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BENEDICTA ADU-GYAMFI

(10803653)

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DECLARATION

I hereby declare that excluding precise references which have been duly acknowledged, this submission is my work towards my Master of Public Health dissertation and that, to the best of my knowledge, it contains no material previously published by another person nor material which has been accepted for the award of any other degree of the University or elsewhere.

BENEDICTA ADU-GYAMFI

(STUDENT NAME)

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SIGNATURE

10TH NOVEMBER 2020

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DATE

PROF. MOSES AIKINS

(ACADEMIC SUPERVISOR)

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SIGNATURE

10/11/2020

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DATE

DEDICATION

I dedicate this work to God Almighty and my family

ACKNOWLEDGEMENTS

My vision and aspiration to pursue this master's program at the University of Ghana were challenging which made this vision worth pursuing knowing fully well nothing good ever comes easy, to my entire family especially Sam, Enrique, and Max, for all the emotional and financial support offered me as well as the immense advice which aided me to carry through, God bless you.

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LIST OF ABBREVIATIONS

BP	-	Bodily pain
CHF	-	Congestive Cardiac Failure
CKD	-	Chronic Kidney disease
COPD	-	Chronic Obstructive Pulmonary Disease
DALYs	-	Disability- Adjusted Life Years
GBD	-	Global Burden of Disease
GDP	-	Gross Domestic Product
GH	-	General Health
HRQoL	-	Health-Related Quality of Life
LMIC	-	Low-and Middle-Income Country
MCS	-	Mental Health component score
MH	-	Mental Health
MoH	-	Ministry of Health
NHIS	-	National Health Insurance Scheme
PCS	-	Physical Health component score
PF	-	Physical function
PTG	-	Post Traumatic Growth
PTSD	-	Post Traumatic Stress Disorder
QALY	-	Quality-Adjusted Life Year
QoL	-	Quality of Life
QNS	-	Questions
RE	-	Role-Emotional
RP	-	Role-physical
RTA	-	Road Traffic Accident
SF	-	Social Functioning
SF-12	-	Short Form Health survey
VT	-	Energy/Fatigue
WHO	-	World Health Organization

OPERATIONAL DEFINITION OF TERMS

Term	Operational Definition
Case management	These are the process of assessment, planning, coordination, and evaluation of care to meet the individual's comprehensive health care needs. Traditional and orthodox case management (Treatment adherence, wound dressing, implant, surgery)
Coping strategies	The specific efforts both behavioural and psychological that people use to reduce or tolerate stressful events. Informal strategies (family support, social support, religious support) and formal strategies (rehabilitation, NHIS membership).
Socio-demographic characteristics	They are specific characteristics of a population. These are age, marital status, education, income, occupation, and religion
Quality of Life	Defined as individuals' perception of their position in life in the context of the culture and value systems in which they live and concerning their goals, expectations, standards, and concerns (WHO, 1997)

ABSTRACT

Background: The current magnitude of disabilities globally points to one billion people living with disabilities, many of which are injury-related and common in low- and middle-income countries (LMIC), including Ghana.

Objective: To assess the quality of life of orthopedic patients and their coping strategies in the Korle-Bu Teaching Hospital.

Methods: A cross-sectional descriptive design employing quantitative approach to gather and analyze data. A total of 403 respondents from the Korle-Bu Teaching Hospital's Accident and Orthopedic Departments were chosen. Using the SF-12 questionnaire, exit interviews were conducted. STATA, 15 was used to evaluate all the results. MCS and PCS combined ratings were then used to assess the average quality of life. The demographic characteristics of the respondents were described using descriptive statistics. The frequency of the relation between the dependent variable and independent variables was calculated using multiple logistic regressions. P-values was set at 0.05 at 95%Confidence interval (CI)

Results: The quality of life of orthopedic patients was low because the values obtained from the component summary score of both physical (10.41) and mental component summary (15.72) were lower as compared the standard mean of 50 (ware, kosinski & keller,1996). About 57% of orthopedic patients were males, 30% had up to tertiary education, 56%, were married, 66.9% were Christians and 72% were National Health Insurance Scheme registrants. The common type of orthopedic injury included injury affecting the legs only (44.5%) while 64.9% sought orthodox treatment only. Most of the orthopedic patients preferred informal coping strategies (53%). Overall, orthopedic patients experienced more mental health issues than physical health issues (15.72% vs 10.41%). NHIS membership was significantly associated with the low quality of life of orthopedic patients (COR: 0.35, 95% CI: 0.12, 0.99).

Conclusion: The SF-12 values shows that the physical component summary score (10.41) and mental component summary score (15.72) were low indicating low quality of life of orthopedic patients who use informal coping strategies, family, and social support.

CHAPTER ONE

INTRODUCTION

1.1 Background

Quality of life in (QoL) orthopedic patients is an important outcome since current medicine has greatly increased the life expectancy of a patient by reducing the incidence of serious orthopedic impairment (Scalone et al., 2006). Modern therapy's effectiveness in enhancing patients' QoL is closely related to the provision of emergency care facilities, such as hospital beds and ambulances. This is because emergency medical services in low- and middle-income nations are rapidly regarded as an incredibly significant part of national health systems (Mchomvu et al., 2019).

According to a Baker report, these emergency departments have limited functionality due to the shortage of formally qualified personnel, inadequate resources, insufficient facilities or supplies, and limited availability of consumables (Baker et al., 2013).

Among survivors of traumatic injuries, severe physical impairment, and psychological distress can lead to short- and long-term disabilities. Trauma to the lower extremity may be followed by a series of negative events that can lead to major changes in life circumstances and quality of life (QoL) for many months or years following an accident (Clay, Newstead & McClure, 2010). These types of injuries may be particularly damaging for people in areas, where physical labor accounts for a large portion of the economy and labor force, and physical functioning and mobility are important for employment and financial security (Kohler et al., 2017). Additionally, injuries are more common among young adults and can have catastrophic financial repercussions at the individual and household levels (de Ramirez et al., 2012).

Because of the number of patients seen at a specific time, trauma units have statistically proven to be one of the busiest and most delicate units within the health facility. The primary purpose of the trauma department is to receive and provide medical care to anyone in a health emergency, 24 hours a day, 7 days a week, without discrimination, according to Ahanhanzo, particularly in the event of distress and life-threatening emergency (Ahanhanzo et al., 2016). Nevertheless, several challenges are faced by trauma units, some of which impede the speed at which patients in distress are treated or treated. Another study by Ahanhanzo shows that there are numerous challenges facing emergency departments daily in the specific context of rapid action to remedy life-threatening emergencies. These include the quality and speed of medical care, the decrease in waiting time, the optimization of available resources, and user satisfaction (Ahanhanzo et al., 2016). In other words, the inability of trauma units to speed up the recovery process for patients in distress leaves a scar that hampers patients' quality of life after treatment. Quality of life research and coping strategies for orthopedic patients remains a grey area in research, specifically in Ghana, hence the need to study the quality of life of orthopedic patients in Ghana and coping strategies.

1.2 Problem Statement

Ghana, like many African countries, is faced with increased risk of accidents to pedestrians and drivers due to poor road infrastructure, high traffic volume, poor driver training, poor law enforcement, and lack of physical separation between vehicles and vulnerable road users (Marquez & Farrington 2013). Although the continent is among the least motorized region of the world, Africa has the highest road traffic mortality rate and the highest age-standardized mortality for injuries including road traffic accident (RTA) (Kohler et al., 2017).

The current magnitude of disabilities globally statistically points to one billion people living with disabilities, many of which are injury-related; in fact, injuries cause over 11% of disability-adjusted life-years worldwide (Lozano et al., 2012). Low- and middle-income countries (LMIC) face a disproportionate burden of disabilities and injuries; over 90% of road traffic injuries (RTI) occur in LMIC and may involve trauma to the lower extremity (WHO, 2013; Murray et al., 2013).

The overarching aim of good management is to help patients reach optimal wellbeing, demonstrated by physically and emotionally reducing post-surgical tension and improving the quality of life to achieve patient comfort (Goldsmith et al., 2016; Gordon et al., 2010). This research aims to evaluate the quality of life and coping mechanisms of orthopedic patients in Korle Bu Teaching Hospital.

1.3 Research Questions

The specific objectives are:

1. What are the socio-demographic characteristics of orthopedic patients?
2. What are the types of case management of orthopedic conditions?
3. What is the quality of life of an orthopedic patient?
4. What are the coping strategies of orthopedic patients?
5. Is there an association between coping strategies and quality of life of orthopedic patients?

1.4 General Objectives

To assess the quality of life and coping strategies of orthopedic patients.

1.5 Specific Objectives of the Study

1. To assess the socio-demographic characteristics of orthopedic patients.
2. To determine the types of case management of orthopedic conditions.
3. To assess the quality of life of orthopedic patients.
4. To assess the coping strategies of orthopedic patients.
5. To determine the association between quality of life and coping strategies of orthopedic patients.

1.6 Conceptual Framework for Quality of Life and Coping Strategies of Orthopaedic patients

The study is guided by the conceptual framework in Figure 1.1, which is constructed by the researcher after reviewing literature from previous works done by (WHO, 2002). The conceptual framework shows the socio-demographic characteristics (age, marital status, income level), and the types of orthopedic patients, the variables that influence the QoL of orthopedic patients includes socio-demographic characteristics. The patient will either go for orthodox management, (wound dressing, Surgery, physiotherapy) or traditional case management (bone setters, herbal medicine), whichever method of managing a patient chosen requires some coping strategies which may either be formal or informal or a combination of both formal and informal. The types of coping strategies the patient uses will help to determine if the patient will attain their therapeutic goals thereby helping them to achieve their quality of life.

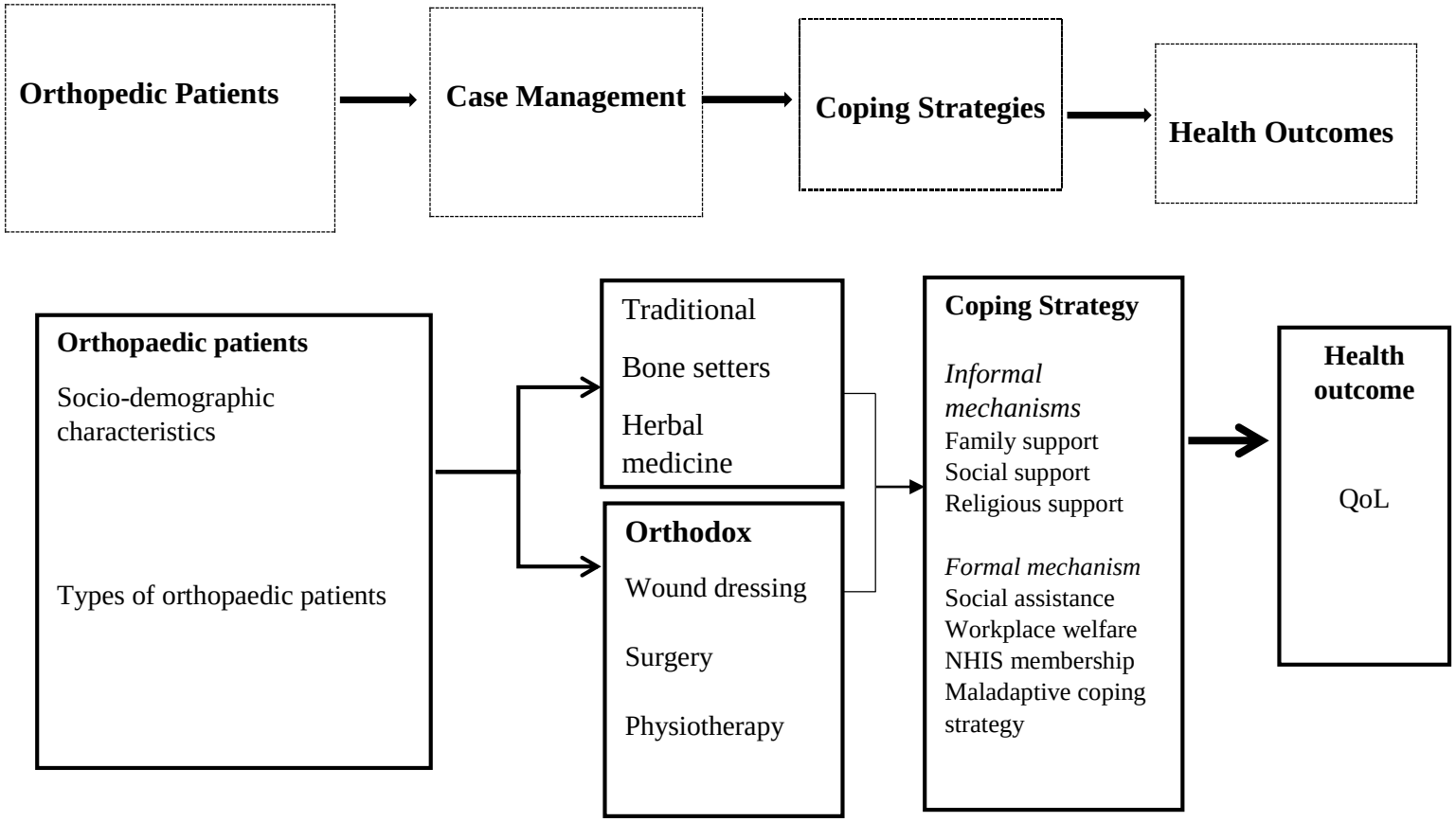

Figure 1.1: Conceptual Framework of the Quality of Life and coping strategies of orthopedic patients.

1.7 Justification

Ghana has made a lot of progress in the reduction of the cost of accessing healthcare through initiatives like the National Health Insurance Scheme (NHIS), to help patients to access healthcare with ease. However, because orthopedic conditions involve the musculoskeletal system, and usually the recovery time it is longer is important for health workers to gain adequate knowledge on how to help orthopedic patients recover fully by making good health policies that will address the needs of patients.

Therefore, there is a need to ensure an effective management process as well as the coping strategies for orthopedic patients and this has necessitated the study. Furthermore, despite the high prevalence of orthopedic conditions seen daily at the orthopedic units, only a few studies have been undertaken in recent times to understand the health needs of orthopedic patients. This study will help provide data on patient's views on the type of case management of orthopedic conditions, this can be used by healthcare workers to know how to improve the care and management of orthopedic patients.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This section presents the review of some literature relating to the topic under consideration. The chapter is present as injuries, road traffic accidents, occupational falls, orthopedic injuries, mortality and disability of orthopedic injuries, causes of orthopedic injury, case management of orthopedic injuries, coping strategies and quality of life and chapter summary and conclusion.

2.2 Injuries

According to the 6th edition of the Oxford Nurses Dictionary, injuries are damages that harm the body. It applies to damage caused by injuries, crashes, impacts, and more as a general term. The outcomes of a single, catastrophic incident are typically acute injuries. Popular cases include wrist fractures, ankle sprains, shoulder dislocation, although injuries with overuse are common in sports than severe injuries, they are subtle and typically occur over time, making them harder to detect and manage. Repetitive micro-trauma to the tendons, muscles, and joints occurs from them. Tennis elbow, runners' knee, and Achilles tendinitis are typical examples. A survey of 616 injuries admitted to a tertiary hospital in Gondar over a year showed that the most common findings of injuries were fracture (22.9%) and head injury (17.2%). Injury accounted for 25% of all cases of a medical emergency; about 13% of all cases accounted for serious injury. Also, 42 percent walked with a limp, 13 percent were unable to walk and 17 percent were unable to use a hand or arm while there was follow-up evidence on the type of injury faced (Ayele et al., 2017).

More than five million people die each year as a result of serious injuries, more than one and a half times the number of deaths combined from HIV, tuberculosis, and malaria (World Health Organisation (WHO) 2014), and almost one billion people experience injuries needing health treatment (Haagsma et al., 2016). There are 20-50 nonfatal complications for each accident death, resulting in a form of impairment, reducing the quality of life, efficiency, and financial protection (Debas et al., 2015; Wesson et al., 2014). In 2016, 4.6 million people died from injury and 620 million people suffered injuries needing treatment. Low- and middle-income countries (LMICs) are affected disproportionately by injury, with 83 percent of the 4.6 million global deaths occurring in developing countries (Global Burden of Disease Collaborative Network, 2016). Deaths from injury in LMICs are severe but receive relatively little attention (Figure 2.1).

A visual presentation of the number of people afflicted by cancer, ischemic heart disease, illness, and injury is seen in Figure 2.1. In addition to the enormous numbers dying from such accidents, those that survive the injuries need efficient health treatment to completely return to their pre-injured condition, the percentage of people affected by injuries is around 4,000,000.

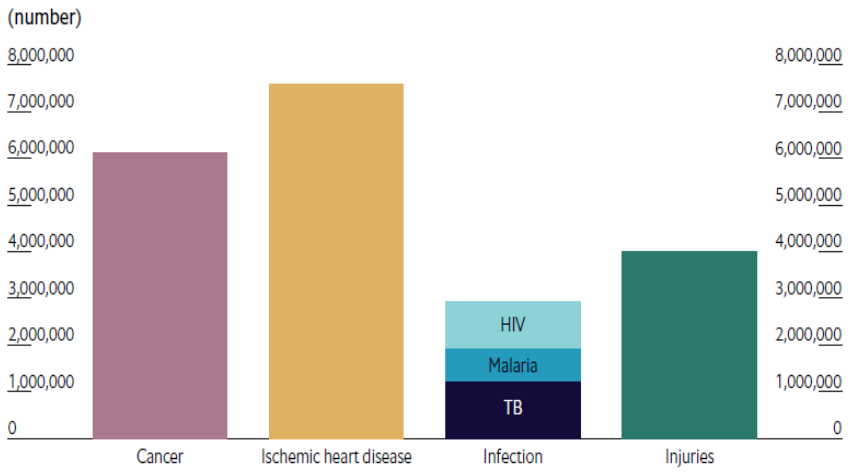

Figure 2.1. The total number of deaths caused by injuries, infection (HIV, malaria & TB), ischemic heart disease, and cancer in LMICs. (Source: Global Burden of Disease, IHME, 2016)

While prevention is preferable, and there are many successful and cost-effective accident prevention measures, no system can prevent all accidents, according to the WHO (2007), and clear evidence suggests that well-organized trauma treatment will save lives after an injury has occurred (MacKenzie et al., 2006; Roudsari et al., 2007). Estimates derived from data from the Global Burden of Disease suggest that Many of the data from high-income nations, of specific interest to resource-constrained environments, applies to operational and logistical dimensions that may be applied with minimal feedback of new material resources: planning of trauma response programs (e.g. prehospital triage protocols) and trauma treatment facilities assessment and accreditation (Demetriades et al., 2005, Mocos et al., 2005). To optimize results and decrease the risk of undiscovered incidents, all trauma patients need a structured treatment approach (Raja & Zane, 2020). What has been recorded less common is that these males are also the primary breadwinners for a dependent family (O'Hara et al. 2014). "The health of this population is vital to the short- and long-term economic growth of the LMIC (Bloom, Canning & Sevilla, 2004).

2.2.1 Road Traffic Accident

The most common mode of transport involved in fatal road accidents in Ghana is motor vehicles (9.2 fatalities per 100,000), followed by pedestrians (8.3 per 100,000), motorcycles (1.1 per 100,000), and bicycles (1.0 per 100,000) (The Economist, 2016). Compared to other lower-middle-income nations, motorcycle crashes are less frequent in Ghana (GDB, 2016).

A 2009 household survey of children under the age of 15 living in two urban neighborhoods in Ghana showed that 172 of the 5,128 children interviewed were involved in a road traffic incident in the previous year, giving a rate of 34 road traffic accidents per 1,000 year-olds. Ghana Police data indicates that a total of 434,012 road traffic accidents have been reported over four years, resulting in 5,276 deaths, 18,812 serious injuries, and 29,695 minor injuries. Of all the casualties, just under three-quarters were men. On roads in rural areas, most road

traffic deaths (61.2 percent) and accidents (52.3 percent) occurred (The Economist Intelligence, 2018). In his report, Afukaar observed that poorly maintained passenger-ferrying vehicles were traveling at peak speed on severely damaged highways, along with a shortage of emergency medical facilities in rural areas (Afukaar, Antwi & Ofosu-Amaah, 2003).

2.2.2 Occupational

Occupational falls are also a growing concern, with LMICs resulting in 90% of job injury-related fatalities (The Economist, 2016). Because of inadequate detection of occupational incidents and the many persons employed in the private sector, this number is undoubtedly an underestimation. Workplace numbers continue to grow as reporting increases, but this is also attributed to the shift of more dangerous workers to LMICs. An estimated 315,000 deaths in LMICs were due to workplace accidents in 2016, of which two-thirds were related to transport (Gakidou, et al., 2017). Burns also add to the burden of casualties alongside falls, causing an estimated 115,000 deaths (GBD, 2016).

2.2.3 Construction

Again in Gondor, a cross-sectional survey of about 400 building construction workers showed that 39% had sustained work-related accidents at least once in the previous year, more than a third of which was attributed to falls (37%). None of the employees used or attended some sort of occupational health and safety training for personal protective equipment (Adane, Gelaye & Kebede 2013).

2.3 Orthopaedic Injuries

Any damage to the musculoskeletal system includes orthopedic disorders. These disorders linked to the bones and joints are mostly attributed to falls or body trauma. A typical aspect of emergency medical experience is orthopedic accidents. Dislocation, fractures (open or

closed), septic joints, compartment syndrome, neurovascular injuries are some typical orthopedic injuries.

2.3.1 Transport-related injury

The main forms of damage suffered in the metropolitan environment were transport-related accidents and falls. However, agricultural accidents, accompanied by falls and then transport-related injuries, were prevalent in rural areas. Non-fatal accidents mainly affected the extremities, especially the legs, in both areas (Mock et al., 1999). Ghana is afflicted by a rising volume of serious accidents, close to many other low- and middle-income countries (LMIC) (O'Hara et al., 2014)

2.3.2 Household

An urban household survey of 30,554 individuals experiencing 2,232 major injuries either impacting function or needing care in Delhi in 2002 showed that limbs (41.3 percent lower limbs and 20.9 percent upper limbs) followed by the head (11.2 percent) were the most affected areas of the body. In comparison, superficial injuries, accompanied by fractures (20.7 percent), crush injuries (14.1 percent), and hidden injuries (12.4 percent) were found to be the most frequent (47.4 percent) in traffic injuries (Verma & Tewari 2004).

2.4 Mortality & Disability of Injuries

Mortality refers to the fact people don’t survive indefinitely, according to the Cambridge dictionary, the mortality rate, on the other hand, means the number of deaths due to unique events or incidence within a specific population and a specified period. Disability is not simply a health problem, according to WHO (2010). It is a dynamic phenomenon that represents the relationship between the attributes of the body of an individual and the aspects of the culture in which he or she resides. In 2012, the WHO again addresses data showing that people with disabilities face obstacles to receiving the health and recovery services they

require in many settings. Accidental non-transport accidents, such as crashes and burns, attract less consideration from government officials and experts relative to road injuries, although they are similar in terms of mortality and injury burden.

2.4.1 Disability

Murray et al., (2013) clarified that the injury-related disability-adjusted life years (DALYs) increased by 34 percent from 1990 to 2010, making it the world's 10th leading cause of disability, with most of the burden affecting low-income nations." While injury impairment is always preventable, insufficient access to critical surgical facilities contributes to higher daily adjusted life years (DALYs) rates (Grimes et al., 2011). A review of pre-hospital treatment among 437 trauma patients treated at the Black Lion Hospital in Addis Ababa showed that only 17 percent of patients received basic pre-hospital care, such as bleeding avoidance measures, positive It was collected from emergency workers (50 percent), families (30 percent), or police and bystanders (20 percent) from those who received treatment. Taxis were the most widely used mode of travel to the hospital (59 percent); only one in seven patients was transported by ambulance to the hospital and during the early hours of the accident, only 19 percent of patients arrived at the hospital (Meskere, Dinberu, & Azazh 2015). Owing to the poor treatment of disabled patients, these problems leave patients at risk and diminish their chances of recovery or exacerbate their physical injury.

2.4.2 Mortality

Due to a growing population, the incidence of deaths from road traffic accidents in Ghana has remained steady, at 20 fatalities per 100,000 between 1990 and 2016 (GDB, 2016). The absolute number of fatalities from road traffic crashes has risen from 1,988 in 1990 to 3,635 in 2016. Out-of-pocket payment will prolong suffering and cause many people to neglect or forgo necessary treatment, raising the risk of mortality and permanent injury (van Doorslaer et al., 2006). Fifty million deaths in low- and middle-income countries (out of sixty million

deaths worldwide) occur at home without medical treatment resulting from a national mortality report to measure causes of death in India. Therefore the causes of death, especially in sub-Saharan Africa and Asia, remain largely unexplained. This lack of knowledge restricts the rapid detection of emerging diseases and outbreaks of existing diseases (such as Ebola); hampers population-based risk factors research; and decreases transparency, even those related to the Sustainable Development Goals (Mireille et al., 2017), for health spending and programming.

2.4.3 Injury-related mortality

About 1,609 injuries were registered in a wider household census of 21,105 adults and children living in one urban and one rural area in Ghana in 1995. Injury-related mortality in urban areas (83 per 100,000) is marginally greater than in rural areas (53 per 100,000). In rural areas, however, the burden of disabilities from non-fatal accidents (4,697 disability days per 1,000 person-years) was greater than in urban areas (2,671 days per 1,000 person-years). Breaks are the most common cause of injury-related death in LMICs, following road traffic accidents. In 2016, 543,000 casualties and 28 million DALYs occurred (Global Burden of Disease [GBD], 2016). While injuries from falls occur in infants, most occur in the elderly, so the burden of injury will also rise as life expectancy in LMICs increases. Hospital death rates in Ghana are six times higher than those in the USA for patients with life-threatening but treatable injuries (Stewart et al., 2016). There are many explanations for this distinction, including inadequate utilities, shortage of facilities, and consumables due either to high costs or a lack of coordination or organization. Restricted supply of specialist resources, inadequate organization of the scheme, and access to care are added to this (Stewart et al., 2016). There have been some recent enhancements, though.

2.4.4 Causes of injury mortality

A study of the global cause of death to help estimate the global burden of injuries was conducted in 2010, according to the results, reliable data to estimate the burden of death and disability due to injury will be essential for shaping national and global health policies to be able to prioritize and plan adequately is inadequate and poor in developing countries, although according to Kavi past efforts at quantifying the global burden of disease have convincingly established that injuries contribute approximately 10% to global mortality and 12% to global morbidity (Kavi et al., 2010). Also, a study looking at in-hospital mortality patterns in trauma patients in four urban hospitals in India found that a fifth of trauma patients (21.4% of 11,209 patients) died within 30 days of being admitted to hospital, double the mortality rate observed in trauma centers in high-income countries. More than half of the in-hospital trauma deaths were thought to be preventable, with inadequate fluid resuscitation and inadequate hemorrhage control being the leading causes of preventable deaths. A lack of adherence to protocols, pre-hospital delays, and delays in imaging was the main system related issues found (Roy, 2017).

2.5 Case Management

Case management is the collaborative process of assessment, planning, facilitation, care coordination, evaluation and advocacy of options and services to meet an individuals and family's comprehensive health needs through communication and available resources to promote patient safety, quality of care and cost-effective outcomes. Orthopedic patients either visit a hospital thus an orthodox or modern treatment but other patients prefer to use a more traditional mode of treatment. The issue of medicine has strong ties with philosophy, religion, and the entire belief system of every individual society. Each society around the world has a unique medical system. However, to a larger extent, each of these

medical systems in these societies is influenced by cultural, political, and economic forces (WHO, 2000). Medical care systems around the world can generally be classified into Modern/Orthodox medicine and Alternative/Traditional medicine (WHO, 2002; Sato, 2012).

2.5.1 Traditional Management

The Traditional Medicine (TM) Practice Act 595 was passed in 2000 in Ghana. According to the act, TM is practiced based on beliefs and ideas of the people that are recognized by the community in healthcare provision. These beliefs and practices use herbs and other naturally occurring substances (WHO, 2011). WHO (2001) documented that, in Ghana, about 70% of the population depend on traditional medicine for health care; they are not only more accessible to the public but the backbone of the health care delivery system, complicating the issue is the fact that up to 78% of all patients with fracture resort to traditional bonesetters. Reasons for this include the high cost of modern treatment, fear of amputation, and the belief that every misfortune has a spiritual undertone. Patients with fractures initially taken to clinics or hospitals often ask to be discharged against medical advice and then opt to see bone setters, only to return with complications. A prospective study following-up 230 patients with complications after seeing a bonesetter in Ghana found that just over half of the patients had malunion (heals in an abnormal position) or non-union (fails to heal) fractures and 17% suffered infections (Callistus, Abass & Issahaku 2013).

There are several practitioners of traditional medicine and they range from a wide range of professionals and may include fetish priests, herbalists (non-spiritual and spiritual), spiritual diviners, traditional birth attendants, bonesetters, ‘circumcisioners’ (Sato, 2012). Countries are finding ways to integrate Traditional Medicine into their healthcare systems. In Africa, according to Anyinam, Cunningham, and the WHO the majority of people use traditional medicine for treating ailments and illnesses. It is said that traditional healers play an

important role in the health of between 60 and 95% of the people on the continent (Anyinam, 1995; WHO, 2000; Cunningham, 2001). While it is known that most people in the rural areas use traditional medicine because of lack of accessibility to orthodox medicine (Sato, 2012), it is also a common practice by even people in urban areas to subscribe to traditional healthcare despite the availability and accessibility of western medicine in this 21st century (Williams et al., 2013).

2.5.2 Orthodox management

Modern medicine is sometimes referred to as Western medicine, biomedicine, scientific medicine, or allopathic medicine (WHO, 2001). Modern medicine is evidence-based and practices the use of a discrete, well-defined chemical entity for the treatment of diseases.

2.5.3 Surgery

In a systematic review carried out by Van der Roer, et al., (2005) on the management of traumatic thoracolumbar fractures, with the emphasis on traumatic fractures, it was concluded that individuals with injuries emanating from trauma could benefit from both operative and conservative treatment. Additionally, in a study on functional outcomes after non-operative management of fractures of the proximal humerus, it was concluded that though the management of the traumatic fracture is numerous, surgical intervention is mainly used at the discretion of the consulting surgeon (Hanson, et al., 2009). Moreover, Van Tulder, Malmivaara, and Koes (2007) in their study on repetitive strain injury also identified exercise, topical applications, and oral painkillers and injections with corticosteroids to be effective in the management of musculoskeletal injuries. Patient adherence to prescribed medication is affected by individual factors such as patient attitude, previous medication experiences, specific illnesses, expectations of medication, and costs (Remien et al., 2003; Zeber et al., 2013).

2.5.4 Physiotherapy

Physiotherapy' (physical therapy) is the management, rather than medications or surgery, of illness, disability, or deformity by physical treatments such as massage, heat treatment, and exercise. Physical therapy, alongside or in combination with other outpatient facilities, is given as primary care. In their systematic analysis of advanced physiotherapy experience in people with musculoskeletal conditions, Desmeules, et al. (2012) found that physiotherapy is another intervention that is included in muscle pain control.

2.6 Coping strategies

Coping involves making a deliberate attempt to solve personal and relationship issues, to try to cope with tension and confrontation, to reduce or accept it. The method of psychological coping is generally known as coping mechanisms or coping skills. Coping strategies' efficacy depends on the nature of the stressor, the individual, and the circumstances surrounding the situation. A combination of many coping mechanisms is used by individuals, which may vary over time.

2.6.1 Informal coping

In different ways, orthopedic patients cope. The use of religious, family, and social reinforcement is part of informal (adaptive) coping mechanisms. To test the association between life satisfaction and religious belief, the study used data from the German Socio-Economic Panel Survey. For 12,541 participants, the analysis was carried out. The study found that more religious people gained more happiness from their lives, while less satisfaction with their lives was reported by those who were less religious (Headey et al., 2010). To understand the role of spirituality, appreciation, and optimism in predicting post-traumatic growth (PTG), another research by Subandi et al. (2014) was conducted. This research indicated that stressful experience does not contribute to adverse effects on the

survivor in nature. The findings found that the main mediator between PTG and gratitude was religiosity. From the painful experience, participants were able to develop because they associated it with a deity (God).

Also, a study examined the associations between gratitude, spiritual/faith factors, anxiety, and depression across different religious denominations, finding that lower levels of anxiety and depression are favorably linked to gratitude and spirituality (Rosemarin, Krumrei, & Pargament, 2010). In addition to characteristic anxiety and depression, two separate groups consisting of one hundred and twenty (120) Christians and two hundred and thirty-four (234) Jews were assessed on appreciation, general religiosity, religious practice, and opinions about God. A strong positive association between all variables was shown by the findings. This indicates that lower levels of anxiety and depression are related to gratitude and spirituality.

Literature by Ellisons and Lee (2010), on the other hand, has demonstrated that moral difficulties are linked to psychological distress. The focus of their research was on three kinds of struggles: spiritual or troubling relationship with God, interpersonal, or unpleasant social experiences in a religious setting, and eventually, intrapsychic or persistent religious concerns. The mode of data collection was the survey process. The study found that each form of moral challenge and psychological trauma had a clear correlation. Report on the use of theological and family support structures as a coping strategy for amputees by Muzaffar et al., (2012). The research found that mystical means of coping and family support were used by amputees who did not mention medical problems. Since the phenomenon, the patients grew more devout and even turned to visit shrines with the main purpose of obtaining internal peace of mind and redemption. Other patients that are close to members of their families, colleagues, and close relatives prefer to engage in a vocation that has kept them busy enough not to think of their plight. Also, Vernon, Dillon, and Steiner (2009) used

182 undergraduate women with trauma experiences to examine the association between constructive coping, optimistic feelings, and posttraumatic stress disorder (PTSD). Findings have demonstrated that post-trauma gratitude, regardless of the impact of trauma intensity, trauma history, and time spent after the trauma, is adversely correlated with the present PTSD symptom frequency. PTSD was similarly adversely correlated with proactive coping. Patients' interactions and their families.

Queiroz, et al., (2016) conducted an exploratory descriptive study targeted at revealing psychosocial changes and experiences of trauma amputees specifically focusing on amputation resulting from motorcycle accidents. Three themes, daily life experiences of the trauma amputees, the psychosocial changes the trauma amputees experienced, and the resilience experienced by the trauma amputees emerged out of the qualitative analysis of the data gathered. The discussion on the last theme revealed that the family's support made the trauma amputees resilient and responsible to preserve what is left of their life.

2.6.2 Formal coping strategies

Via these habits, the maladaptive coping mechanisms can show; expression of stress in somatic mode, denial, avoidance, blaming, helplessness, dependence, and use of substances. Maladaptive strategies for coping further raise the susceptibility of survivors of post-traumatic stress disorder (PTSD) (Ehrenreich 2001). Muzaffar et al. (2012) thought that a dramatic shift in one's life shakes the core expectations, meaning to live, and values of the individual. Trauma alters the basic perception not only of the individual but of the whole socio-cultural society and may never be the same again (Muzaffar et al., 2012: 33). Thus, various researches have revealed that amputee's resort to excessive use of drugs like nicotine or alcohol as a way of dealing with their predicament and uncertainties about what to expect from life and the challenges of living as an amputee (Garafalo, 2000; Muzaffar et al., 2012). Muzaffar et al., (2012) revealed that amputees experience stigmatization because

of their outward appearance. In some instances, these amputees tend to abuse drugs as a way of dealing with the emotional upheaval they are experiencing.

The research undertaken by Vázquez and Hervás (2010) also explored how, following a terrorist attack, persons with optimistic psychological emotions (joy, optimism, and gratitude) and those with negative psychological emotions interacted with posttraumatic stress. The data was gathered several weeks after the terrorist attack in Madrid on March 11th (2010). The report measured potential advantages as well as a wide variety of positive and negative feelings. Results found that those with positive feelings (pleasure, optimism, and appreciation) dealt with post-traumatic stress differently than those with negative emotions. As potential benefits rose, hatred, deemed to be a negative emotion, saw a decline. Other studies have shown that gratitude has been closely related to post-traumatic development and well-being (Wood et al., 2010).

There is a significant socio-economic effect of accidents in LMICs on households, societies, and culture (The Economist, 2016). With the absence of the primary earner, caring for a family member affected by the accident, and large medical care costs, households will be forced into poverty. An approximate 33 million persons endure financial distress per year from the economist's direct costs of critical surgical treatment. An additional 48 million suffer from the non-medical expenses needed for surgery to procure transportation, food, and accommodation (The Economist, 2016). In low-income countries and those countries with a smaller share of GDP dedicated to healthcare and greater dependency on foreign financing, the likelihood of catastrophic spending and impoverishing expenditure is greatest (Shrime et al., 2016). Indeed, in LMICs, multiple health services rely on out-of-pocket healthcare financing costs; in 2015, those expenditures accounted for 36.6% of overall health spending (WHO, 2015).

Martín and Ayala (2001) have mentioned that traumatic situations affecting adults have been related to the psychological impact and appearance of psychiatric disorders since they are related to situations involving a mixture of psychological, medical, and legal consequences. Poly traumatized people are uneasy and confused by the immediate circumstances, the unknown and their fear of death, mutilation, becoming immobile, and other alterations regarding their bodily identity and integrity, as effects which can occur as a result of trauma (Quintero & Gómez, 2010). Cáceres and Montoya (2003) have reported that people become confronted by a series of loss regarding different aspects of their lives following a traumatic event; they experience a stage of bewilderment and disbelief, progressive awareness accompanied by feelings of sadness, guilt, hopelessness, sleep, and eating disorders. This results in an altered emotional state which can affect how people face their rehabilitation and how they adapt to their new living conditions; this entails people developing their coping capability.

May, et al., (2016) conducted a meta-review and synthesis of published qualitative studies on factors that shape the experiences of the patients and caregivers of chronic heart failure (CHF), chronic obstructive pulmonary disease (COPD) and chronic kidney disease (CKD). The review showed that the behavior of patients is shaped by structural factors like socioeconomic status (income, age, gender, and ethnicity), spatial location (access to services and transport and pollution density), and health service quality (professional support and material assistance, continuity of care, coordination of services and intra-professional communications). In other words, structural and spatial are significant factors that may hinder or facilitate active engagement with formal healthcare and self-management.

2.7 Quality of Life

Quality of life is a crucial way to evaluate success when it addresses concerns that could be of the utmost significance to the patient. To approach the quality of life question at a more general level, people can conceptualize and interpret the quality of life in very different ways, which can be troublesome (Browne et al., 1997; Brown et al., 1996; Sprangers & Schwartz, 1999). "The length of the participation of an individual in religion is correlated with their level of satisfaction and gratitude for life." A study was performed to understand orthopedic patients and their experience of sources of help in the process of adjusting to a lower limb amputation using 20 lower limb amputation patients through qualitative analysis. Results after a qualitative content review found that the strength of care of amputees that helped enhance their quality of life and the process of adaptation was from a loving family, receiving support from colleagues, gaining morale and assurance from colleagues, and happiness with the workplace. Reinforcing these channels of help will also go a long way to enhancing the amputee's quality of life (Valizadeh et al, 2014).

Also, “it has been reported by Diijkers that objective measures used by healthcare professionals often bear little resemblance to a patient’s functioning in day to day life, with patients who may appear to be similar on a functional level reporting very different perceptions of their daily quality of life (Guyatt et al., 1993). Quality of life is a multi-dimensional concept that may be addressed from several perspectives (Dijkers, 2004).

Historically the Traumatic Brain Injury field has been dominated by objective measures of functional outcome; for example, assessed by the Glasgow Outcome Scale (Jennett & Bond, 1975). This allows individuals to be categorized into levels of disability based on the impact their injury has in their daily lives; whether this is independence in the home, ability to work, or other ways in which their injury has affected them.

Furthermore, severe injuries often require prolonged hospital stays with multiple reconstructive surgeries (Hoppenfeld & Murthy 2000). Once the acuity of the injury is over, patients are left with the nebulous task of reintegrating into their lives. Although medical advances have dramatically improved survivorship, these injuries nevertheless result in the poor quality of life (QoL)-related outcomes in otherwise healthy people (Castillo et al. 2013).

2.8 Chapter summary and conclusion

The reviewed literature showed that most of the research on the quality of life of orthopedic patients have been carried out in countries outside Africa to date, and a few in the Ghanaian sense can be traced. Given the disparities between Western and Ghanaian settings it can be argued that there might be nuances in how orthopedic trauma is experienced and dealt with. Consequently, studies in the Ghanaian background are required. The research analyzed reports on the form of orthopedic patients, problems that lead to orthopedic patients' quality of life, orthopedic patients' coping strategies, and the relationship between orthopedic patients' coping strategies and quality of life. The literature explored the global, regional, and national responsibility of orthopedic patients, the treatment of cases, and the relation between orthopedic patients' quality of life and coping strategies.

CHAPTER THREE

METHODS

3.1 Introduction

This chapter presents the research methods and design that was used in the study, the target population, sampling techniques, sample size, data collection methods, and analysis methods that were used for the study, it further explains the data entry, quality control, and ethical considerations observed.

3.2 Research Design

The study adopted a cross-sectional study that used quantitative approaches to gather and analyse data from orthopedic patients. The study took 3 months to complete.

3.3 Study Area

This research was conducted at the Korle Bu Teaching Hospital in the Greater Accra Region, Ghana. The hospital is a tertiary referral hospital. It is situated in Ghana's Ablekuma Sub-Metro and occupies an area of approximately 44 acres. In different health and management fields, the hospital has a staff strength of around 4,500. The hospital currently has 17 clinical and diagnostic departments and units, with numerous staff groups. With an admission rate of around 150 patients a day, it has an average regular outpatient attendance of 1,200. With 430 doctors and 1050 nurses, it has a bed size of 2000 in its 48 operating wards. Medicine, anesthesia, child health, obstetrics and gynecology, allied surgery, anatomy, hematology, hospitals, radiology, anesthesia, and polyclinics are the clinical and diagnostic departments. Others include the Accident and Emergency Centre, the Department of Medicine, Central Sterilization and Supply, and Physiotherapy. The research was performed at the accident and orthopedic unit at Korle-Bu Teaching Hospital since it is

a specialist orthopedic unit and is also one of the country's main orthopedic units that act as a referral center for orthopedic conditions management. The vast amount of patients the department encounters regularly offers ample evidence for study work in the form of patient reports.

3.4 Study Variables

3.4.1 Dependent variable

The dependent variable of this study was the quality of life of orthopedic patients.

3.4.2 Independent variables

The independent variables of this study were:

- Socio-demographic characteristics such as Age, Marital, status Occupation, Education Income, Religion, of discharged orthopedic patients.
- Type of case management of orthopedic patients, (Traditional treatment {bone setters} or Orthodox treatment {Implant, Wound dressing, physiotherapy})
- Coping strategies, (formal and informal coping strategies of discharged orthopedic patients).

3.5 Study Population

The study population was discharged patients, (both men and women) who were coming for review at the Accident and Orthopaedics Department at Korle-Bu Teaching Hospital.

3.6 Inclusion Criteria / Exclusion Criteria

3.6.1 Inclusion Criteria

1. Orthopedic patients aged 18 years and above and were coming for review.
2. Patients who gave consent to participate in the study.

3.6.2 Exclusion Criteria

1. Patients who refused to consent to participate in the study.
2. Patients who were too ill/ fragile to respond to questions.

Table 3.1 outlines the variables, the operational definitions, and the scale of measurement for each variable.

Table 3.1: Variables, Operational Definitions, and scale of measurement

Independent variables	**Operational definition**	**Scale of measurement**
Socio-demographic factors		
Age	Age at last birthday	Continuous
Marital status	Married, single, divorced	Nominal
Occupation	Self-employed and salary work	Nominal
Education	None, primary, secondary/vocational/technical, tertiary	Ordinal
Income	Monthly profit	Nominal
Religion	Christian, Muslim, Traditionalist	Nominal
Type of case management of discharged orthopedic patients		
Traditional treatment	Which traditional treatment did you use	Categorical
Orthodox treatment	Did you do surgery or physiotherapy or both	Categorical
Copies strategies of discharged orthopedic patients		
Informal coping strategies	Did you get support from your religious group, family, and social support	Categorical
Formal coping strategies	Did you get any assistance from NHIS membership, from any coping strategies, from workplace welfare	categorical
Dependent variable		
Quality of Life	SF-12 questionnaire (WHO, 2012)	Categorical

3.7 Sample Size Determination

The sample size was calculated using the formula provided by Yamane (1967). The formula is used for sample size calculation since the population of the study is known, the proportion of patients recruited were based on the number of attendances at that particular unit in 2019;

$$n = \frac{N}{1+N(e)}$$

N = Population

n = sample size

e = degree of freedom (0.05)

$$= \frac{3896}{1+3896\ (0.05)}$$

$$\frac{3896}{1+9.74}$$

n = 362.7560521

n = 363 patients

Calculating for non-respondents

Non-respondents = $\frac{n}{1-a}$

a = Non-response rate (10%)

$$a = \frac{363}{1-0.1}$$

$$\frac{363}{0.9}$$

Non-respondents= 403.333~403

The final sample size for the study is 403

3.8 Sampling Procedure

The study employed a consecutive sampling procedure. This was done by obtaining the register of patients from the orthopaedic and accident and emergency departments and selecting from the register all patients who fall within the inclusion criteria and are

scheduled for review on the day the data was collected, patients who fell within the inclusion criteria and came for review were then approached, when they consented to participate in the study they become part of the sample. Consecutive sampling method whereby every eligible person is recruited until the desired sample size is reached based on the inclusion criteria was applied in this study. This method was appropriate because of the limited time frame of the study.

3.9 Data Collection Tools

Data was collected with the use of structured questionnaires, the Section A of the questionnaire gathered data on the socio-demographic characteristics of participants, Section B gathered data on the type of coping strategies adopted by patients and Section C contained the SF-12 questionnaire which gathered data on the physical and mental health of patients. All the questionnaires were written in English. The questionnaire took 30 minutes to complete.

3.10 Data Processing

3.10.1 Quality Control

Training of field staff: Five (5) research assistants were trained to help in the administration and collection of data and to help code and enter the information obtained into Microsoft Excel (version 2016).

Pretesting data collection tools: The data collection tool, structured questionnaire, was pretested among twenty (20) Patients from Korle-Bu Ward D to authenticate the tool. This was aimed at establishing an easy to understand questions, the suitability of the questions posed, adequacy of response options provided, the need for additional or removal of existing questions to ensure that relevant data is collected.

Revision of data collection: Appropriate revisions were made to questionnaire where necessary before actual data was collected. Pre-testing of the questionnaire was conducted at the Orthopaedic Ward D and any exposed errors and inconsistencies in the questionnaire were amended and reviewed before the actual commencement of the study.

Supervision of fieldwork: The principal researcher supervised the entire fieldwork.

Data coding and entry: All completed data was validated and entered into Epi info 7 daily. Data cleaning was done by running frequencies of the variables to help check inconsistently coded data. Completed questionnaires were kept under key and lock to prevent unauthorized people from gaining access to them.

3.11 Data/Statistical Analysis

3.11.1 Socio-demographic characteristics of orthopedic patients

The socio-demographic characteristics of respondents (age, sex, education, marital status, occupation) were obtained by cross-tabulation, using Stata, version 15. The corresponding proportion counted by the use of each variable was summarized using descriptive statistics. The results were presented in tables.

3.11.2 Determination of types of case management of orthopedic conditions

The analysis of the type of case management was obtained through cross-tabulation and descriptive statistics using Stata version 15. The results were presented using percentages and graphs.

3.11.3 Determination of the coping strategies of orthopedic patients.

The results of coping strategies (formal and informal coping strategies) were summarized using descriptive analysis. The result was presented using proportions and percentages.

3.11.4 Determination of the quality of life of orthopedic patients.

Patient quality of life was assessed by SF-12. It consisted of two main parts which are the Physical and Mental Health Composite Scores (PCS & MCS) the main domains which made up modalities are; physical functioning 2 (PF), Role-physical 2 (RP), Bodily pain 1 (BP), General Health 1 (GH), constitute the Physical Health component summary score of the SF-12. Energy/Fatigue 1 (VT), Social Functioning 1 (SF), Role-Emotional 2 (RE), Mental Health 2 (MH), constituted the mental health component summary score of the SF-12 (Ware, Kosinski, and Keller, 1996).

The questions were combined, scored, and weighted to create two scales that provide an overview of mental and physical functioning and overall health-related quality of life of the patient. The quality of life of patients was measured by summing the overall score of the Physical and Mental Health Component Scores (PCS & MCS). Physical and Mental Health Component Scores (PCS & MCS) were computed using the scores of twelve questions and ranged from 0 to 100, where a zero score indicated the lowest level of health measured by the scales and 100 indicates the highest level of health the results were then compared to the standard mean of 50. A high score is an indication of a good quality of life, (Ware, Kosinski & Keller, 1996).

3.11.5 Determination of the association between quality of life and coping strategies of orthopedic patients.

Chi-square analyses were undertaken to test the association between quality of life and coping strategies of orthopedic patients. Multivariable logistic regression was used to test for the strength of association between the quality of life and coping strategies of orthopedic patients. A confidence interval of 95% was used to show significant relations between the dependent variable and the independent variables.

3.12 Study Limitations

The study limitations are as follows:

1. The study covered patients who are 18 years and above, therefore results cannot be generalized to cover patients less than 18years.
2. The Accident and Orthopedic Department in Korle-Bu Teaching Hospital was selected as the study area, the Department is a referral Center therefore their patients usually come in with severe cases that can affect the quality of life. Therefore, the views from such patients on the quality of life might reflect that of severe cases.
3. There was the likelihood of recall and response by patients, who might not accurately remember some coping strategies they adopted in the past or their response to the Physical and Mental components of the SF-12 might not reflect the true current state of their quality of life.

3.13 Ethical Consideration

Ethical issues involved in the study were addressed by doing the following.

Ethical clearance: Ethical clearance was sought from the Korle-Bu Teaching Hospital Ethical Review Board before data collection from the Accident and Orthopaedic Department.

Permission from the study area: Approval was sought from the Medical Superintendent of the Accident and Orthopaedic Department to seek permission to collect data from the patients.

Description of the subject involved: The subjects of interest for this study was patients, both men, and women aged 18 years and above, who came for their review at the Accident and Orthopaedic Department.

Potential risks/Relevance: There was a minimum potential risk of participation to participants. Most of the questions were void of questions that incited any form of emotional stress. The information was not only relevant for patients with orthopedic conditions but also academicians and policy and decision-makers such as the National Health Insurance Authority (NHIA).

Benefits: The research when completed, would have positive consequences on healthcare delivery in the facility because the health workers will gain additional knowledge on how to improve the care of patients in the hospital. The patients would also benefit minimally from this research because it allows them to express their views concerning their care.

Privacy/Confidentiality: Participants were assured of the confidentiality and privacy of the information provided. Data files were password protected. Hard copy and electronic data were stored securely in locked file cabinets without the names of the participants, and access was limited to the principal investigator and the supervisors of the study. The participants were allowed enough time and privacy to respond to the questions. To assure respondents of confidentiality of information, they were not be asked to provide their names. Respondents were provided with total privacy because the questions did not demand sensitive answers, however, patients had the right not to answer any questions that were deemed to be sensitive to their personal opinions. The Principal Investigator ensured that the interview was conducted in a secure place free from the interaction of other ongoing activities.

Data Storage, Security, and Usage: All files, papers, and data obtained from the study were locked in a cabinet and on computers protected by passwords. Electronic data files were stored on an external drive with a secured password with access limited to only the Principal

Investigator and Supervisor. Data collected for the study was used solely for the purpose indicated for the study which is a dissertation.

Description of the consenting process: The purpose of the study was provided to the research patients. A participant's consent form (Appendix A) was designed and given to patients. If the person agreed to participate in the study, the person was excused to fill out the consent form privately.

Voluntary consent/withdrawal: Participants were assured that participation in this research is entirely voluntary. They were free to withdraw consent and discontinue participation in this study at any time without prejudice from the research team.

Compensation: Participants were not be provided any compensation to take part in the study.

Protocol amendment: Any amendment of protocol after ethical approval was communicated to the Korle-Bu Teaching Hospital Institutional Review Board.

Declaration of conflict of interest: Principal Investigator had no conflict of interest in this study.

Funding information: The entire work was funded by the Principal Investigator

CHAPTER FOUR

RESULTS

4.0 Introduction

The chapter is presented in five main sections as; the socio-demographic characteristics of orthopedic patients; the types of case management of orthopedic conditions; the quality of life of an orthopedic patient; the coping strategies of orthopedic patients and the association between coping strategies and quality of life of orthopedic patients.

4.1 Socio-demographic characteristics of orthopedic patients

The response rate for the study was 99.8% (402). The socio-demographic characteristics of orthopedic patients in Korle-Bu Teaching Hospital have been reported in table 4.1, the males constitute (57.2%) of the total sample. A greater number of orthopedic patients (33.1%) were between the age category 18-29 years and the least represented age category was patients aged 70 years and more (7.4%).

The percentage of orthopedic patients who had up to tertiary education was (29.6%), most of the orthopedic patients (56.2%) indicated that they were married. Patients who were employed constitute 58.7%. The employment status of the orthopedic patients, 23.0% earn GHS 2,700 and more on monthly basis. Only 7.4% earn GHS 100 - 500 on monthly basis and 20.5% earned GHS 1600 - 2000. On average, the employed orthopedic patients earned GHS 1,945.82. The number of patients who are registered members of the National Health Insurance Scheme (NHIS) was 71.9% whilst, 19.9% of the orthopedic patients were registered with a private health insurance scheme.

Table 4.1: Socio-demographic characteristics of orthopedic patients in KBTH

Variables	Number	Percentage (%)
Sex:		
Male	230	57.2
Female	172	42.8
Age (years):		
<-29	133	33.1
30-39	97	24.1
40-49	57	14.2
50-59	45	11.2
60-69	40	10.0
≥70	30	7.4
Mean (SD)	40.17 (16.31)	
Current educational level:		
No formal education	41	10.2
Primary	74	18.4
Middle/JHS	76	18.9
SHS/Vocational	92	22.9
Tertiary	119	29.6
Marital status:		
Married	226	56.2
Not married	176	43.8
Current employment status:		
Unemployed	166	41.3
Employed	236	58.7
Monthly income (GHS):		
< 500	11	2.6
500-1000	62	14.8
1,001-1,500	45	10.7
1,501-2,000	50	11.9
2,001-2,500	20	4.8
≥2,500	56	13.3
Non response	158	37.6
Mean (SD)	1,654.63 (1,945.82)	
Median	1,500.00	
Religion:		
Christian	269	66.9
Muslim	133	33.1
NHIS registrants:		
Registrants	289	71.9
Non- registrants	113	28.1
Private healthcare insurance registrants:		
Registrant	80	19.9
Non-registrants	322	80.1
Total	402	100

JHS= Junior High School SHS= Senior High School NHIS= National Health Insurance Scheme.

4.2 Type of case management of orthopedic condition

About 71.9% (289) of the respondents indicated that they have not been previously diagnosed with any orthopedic condition, the commonest cause of orthopedic injury was trauma (52.0%) with congenital disease (9.2%) recording the least all these details can be found in table 4.2. The common type of orthopedic injury included complex injury affecting both hands and legs (24.9%); injury affecting the hands only (23.1%); injury affecting the legs only (44.5%) and injury not affecting either the hand or leg (7.5%). Also, 64.9% of the orthopedic patients did not seek any form of treatment apart from orthodox.

The most preferred form of traditional treatment is herbal medicine and diet (23.4%). Also, 25% preferred bonesetter services, and 6.3% opted for traditional alternative medicine and various religious centers respectively. It is unearthed that 69.1% (278) of the orthopedic patients are not presented with any form of chronic condition. The commonest condition identified among orthopedic patients includes hypertension (48.7%); diabetes (29.2%) and asthma (9.7%).

Table 4.2: Types of care management of discharged orthopedic patients in KBTH

Variables	Number	Percentage (%)
Diagnosed previously with orthopedic condition:		
Not diagnosed	289	71.9
Diagnosed	113	28.1
Cause of orthopedic injury:		
Trauma	209	52.0
Congenital	37	9.2
Disease condition	88	21.9
Fall	68	16.9
Types of orthopedic injury:		
Complex injury affecting hands and legs	100	24.9
Affecting the hands	93	23.1
Affecting the legs	179	44.5
Not affecting the hands or legs	30	7.5
Treatment apart from hospital (orthodox):		
No treatment	261	64.9
Other treatment	141	35.1
Type of traditional treatment:		
Herbal medicine and diet	94	23.4
Bonesetter service	37	9.2
Traditional alternative medicine	5	1.2
Various religious centers (prayer camps, shrine)	5	1.2
No treatment outside a health facility	261	64.9
Patients condition:		
No chronic condition	278	69.1
Chronic condition	124	30.9
Presence of chronic condition:		
Cancer	12	3.0
Hypertension	60	15.0
Diabetes	42	10.4
Asthma	10	2.4
No chronic condition	278	69.1
Total	402	100%

4.3 Self-reported Quality of Life

The analysis of data for descriptive statistics for the SF-12v2 component summary score is shown in Table 4.3. The SF-12 values obtained from the study shows that the physical component summary score (10.41) and mental component summary score (15.72) were low indicating that orthopedic patients have low quality of life as compared to the standard mean of 50 (Ware, Kosinski & Keller, 1996). From the physical component summary, most of the respondents indicated that they experienced pain (2.87 ± 0.05) as compared to respondents who felt their general health was very good (2.26 ± 0.02). Additionally, most of the respondents can engage in moderate activities (1.52 ± 0.02) but are unable to accomplish the work expected of them (1.17 ± 0.02). From the mental component summary, most of the respondents indicated that a bit more of the time, their social activities were interfered with the physical and emotional problem (3.80 ± 0.06) but felt calm and peaceful most of the time (2.76 ± 0.05). On the whole, orthopedic patients experienced more mental health issues than physical health issues (15.72 vs 10.41).

Table 4.3: Item description and descriptive statistics for the SF-12v2 component summary score (n=402)

			Response frequencies (%)					
	Mean (SD)	**95%CI**	**1**	**2**	**3**	**4**	**5**	**6**
Physical Health								
General health status **(GH)**	2.26 (0.03)	2.19-2.32	11.0	52.2	36.8	-	-	-
Moderate activities **(PF1)**	1.52 (0.03)	1.47-1.57	48.3	51.7	-	-	-	-
Climbing several flights of stairs **(PF2)**	1.41 (0.02)	1.36-1.46	59.5	40.5	-	-	-	-
Accomplished less than expected work **(RP1)**	1.17 (0.02)	1.13-1.20	83.1	16.9	-	-	-	-
Limited in work or exercise **(RP2)**	1.18 (0.02)	1.14-1.22	81.3	18.7	-	-	-	-
Did not do work or exercise as carefully as usual **(RE2)**	1.70 (0.02)	1.65-1.75	30.6	69.4	-	-	-	-
Amount of pain experienced **(BP)**	2.87 (0.05)	2.77-2.97	10.2	22.1	40.3	25.1	2.2	-
Mental Health								
Have you felt calm and peaceful **(MH1)**	2.76 (0.05)	2.65-2.86	9.5	37.3	24.9	24.6	3.7	-
Emotional problem **(RE1)**	1.17 (0.02)	1.13-1.20	83.3	16.7	-	-	-	-
Have a lot of energy **(VT)**	2.80 (0.05)	2.70-2.91	11.9	30.9	26.6	26.6	4.0	-
Have you felt downhearted and blue **(MH2)**	3.51 (0.06)	3.38-3.63	4.5	16.5	32.3	22.5	19.3	5.0
Physical health and emotional problems **(SF)**	3.80 (0.06)	3.68-3.91	2.8	13.5	23.8	26.8	28.0	5.3
Summary component	**PCS**	**MCS**						
Mean	10.41	15.72						
95% CI	10.24-10.56	15.47-15.98						

Key to Response frequency:

1= Excellent; Yes limited a lot; Not at all; All the time
2= Very good; Yes, limited a little; No
3= Good; No not limited at all; moderately; A good bit of the time;
4= Fair; Quite a bit; Some of the time
5=Poor; Extremely; A little of the time
6=None of the Time

Orthopedic patients' mental and physical health component by sex of patients based on the SF-12V2

The distribution of PCS and MCS and sex of respondents is shown in Figure 4.2. On average, PCS for males (mean score 10.41, SD 1.39), was slightly higher than females PCS (mean score10.40, SD 1.41). Similarly, males MCS (mean score 15.81, SD 1.35), was slightly higher than females MCS (mean score 15.79, SD 1.89).

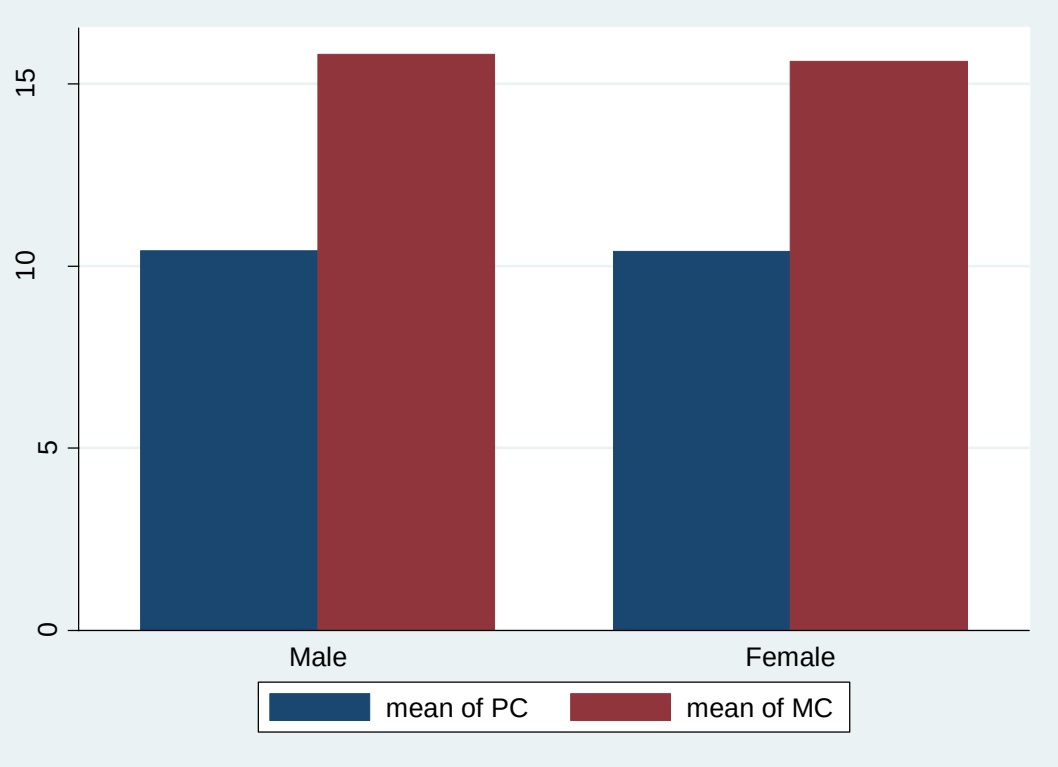

Figure 4.1: PCS and MCS of the SF-12 by the sex of patients

4.4 Coping strategies

Details of the coping strategies among orthopedic patients are shown in Table 4.4. About, 55.2% (222) of orthopedic patients indicated that they were unable to go back to work after being discharged from the hospital, and 61.6% (248) of the orthopedic patients seek medical care with the aid of NHIS. Six percent of patients use maladaptive coping strategies such as smoking cigarettes, consuming alcohol and using abusing medications. Between formal and informal coping strategies, 53.5% of the orthopedic patients preferred informal coping strategies. A commonest informal coping strategy adopted by orthopedic patients was family support (44.0%).

When orthopedic patients experience pain, 47.1% (189) take their prescribed medicine to ease the pain but 43.8% buy over the counter medicines that are normally not prescribed to ease them off their pain. About 51.2% of the respondents indicated that they have accessed one form of rehabilitation as against the 48.7% (196) who have not accessed any form of rehabilitation. The rehabilitation used most by respondents was physical therapy (29.3%).

Table 4.4: Coping strategies among orthopedic patients in KBTH

Items	Number	Percentage (%)
Type of formal coping strategies:		
Social assistance	69	17.2
Workplace welfare	61	15.2
NHIS membership	248	61.6
Maladaptive (alcohol, smoking, drug)	24	6.0
Type of preferred informal coping strategies:		
Family support	177	44.0
Social support	135	33.6
Religious support	90	22.4
Most frequent action when in pain:		
Take prescribed medication	189	47.1
Buy over the counter medication	176	43.8
Take in alcohol	25	6.2
Use diversional therapies	12	2.9
Type of rehabilitation:		
Occupational therapy	56	14.0
Physical therapy	118	29.3
Cognitive therapy	32	8.0
No rehabilitation	196	48.7
Total	402	100%

4.5 Bivariate association between coping strategies and quality of life

Details of the association between the coping strategies and quality of life are shown in Table 4.5. From the chi-square test of association, there was a significant association between the type of rehabilitation and quality of life among the orthopedic patients (p=0.044).

Table 4. 5: Bivariate association between coping strategies and quality of life

Variables	Quality of Life			$X^2\phi$	p-value
	High n (%)	Moderate n (%)	Low n (%)		
Type of formal coping strategies:				5.03	0.582
Social assistance	9 (20.9)	49 (18.1)	11 (13.1)		
Workplace welfare	5 (11.6)	40 (14.7)	15 (17.9)		
NHIS membership	28 (65.1)	169 (61.9)	50 (59.5)		
Maladaptive (alcohol, smoking)	1 (2.3)	15 (5.5)	8 (9.5)		
Type of preferred informal coping strategies:				1.92	0.751
Family support	11 (25.6)	97 (35.5)	27 (32.1)		
Social support	22 (51.2)	116 (42.5)	37 (44.1)		
Religious support	10 (23.2)	60 (22.0)	20 (23.8)		
Most frequent action when in pain:				0.15	0.994
Take prescribed medication	8 (47.1)	61 (48.4)	20 (45.5)		
Buy over the counter medication	7 (41.2)	49 (38.9)	18 (40.9)		
Take in alcohol	2 (11.8)	16 (12.7)	6 (13.6)		
Type of rehabilitation:				9.59	0.044*
Occupational therapy	7 (16.3)	49 (18.0)	17 (20.2)		
Physical therapy	33 (76.7)	163 (59.7)	57 (67.9)		
Cognitive therapy	3 (7.0)	61 (22.3)	10 (11.9)		

X^2 = Chi Square; n-cell frequency; % =column percentages. ϕ= Fisher's exact test of association; *:= p<0.05.

4.6 Association between coping strategies and quality of life of orthopedic patients

Details of the multivariable analysis between the dependent variable (quality of life) and independent variables (coping strategies) are shown in Table 4.6. NHIS membership was identified to be significantly associated with the high quality of life of orthopedic patients. Thus orthopedic patients who depend on the NHIS are 65% more likely to enjoy a higher quality of life as compared to those who depend on social assistance (COR: 0.35, 95% CI: 0.12, 0.99), but was not statistically significant when adjusted for confounders.

The odds of enjoying high quality of life is 0.23 times less likely among orthopedic patients who get religious support compared to those who rely on family support (COR: 0.23, 95% CI: 0.04, 1.30). Furthermore, the odds of enjoying a high quality of life among orthopedic patients is 0.58 times less likely among those that buy over-the-counter medicines. However, they were all not statistically significant.

Table 4.6: Multivariate Association between QoL and coping strategies of orthopedic patients

	N	COR, 95%CI	p-value	AOR, 95%CI	p-value
Type of formal coping strategies:					
Social assistance (ref)	69	1		1	
Workplace welfare	61	0.29 (0.08, 1.04)	0.057	0.57 (0.26, 1.21)	0.140
NHIS membership	248	0.35 (0.12, 0.99)	0.049*	0.65 (0.35, 1.19)	0.159
Maladaptive	24	0.44 (0.09, 2.03)	0.293	0.55 (0.20, 1.47)	0.230
Type of preferred informal coping strategies:					
Family support (ref)	177	1		1	
Social support	135	2.67 (0.79, 8.99)	0.114	1.27 (0.63, 2.56)	0.507
Religious support	90	0.23 (0.04, 1.30)	0.097	0.66 (0.22, 1.93)	0.444
Most frequent action when in pain:					
Take prescribed medication (ref)	189	1		1	
Buy over the counter medicine	176	0.58 (0.28, 1.19)	0.138	0.54 (0.28, 1.04)	0.064
Take in alcohol	25	1.43 (0.47, 4.29)	0.530	1.24 (0.44, 3.47)	0.685
Type of rehabilitation:					
Occupational therapy (ref)	56	1		1	
Physical therapy	118	1.91 (0.83, 4.39)	0.128	0.79 (0.46, 1.35)	0.384
Cognitive therapy	32	0.65 (0.23, 1.85)	0.416	0.96 (0.49, 1.88)	0.915

COR=Crude odds ratio; CI=Confidence interval; AOR=Adjusted odds ratio, 1=Reference category *p<0.05.

CHAPTER FIVE

DISCUSSION

5.0 Introduction

The chapter seeks to explain the findings of the study by comparing them with relevant literature. The chapter is presented in five main sections as socio-demographic characteristics of orthopedic patients, types of case management, quality of life of orthopedic patients, coping strategies of orthopedic patients, and the association between quality of life and coping strategies of orthopedic patients. The key findings from this study were as follows: (1) A large number of the respondents seeking treatment were males (57%), of the total participants had up to tertiary education (30%), were married (56%), were Christians and about (72%) of the total participants were NHIS registrants; (2) The commonest cause of orthopedic injury was trauma, the most often affected part of the body was the legs and the most preferred traditional treatment was herbal treatment; (3) The quality of life was slightly higher in males than females; (4) Most of the respondents relied on NHIS to seek medical care, the greatest source of support for orthopedic patients was from family more than social and religious groups; and (5) Orthopedic patients took prescribed medication when in pain and also most patients undergo physical therapy.

5.1 Socio-demographic characteristics of orthopedic patients

This study revealed that a large number of orthopedic patients seeking treatment at Korle-Bu Teaching Hospital are males. This high incidence of orthopedic injuries among men could be attributed to the risk-taking nature of men. This finding has also been confirmed in a study by Afukaar, Antwi and Ofosu-Amaah, (2003) which revealed: that men are rarely precautious for instances they often fail to ensure their cars are in the best condition, thus driving cars at high speed without proper maintenance often lead to accidents. Being

educated, particularly attaining tertiary education status, is central to how orthopedic patients seek care and adhere to prescribed treatment. This further suggests that orthopedic patients who are educated are more likely to understand the importance of adhering to prescribed medications and therapy to heal faster. Additionally, being educated implies the ability to research into proposed healing therapies to make decisions that will improve the health conditions of the respondents. Religion has a central role in the healing process of orthopedic patients. This finding has been confirmed in a study by Muzaffar et al., (2012) which revealed that the use of theological support system (religion) as a coping mechanism for trauma patients. This implies that orthopedic patients seeking care must be informed to make the right discussion in their management. This is because some patients are so engrossed in their belief that they believe no medicine or therapy can heal them but God. The inability of such respondents to strike a line between faith and seeking medical help contributes to their health declining. Also, being married has good implications for prompt recovery, this is because of the support such patients get from their spouses. There is a finding from a study by, Queiroz, et al., (2016) which revealed that family's support made the trauma amputees resilient and responsible to preserve what is left of their life. Similarly, a study was undertaken by Shrime et al., (2016), supports the finding that NHIS was used by most of the respondents to seek medical care. This has serious implications as a study done by WHO (2015) indicates that many health systems in LMICs rely on out-of-pocket costs to fund healthcare and such payments equated to about 37% of total health expenditure.

5.2 Types of case management of orthopedic conditions

This study revealed that about 28% of the orthopedic patients were diagnosed with a previous orthopedic condition. This finding suggests that patients did not get either the

needed family and/or social support to undergo treatment or most of the patients were financially handicapped to adhere to treatment. The findings are in line with a study by Raja and Zane (2020) which revealed that all trauma patients must receive a systematic approach to management to maximize outcomes and reduce the risk of undiscovered injuries. However, the findings are contrary to that of Valizadeh et al, (2014) which revealed that orthopedic patients' adaptation process was from a supportive family, gaining friends' support, gaining morale from peers and assurance. Thus, the absence of these sources of support would go a long way to affect the rate at which orthopedic patients adhere to treatment.

The commonest cause of orthopedic injury was trauma and fall. This finding agrees with a study by O'Hara et al., (2014) which revealed that "Ghana is plagued by a growing volume of traumatic injuries. Additionally, findings from this study are in line with a study by Guerrero, (2011) which established that common orthopedic injuries include dislocation, fractures, septic joint, compartment syndrome, neurovascular injuries. The low levels of the reported orthopedic condition could be attributed to the suggestion by WHO (2016) that it is "difficulty in accessing health and rehabilitation services they need because unintentional non-transport injuries, such as falls and burns, receive little attention from government agencies and researchers compared to road injuries, even though they are comparable in terms of burden of death and disability.

The common type of orthopedic injury indicated includes complex injury affecting both hands and legs; injury affecting the hands only and injury affecting the legs only. The finding is in agreement with a study by Verma and Tewari (2004) which revealed that lower and upper limbs (41.3% and 20.9% respectively) were the most affected parts of the body followed by the head (11.2%). Additionally, findings from the present study are

consistent with another study done by Ayele et al., (2017) which revealed that fracture (22.9%) and head injury (17.2%) were the most common outcomes of injuries.

Findings from this study established that 64.9% of the orthopedic patients did not seek any form of treatment but 35.1% sought other forms of treatment. These findings are consistent with studies from MacKenzie et al., (2006) and Roudsari et al., (2007) which revealed that although prevention is ideal, and there are many effective and cost-effective injury prevention strategies, but no system could prevent all injuries completely. This could be attributed to the high cost of seeking formal (orthodox) treatment from hospitals especially among orthopedic patients who live far from hospitals that provide such specialized services.

However, the results of this study showed that the most preferred form of traditional treatment is herbal medicine (23.4%). The finding suggests that resorting to traditional treatment tends to slow down the healing process. This is contrary to a study by Callistus, Abass, and Issahaku (2013) which revealed that over half of the patients who sought traditional treatment had malunion (heals in an abnormal position). The dependency of orthopedic patients on traditional healers is explained by the WHO (2001) that in Ghana, about 78% of all patients with fracture resort to traditional bonesetters because of the fear of amputation, and the belief that every misfortune has a spiritual undertone.

5.3 Quality of life of orthopedic patients

Findings from this study revealed that more men than women experienced good mental and physical health. However, the finding is contrary to a study by Castillo et al. (2013) which revealed that although medical advances have dramatically improved survivorship, these injuries nevertheless result in the poor quality of life Quality of life-related outcomes in otherwise healthy people. The finding implies that the levels of disability are based on the

impact the injury has on their daily lives; whether there was support from the home, ability to work, or other ways in which their injury has affected them. It is safe also to say that men are well taken care of by their wives. The support provided by the extended family and their spouse could be reasons why orthopedic patients (men) have better physical and mental health.

5.4 Coping strategies for orthopedic patients.

Informal coping strategies

Findings from this study showed that family support (44%) is the common form of an informal coping strategy adopted by orthopedic patients. The reliance on family support is explained by Muzaffar et al., (2012) who reported on the use of theological and family support systems as a coping mechanism for amputees. The study revealed that trauma patients who did not report psychiatric conditions made use of family support as a means of coping through engaging in a vocation that kept them occupied enough not to think about their predicament. Queiroz, et al., (2016) study on psychosocial changes and experiences of trauma provides more support to the findings of the current study. They revealed and explained that reliance on orthopedic patients on family support as a coping strategy made the trauma patients resilient and responsible to preserve what is left of their life. A possible explanation for the increased reliance on the family for support could be that the family does not judge them wrongly or stigmatize them but provides them with comfort, encouragement, support and believe strongly in their healing process.

Another form of coping strategy adopted by the orthopedic patients, as found in this study, is religious support (22.4%). This finding may be in support of a study by Headey et al., (2010) which revealed that people who became more religious derived more satisfaction from their lives whereas those who became less religious recorded less satisfaction with

their lives. This may be attributed to the explanation given by Subandi et al., (2014) that religiosity was the major mediator between post-traumatic growth (PTG) and gratitude. Participants were able to grow out of the traumatic experience because they associated it with a deity (God). Furthermore, it is explained in a study by Rosemarin, Krumrei, and Pargament, (2010) which revealed that gratitude and spirituality are positively related to lower levels of anxiety and depression. This suggests that gratitude and spirituality are related to lower levels of anxiety and depression after a traumatic experience.

Formal coping strategies

Also, the findings from this study revealed that when orthopedic patients experience pain, about 40% buy non-prescribed medicine to ease off their pain. Also, about 13% prefer to consume alcohol to ease off their pain. These practices, maladaptive coping mechanisms, are consistent with a study by Ehrenreich (2001) which revealed that through an expression of stress in somatic form, denial, avoidance, blaming, helplessness, dependency, and substance use, survivors' vulnerability to post-traumatic stress disorder (PTSD) increases. Additionally, the finding support results from other studies that revealed that orthopedic patients resort to excessive use of drugs like nicotine or alcohol as a way of dealing with their predicament and uncertainties about what to expect from life and the challenges of living as an amputee (Garafalo, 2000; Muzaffar et al., 2012). Being reliant on alcohol and other 'hard' drugs as a means of coping with a traumatic experience has been explained by a study by Muzaffar et al., (2012) which revealed that amputees experience stigmatization because of their outward appearance and in some instances, these amputees tend to abuse drugs as a way of dealing with the emotional upheaval they are experiencing.

5.5 Association between the quality of life and coping strategies of orthopedic patients.

Findings from this study revealed that religious support was significantly (p-value 0.444) associated with the high quality of life of orthopedic patients. This finding may be explained by Ellisons and Lee (2010) in a study that assessed the association between spiritual struggles and psychological distress and found that there was a strong association between each type of spiritual struggle and psychological distress. Also, the finding supports that the length of an individual's participation in religion correlates with their level of life satisfaction and gratitude (Browne et al., 1997; Brown et al., 1996; Sprangers & Schwartz, 1999). A further explanation of the finding may be attributed to a study by Valizadeh et al, (2014) which revealed that the stronghold of support that helped improved the quality of life and the adaptation process of orthopedic patients was from religious support.

This study revealed that the odds of enjoying high quality of life among orthopedic patients is 0.54 times less likely among those that buy over-the-counter medicines compared to those that take prescribed medicine but not statistically significant. The finding support results from other studies from Garafalo, (2000); Muzaffar et al., (2012) which revealed that orthopedic patients resort to excessive use of drugs like nicotine or alcohol as a way of dealing with their predicament and uncertainties about what to expect from life.

CHAPTER SIX

CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

The study concludes that the quality of life of orthopedic patients is low for both the PCS and MCS values obtained when compared to the standard.

6.2 Recommendations

The study makes the following recommendations:

1. The study established that the quality of life of orthopedic patients seeking treatment at the orthopedic and accidents and emergency department of Korle-Bu was low. This suggest the injuries sustained by these patients are healing on a slow rate. The study recommends for the Ministry of Heath to furnish the accidents and emergency unit with the required equipments and medications to treat patients.
2. The study also found out that orthopedic patients resort to bonesetters for further treatment. Therefore, it is recommended for the Health Facilities and Regulatory Agencies (HeFRA) to undertake a vigorous exercise to 'formalize' the activities of these 'professionals' so as to ensure they operate under hygienic conditions.
3. Furthermore, it was established that most of the orthopedic patients relied on family support. It is recommended for management and stakeholders (doctors, nurses etc) of the accident and emergency department of Korle-Bu Teaching Hospital to involve family members of these patients during counselling prior to their discharge. This will ensure speedy recovery of the patients.
4. Also, it was established that being an NHIS subscriber contributes to quality of life of orthopedic patients by reducing the financial burden on patients. Hence, it is recommended for the National Commission on Civic Education to create awareness

on the benefits of enrolling onto the National Health Insurance Scheme. Additionally, it is recommended for the National Health Insurance Scheme to expand the number of health related issues covered by NHIS to include medicines for treating orthopedic patients. While this will improve the quality of life of orthopedic patients, it will also increase the enrolment onto the NHIS.

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APPENDICES

School of Public Health

College of Health Sciences

University of Ghana

Appendix A: Participant's Consent form

Title of study: ASSESSMENT OF QUALITY OF LIFE OF ORTHOPEDIC PATIENTS AND THEIR COPING STRATEGIES

Introduction

Researcher: Benedicta Adu-Gyamfi

Department: Health Policy Planning and Management

Phone: +233(0)249950169

Email address: casestudyfrmvvu@gmail.com

Background of the study

Orthopedic patients are unprepared for the experiences post-trauma, injured patients are ill-equipped to manage their pain following hospital discharge. The quality of life of orthopedic clients is very important because that will help adherence to prescribed post-operative pharmacologic therapy is of vital importance to reach therapeutic goals and enhance patient outcomes. However, non-adherence to prescribed medication could lead to reduced quality of life. Therefore, I am undertaking this study to assess the quality of life of orthopedic patients coming for follow-up review at Korle-Bu Teaching Hospital (Accident and Orthopedic department). Consent will be sought from patients who have previously been on admission to the hospital. Patients who meet the inclusion criteria will be served with a structured questionnaire to solicit their views on the topic under study.

Nature of study

The study hopes to assess the quality of life of orthopedic patients from the korle -bu teaching Hospital and their coping strategies who seek treatment at the Korle-Bu Teaching Hospital. It is a quantitative study that uses a structured questionnaire to solicit information from the respondents. It will require about 30 minutes of the respondent's time to complete.

Duration

I will require 30 minutes of your time.

Potential risks/benefits

The study will not cause any discomfort to participants. It is hoped that results obtained for this study will be used by policymakers and the community in particular to either improve upon existing measures of improving the quality of life of orthopedic patients or to enforce existing ones with the objective of better improving the coping strategies and the quality of life of patients.

Privacy/Confidentiality

I would like to assure you that all information provided will be handled with strict confidentiality and will be used purely for research purposes. Your data will not be shared with anybody who is not part of the research team. Data analysis will be done at the aggregate level to ensure anonymity. Your identity will not be disclosed in the material that will be published.

Voluntary withdrawal and compensation

Participation in this study is voluntary and participants can choose not to answer any particular question or all questions. You are at liberty to withdraw from the study at any time without prejudice from the study team. However, it is encouraged that you participate since your opinion is important in determining the outcome of the study. You will not be provided any reward/compensation to respond to the questionnaire.

Provision of information and consent form

A copy of the information sheet will be given to you after it has been signed or thumb-printed to take home.

Ethical Approval

The study will be reviewed and approved by the Korle-Bu Teaching Hospital Institutional Review Board (KBTH-IRS). This committee is there to ensure that participants in researches are protected from harm and their rights are respected.

Before taking Consent

Do you have any questions you wish to ask about the study? Yes ☐ No ☐

If yes, please, indicate the questions below

……

……

In case you have any questions about the study later please, do not hesitate to contact **BENEDICTA ADU-GYAMFI**, Department of Health policy planning and management, School of Public Health, University of Ghana. (Tel: 0249950169)

Email: casestudyfrmvvu@gmail.com.

Also, if you need further clarification on ethical issues please, kindly contact the KBTH-IRS Administrator.

Consent Form

I……., declare that the purpose of the study has been thoroughly explained to me in the English language/Ga/Twi and I have understood. I hereby agree to answer the questions. I understand that it is voluntary and can opt-out at any time.

Signature……. Date……

Thumbprint 

Witness Statement

I declare that I was present while the benefits and procedures were read to the participants and all questions were answered and the participant has agreed to take part in the study

Witness signature…… Date …….

Interviewer's Statement

I, the undersigned, have explained this consent form to the subject in the English language/Ga/Twi that he/she understands the purpose of the study, procedures to be followed as well as risks and benefits involved. The subject has freely agreed to participate in the study.

Interviewer's signature……

Date…….. Address……

Appendix B: Research Questionnaire

College of Health Sciences

University of Ghana

ASSESSMENT OF THE QUALITY OF LIFE OF ORTHOPEDIC PATIENTS AND THEIR COPING STRATEGIES

Dear Respondent,

This is research being carried out on the above topic. I will, therefore, like to take some minutes of your precious time to answer these questions. You are assured that the answers you give will be strictly confidential and your name will not be mentioned in our research reports. Thank You

Qns No.	Questions	Response
	Respondent ID	☐☐☐☐
Section A	**Demographic Information**	
1.	Sex 1. Male 2. Female	☐
2.	Age in years (above 18 years)	☐☐☐
3.	What is your current level of education? 1. No education 2. Primary 3. Middle/ JSS 4. Secondary/ Vocational 5. Tertiary	☐
4.	What is your marital status? 1. Married 2. Not Married	☐
5.	Current Employment Status 1. Unemployed 2. Employed	☐
6.	What is your average income in a month? (salary plus other monies from other sources)	GH Cedis
7.	Religion 1. Christian 2. Muslim 3. Traditionalist 4. Other (specify)	☐
8.	Are you a registered NHIS member? 1. Yes 2. No	☐

9.	Are you registered on any private healthcare insurance? 1. Yes 2. No	☐
10.	Have you ever been diagnosed with any orthopedic condition aside from this current diagnosis? 1. Yes 2. No	☐
11.	How did your orthopedic injury come about? 1. Trauma 2. Congenital 3. Diseases condition 4. Fall	☐
12.	Type of orthopedic injury? 1. Complex injury affecting the hands and legs 2. Affecting the hands 3. Affecting the legs 4. Not affecting the hands and legs	☐
13.	Aside from the hospital (orthodox) have you ever sort for other treatments? 1. Yes 2. No	☐
14.	If you have used any traditional treatment as stated in Q13, what type of treatment did you use? 1. Herbal medicine and diet 2. Bonesetter service 3. Traditional alternative medicine 4. Various religious centers (prayer camps, Shrine, Mosque) 5. Other (specify) ……	☐
15.	Do you have any chronic conditions? 1. Yes 2. No	☐
16.	If you have any chronic condition as stated in Q15, what chronic condition do you have? 1. Cancer 2. Hypertension 3. Diabetes 4. Asthma 5. Other(specify)	☐
17.	For how long have you been discharged? (Days)	☐☐☐

SECTION B:

Coping strategies (formal and informal), these questions have been carefully selected to help gather data from patients on the coping strategies they adopted after they were discharged from the hospital.

Qns No.	Questions	Response
18.	Are you able to go back to work after discharge? 1. Yes 2. No	☐
19.	Which of these formal coping strategies do you use to support yourself and your treatment? 1. Social assistance (i.e., club membership) 2. Workplace welfare 3. NHIS membership 4. Maladaptive (i.e., alcohol, smoking, drug, etc.)	☐ ☐ ☐ ☐
20.	Which of these informal coping strategies do you usually use to support yourself and your treatment? 1. Family support 2. Social support 3. Religious support	☐ ☐ ☐
21.	Which of these coping is convenient for you? 1. Formal 2. Informal	☐
22.	What is the most frequent thing you do when in pain? 1. Take prescribed medication 2. Buy over the counter medication 3. Take in alcohol 4. Use diversional therapies	☐
23.	Have you tried any form of rehabilitation to help you cope with the challenges of your condition? 1. Yes 2. No	☐
24.	If yes in Q23, what form of rehabilitation have you undergone to cope with challenges? 1. Occupational therapy 2. Physical therapy 3. Cognitive therapy 4. Vocational therapy 5. Others (specify)	☐

SECTION C:

SF-12®:

This information will help healthcare workers to able to understand how well patients and do your usual activities. Answer every question by selecting from the alternatives provided and write the corresponding number in the box. It is not specific for arthritis. If you are unsure about how to answer a question, please give the best answer you can and make a written comment besides your answer.

Qns No.	Questions	Response
25.	In general, would you say your health is: 1. Excellent 2. Very Good 3. Good 4. Fair 5. Poor	☐

The following two questions are about activities you might do during a typical day. Does YOUR HEALTH NOW LIMIT YOU in these activities? If so, how much?

Qns No.	Questions	Response
26.	MODERATE ACTIVITIES, such as moving a table, pushing a vacuum cleaner, bowling, or playing golf: 1. Yes, limited a lot 2. Yes, limited a little 3. No, not Limited at all	☐
27.	Climbing SEVERAL flights of stairs: 1. Yes, limited a lot 2. Yes, limited a little 3. No, not Limited at all	☐

During the PAST 4 WEEKS have you had any of the following problems with your work or other regular activities AS A RESULT OF YOUR PHYSICAL HEALTH

28.	ACCOMPLISHED LESS than you would like: 1. Yes 2. No	☐
29.	Were you limited in the kind of work or other activities: 1. Yes 2. No	☐

During the PAST 4 WEEKS, were you limited in the kind of work you do or other regular activities AS A RESULT OF ANY EMOTIONAL PROBLEMS (such as feeling depressed or anxious)?

Qns No.	Questions	Response
30.	ACCOMPLISHED LESS than you would like: 1. Yes 2. No	☐
31.	Didn't do work or other activities as CAREFULLY as usual: 1. Yes 2. No	☐
32.	During the PAST 4 WEEKS, how much PAIN interfere with your normal work (including both work outside the home or housework)? 1. Not at all 2. A little bit 3. Moderately 4. Quite a bit 5. Extremely	☐

The next three questions are about how you feel and how things have been During the past 4 weeks. For each question, please give one answer that comes close to the way you have been feeling. How much of the time during the PAST 4WEEKS-?

Qns No.	Questions	Response
33.	Have you felt calm and peaceful? 1. All of the Time 2. Most of the Time 3. A Good Bit of the Time 4. Some of the Time 5. A Little of the Time 6. None of the Time	☐
34.	Did you have a lot of energy? 1. All of the Time 2. Most of the Time 3. A Good Bit of the Time 4. Some of the Time 5. A Little of the Time 6. None of the Time	☐
35.	Have you felt downhearted and blue? 1. All of the Time 2. Most of the Time	☐

	3. A Good Bit of the Time 4. Some of the Time 5. A Little of the Time 6. None of the Time	
36.	During the PAST 4 WEEKS, how much of the time has your PHYSICAL HEALTH OR EMOTIONAL PROBLEMS interfered with your social activities (like visiting with friends, relatives, etc.)? 1. All of the Time 2. Most of the Time 3. A Good Bit of the Time 4. Some of the Time 5. A Little of the Time 6. None of the Time	☐