much (**Sana)**

An extreme amount (**Kabisa)**

10. Do you have enough energy for everyday life?

Je, una nguvu ya kutosha kufanya shughli za kawaida za kila siku?

1 2 3 4 5

11. Are you able to accept your bodily appearance?

Je, una ridhika na umbo lako au hali yako ya kimwili?

1 2 3 4 5

12. Have you enough money to meet your needs?

Je, una pesa za kutosha kutimiza mahitaji yako?

1 2 3 4 5

13. How available to you is the information that you need in your day-to-day life?

Je, maelezo ambazo unazotaka katika maisha yako ya kila siku unayapata?

1 2 3 4 5

14. To what extent do you have the opportunity for leisure activities?

Je, ni kwa kiasi gani ambayo unapata nafasi ya kupumzika na kufaragha?

1 2 3 4 5

Codes:

Very poor (**Mbaya sana)**

Poor (**Mbaya)**

Neither poor nor good (**Sio mbaya wala sio mzuri)**

Good (**Nzuri)**

Very good (**Nzuri sana)**

15. How well are you able to get around?

Je, ni kwa kiasi gani ambayo unaweza kuwasiliana/kutembea?

1 2 3 4 5

Codes:

Very dissatisfied (**Hai ridhishi sana)**

Dissatisfied (**Hai ridhishi)**

Neither satisfied nor dissatisfied (**Hai ridhishi wala haipendezi)**

Satisfied (**Inaridhisha)**

Very satisfied (**Inaridhisha sana)**

16. How satisfied are you with your sleep?

Je, ni kwa kiasi gani ambayo unaridhishwa na uwezo wako wa kulala?

1 2 3 4 5

17. How satisfied are you with your ability to perform your daily living activities?

Je, ni kwa kiasi gani ambayo wewe unaridhishwa na uwezo wako wa kjiendelza katika maisha yako ya kila siku?

1 2 3 4 5

18. How satisfied are you with your capacity for work?

Je, ni kwa kiasi gani ambayo wewe unaridhiswa na uwezo wako wa kufanya kazi?

1 2 3 4 5

19. How satisfied are you with yourself?

Je, ni kwa kiasi gani ambayo unaridhishwa na maisha yako?

1 2 3 4 5

20. How satisfied are you with your personal relationships?

Je, ni kwa kiasi gani ambayo unridhishwa na uhusiano yako na watu wengine?

1 2 3 4 5

21. How satisfied are you with your sex life?

Je, ni kwa kiasi gani ambayo unridhishwa na maisha yako ya kimapenzi?

1 2 3 4 5

22. How satisfied are you with the support you get from your friends?

Je, ni kwa kiasi gani ambayo unridhishwa na usaidizi ambayo unpata kutoka marafiki zako?

1 2 3 4 5

23. How satisfied are you with the conditions of your living place?

Je, ni kwa kiasi gani ambayo unridhishwa na hali ya makao ambayo unaishi?

1 2 3 4 5

24. How satisfied are you with your access to health services?

Je, ni kwa kiasi gani ambayo unridhishwa na uwezo wa kupata huduma za matibabu?

1 2 3 4 5

25. How satisfied are you with your transport?

Je, ni kwa kiasi gani ambayo unridhishwa na huduma za usafirishaji?

1 2 3 4 5

The following question refers to how often you have felt or experienced certain things in the last four weeks.

'Swali linalofuata linahusu mara ngapi wewe umehisi au kuarifu vitu mbali mbali katika wiki nne zilizo pita'

Never (**Hakuna hata kidogo)**

Seldom (**Kidogo)**

Quite often (**Mara kwa mara)**

Very often (**Sana)**

Always (**Kila mara)**

26. How often do you have negative feelings such as blue mood, despair, anxiety, depression?

Je, kuhisi ya kuwa na hali ya moyo mzito, taruki au wasi wasi huja kwako mara ngapi?

5 4 3 2 1

Do you have any comments about the assessment?

Je, una maoni yeyote kuhusu maswala ambayo yameulizwa?

Appendix VII: Timeline

	2017				2018-2020							2021	
TASK/TIME	Sept	Oct	Nov	Dec	Jan/Feb	Mar	April	May	June	July	Aug-Dec	Jan-Mar	April-Sept
Concept paper writing													
Literature Review													
Research methodology													
Designing of Research instruments													
Submission of Proposal for corrections													
Corrections													
Submission of Proposal for defense													
After defense corrections/Acquisition of Permit from IREC													
Pre-testing/data collection													
Data analysis/report writing													
Submission/project defense and corrections													
Editing, binding and Submission of final copy													

Appendix VIII: Budget

Unit	Total Quantity	Unit cost (Kshs)	Total cost (Kshs)
Proposal writing			
Internet browsing	100	100	10,000
Printing	420	10	4,200
Photocopying	420	5	2, 100
Travelling and subsistence and Submission of proposal to graduate school	15	2000	30,000
Acquisition of permit	-	-	2,500
Pre-testing	-	-	5,500
Data collection	30	1000	30000
Sub-total			**84,300**
Thesis Writing			
Data analysis and report writing		-	35000
Travelling and subsistence	-	-	5500
Printing and Binding	5	2000	10000
Sub-Total			**50,000**
Supervision	2	-	-
Raw Total			**129800**
Contingency@10%		129,800*0.1	**12,980**
Grand Total			**147,780**

Appendix IX: WHO Permission

PERMISSION

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Kind regards,

Catalina

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