PREVALENCE OF ANXIETY, DEPRESSION, AND POST-TRAUMATIC STRESS DISORDER AMONG AMPUTEES ATTENDING JAIPUR FOOT TRUST ARTIFICIAL LIMB CENTRE

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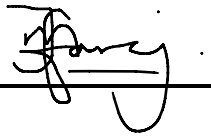
DECLARATION OF ORIGINALITY FORM

I, Dr. Ilham Mohamed hereby declare that this is my original work carried out in partial fulfillment of the award of master's degree of medicine in psychiatry at the University of Nairobi. I have not presented the same to any other higher institution for any award.

Signature **Date**



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DEDICATION

I devote my thesis to my family and friends. A special sense of appreciation to my husband, kids, and parents whose words of encouragement resound in my ears. My brothers and sisters never left my side and are exceptional.

TABLE OF CONTENTS

LIST OF ABBREVIATIONS/ACRONYMS

PHQ	Patient Health questionnaire
GAD	Generalized Anxiety disorder
IES-R	The Impact of Event Scale-Revised
ASD	Acute Stress Disorder
PTSD	Post-Traumatic Stress Disorder
WHOQOL	The World Health Organization quality of life assessment
WHO	The World Health Organization
QoL	Quality of Life
DALYs	Disability Adjusted Life Years

DEFINITION OF OPERATIONAL TERMS

Amputation: removal of whole or parts of organs or limbs positioned at the end of human bodies (Padovani, Martins, Venâncio, & Forni, 2015)

Depression: This is a common mental illness characterized by depressed mood, lack of interest or enjoyment, reduced motivation, feelings of low self-esteem, disrupted sleep or appetite, and poor focus. (Cesar & Chavoushi, 2013)

Anxiety: Refers to numerous psychological and physiological phenomena, including a person's cognizant state of stress over a future undesirable occasion, or fear of a real circumstance ("Defining Anxiety Disorders," 2006)

ASD: Refers to the acute stress reactions (ASRs) that occur in the first month following exposure to a traumatic incident and before a diagnosis of posttraumatic stress disorder (PTSD), (Bryant, Friedman, Spiegel, Ursano, & Strain, 2011)

PTSD: Is a psychiatric disorder caused by exposure to traumatic or life-threatening experiences. It has deep psychobiological interactions that can impact people's everyday lives and endanger their lives (Iribarren, Prolo, Neagos, & Chiappelli, 2005)

QoL: Refers to the understanding of individuals of their role in life in the context of the society and value structures in which they live and concerning their priorities, desires, norms, and concerns (The World Health Organization quality of life assessment (WHOQOL): position paper from the World Health Organization. Social science & medicine, 1995)

Disability Adjusted Life Years (DALYs): It is an instrument used in disease burden definition and cost-effectiveness analysis to prioritize health interventions (Anand & Hanson, 1998)

LIST OF TABLES

LIST OF FIGURES

ABSTRACT

Background: Amputees have been noted to present with various psychiatric disorders including anxiety, body image disturbances, depression, and post-traumatic disorder (PTSD). However, there is limited data available on the prevalence of anxiety, depression, and PTSD among amputees in Kenya despite the high incidences of amputations in Kenyan hospitals.

Purpose: This study aims to find out the prevalence of anxiety, depression, and post-traumatic stress disorder among amputees attending the Jaipur Foot Trust Center.

Method: This study took a cross-sectional descriptive study design. One hundred and forty-one patients attending the Jaipur Foot Trust were recruited to participate in the study after giving informed consent. A socio-demographic questionnaire was used to collect socio-demographic characteristics in addition to level amputation and reason for amputation. The Patient Health Questionnaire (PHQ-9) was used to assess the patient's depression. The Generalized Anxiety Disorder (GAD-7) scale was used to assess the patient's anxiety level and The Impact of Event Scale (IES-R) was used to assess the severity of post-traumatic stress disorder (PTSD). Collected data were entered into MS-Access software and checked for errors before the commencement of data analysis using STATA software. For discrete variables, frequency tables, pie, and bar charts captured the distribution of data while for continuous variables, means and standard deviations were provided. At the bivariate level, correlation and chi-square were done to investigate the relationships between the study variables, and while at the multi-variate level, regression analysis was applied to provide adjusted odds ratios. The level of statistical significance was set at $p<0.05$.

Results: Findings from this study showed alarming rates of psychiatric morbidity where two-thirds of the patients reported PTSD (65.2%) with more than three-quarters of patients being diagnosed with depression (89.4%) and anxiety (91.5%). Also, there was a significant correlation between depression, anxiety, and PTSD, such that participants who had higher scores on anxiety and depression had significantly higher PTSD scores and vice versa.

Conclusion: Anxiety, Depression, and PTSD are very common psychological reactions in patients who have undergone amputation. The researcher expected that some of the sociodemographic factors and some amputation-related characteristics would have had a relation with psychiatric comorbidity, but the findings of this study did not show any such relationship except the relation between anxiety, depression, and PTSD.

Recommendation: Early psychological assessment and interventions after amputations will help prevent psychological illnesses

CHAPTER ONE: INTRODUCTION AND BACKGROUND INFORMATION

1.1 Introduction

Amputations due to surgical procedural indications or traumatic events often result in a series of complex mental reactions in affected individuals. Most amputees go through these responses as an automatic attempt to cope with the situation but others present with debilitating psychiatric signs and symptoms (Hawamdeh, Othman, & Ibrahim, 2008). Individuals who have gone through an amputation experience adverse psychological impacts that significantly affect their Quality of Life (QoL) (O'Donnell, Creamer, Elliott, Atkin, & Kossmann, 2005)**.** Moreover, The World Health Organization (WHO) postulates that QoL can be influenced by factors relating to an individual's physical, cognitive, personal, social, spiritual, and environmental state ("The World Health Organization quality of life assessment (WHOQOL): Position paper from the World Health Organization," 1995)**.**

Amputation has been associated with negative implications in three main ways namely: capacity, self-perception, and sensation. The anguish over the loss of sensation has been known to exacerbate self-consciousness that impacts one's functionality concerning sexuality and occupation often leading to social and psychosocial impairment (Baby, Chaudhury, & Walia, 2018). It has been reported that traumatic limb loss is equivalent to other mainstream forms of loss such as bereavement, separation, divorce, castration anxiety as well as a fragmented sense of self, all of which summit to considerable cognitive disability and reduced quality of life (Sahu et al., 2016).

Rybarczyk et al., 1992, indicate that despite the life-saving nature or practicality in the case of solving a persistent or damaging health problem, amputations are still experienced as a painful loss by the individual. This statement is supported by Baby et al., 2018, who reported that new amputees mourn over the lost appendage and consequently go through the five stages of grief which are: denial, anger, bargaining, depression, and acceptance; the same experienced by individuals in the case of bereavement and grief over life-threatening diagnoses.

Amputees deny and evade any reminders concerning their lost limb(s). Due to their difficulty in reaching the expected state of acceptance, vivid recollections of their lost appendage and the impressions and sensations of the limb certainly being present persist. This state is

referred to as ‘Phantom Limb Phenomenon’ and can be experienced as an acutely painful, cutting, and stabbing, constricted, excruciating, and numbing sensation in a limb that is no longer present. Cortical restructuring, stress, and psychosocial factors have been linked to this phantom pain (Baby et al., 2018).

After an amputation, one’s self-perception and body image is appreciably affected. Body image is defined as an individual’s attitude, psychological and emotional experiences concerning the structure, utility, appearance, and appeal of one’s body (Pasquina et al., 2014);(Taleporos & McCabe, 2002). One’s body image is often affected by the social expectations that emphasize beauty or attractiveness, health, and fitness that result in the notion that amputation is an indication of one’s failure to achieve the said standards. To remedy body image destruction, amputees may need to adjust and adapt mentally, physically, and socially to their altered form, body image, and functionality (Holzer et al., 2014).

The incapacitation of amputees to self and their families may in most cases cause psychiatric issues (Sahu et al., 2016). Among lower-limb amputees, factors such as being young, single, having low literacy levels, going through bilateral side amputation, experiencing trauma associated with the amputation, inability to get a prosthesis to aid in walking, shorter amputation duration, absence of medical comorbidity that could have necessitated the amputation, a wanting social support system and poor quality of life has been correlated to depression prevalence (Iqbal, Mohamed, & Mohamad, 2019). Within this context, this study aims to assess the prevalence of anxiety, depression, and PTSD among amputees attending the Jaipur Foot Trust Center.

1.2 Background Information

Amputation as a result of surgery could be an elective or emergency surgical procedure with the necessitating causes being varied. Medical conditions that often result in amputations could either be vascular or non-vascular. The vascular causes may range from vasculitis, atherosclerosis, diabetes mellitus, and the non-vascular ones being neoplasia, trauma, congenital, burns, and infectious conditions (Padovani et al., 2015).

A study carried out by (Margoob et al., 2008) in a tertiary care hospital in Kashmir had results that showed that in the cases of traumatic experiences resulting in severe amputations,

post-traumatic stress disorder (PTSD) was at a distressing rate of 80%. These findings were replicated in other Western countries (D. M. Desmond & Maclachlan, 2008.); (Margoob et al., 2006). PTSD could present following occurrences leading to the injury, the amputation, or even both events in such a situation (Margoob and colleagues, 2008). Also, the subsequent pain, loss of functioning, disability, and the psychological adjustment needed following amputation get worse coupled with the constant reminders of trauma thus intensifying the PTSD experiences in patients. It is also plausible that PTSD is often caused by an amputee's constant worry of the life-threatening implication of the accident or event that led to their situation(Cheung, Alvaro, & Colotla, 2003).

In Sub Saharan Africa (SSA), a different phenomenon has been associated with amputations; snakebite envenoming. A study conducted in 41 countries in the region attributed amputation and consequent PTSD from snakebites to be contributing to a significant proportion to the burden of Disability Adjusted Life Years (DALYs) at 1.03million (Halilu et al., 2019). In other Sub-Saharan African countries, the traditional treatment of fractures has resulted in a lot of amputations. For instance, a Nigerian study of 100 major amputations conducted at the hospital in ten years reported that 60 of them were from botched fractures by traditional bone setters (Onuminya, Obekpa, Ihezue, Ukegbu, & Onabowale, 2000). The evidence notwithstanding, people in Africa have reported seeking these traditional bone setters due to a fear of amputation if they went to the mainstream hospitals in the region alongside other reasons such as lack of funds for hospital care (Kisige, 2008) ;(Ariës, Joosten, Wegdam, & Van Der Geest, 2007).

Trauma is the leading cause of amputations in Kenya at 35.7% followed by congenital defects at 20%, dysvascular causes at 17%, infections at 14.3%, and lastly tumors at 12.8%. Moreover, 11.4% of all the amputations and 66.6% of the dysvascular related amputations were caused by diabetic vasculopathy (Ogeng'O, Obimbo, & King'Ori, 2009).

1.3 Problem Statement

The impact of amputation on an individual's autonomy and quality of life is negatively huge especially because of the affected mobility, pain, and the altered physical integrity of such persons.

Furthermore, the amplified susceptibility related to the status of being an amputee is alarming to many people as prosthetic limbs cannot fully bring back the functionality and performance of the lost limb (Baby, Chaudhury, & Walia, 2018). The psychological complications of amputation are anxiety, depression, PTSD, and suicide in extremely severe cases _(Atherton & Robertson, 2006). Previous research work has shown particular psychological morbidity among amputees to be Major Depressive Disorder (MDD), Post-traumatic Stress Disorder (PTSD), impulse control disorder, generalized anxiety disorder, and panic disorder (Margoob et al, 2008; Imtiyaz Mansoor and colleagues, 2010). Reduced or complete lack of self-dependence and incapacitation in the support of one's family are some of the reasons for the development of these psychiatric morbidities among amputees (Sahu et al., 2017).

Baby et al., 2018 did a study in Pune, India, and found the prevalence of certain co-morbid psychiatric disorders in amputees for example adjustment disorder, comorbid anxiety and depression at 30%, adjustment disorder, prolonged depressive reaction (10%), mild depression 5%, moderate depression 7%, severe depression presenting with psychotic features 4%, and severe depression without psychotic presentation 4% and post-traumatic stress disorder (PTSD) 6%. These reactions are mostly a result of the patients' diminished ability to seek gainful employment, decreased satisfaction with new employment, reduced social interactions, interpersonal conflicts with family members, reduced self-esteem, disrupted and skewed body image, and their increased reliance and dependence on others.

1.4 Significance and Rationale

These studies, therefore, amplify the gap in the known knowledge of anxiety, depression, and Post-traumatic Stress Disorder among amputees. Moreover, limited research on the phenomenon has been carried out in Kenya, despite being exposed to war and terrorism from Al-Shabaab. Also, anecdotal observations show that amputees cannot access their aftercare needs, these can consequently increase psychiatric morbidities. Hence the objective of this study is to establish the prevalence of anxiety, depression, and Post-traumatic Stress Disorder among amputees in Jaipur Foot Trust Center and to assess the socio-demographic correlates to the development of emotional disorders and PTSD among amputees attending the center

The study aims to assess the levels of anxiety, depression, and Post-traumatic Stress Disorder among amputees in Kenya since limited studies have been done in this population.

The study findings will contribute to understanding the levels of depression and anxiety among amputees and add to the existing literature and fill the knowledge gaps in which further studies can be required to address, like management of psychiatric morbidities in this population. This study will further allow the surgical team to liaise with psychiatrists and psychologists to support and deal with psychological disturbances occurring among amputees.

The findings from this study will further create policy recommendations for the government and health management boards that will strengthen the physical and psychological wellbeing of amputees thereby assisting in the management of their depression and anxiety.

1.5 Research Questions

1. What is the prevalence of anxiety, depression, and PTSD among amputees attending the Jaipur foot trust artificial limb center?
2. What is the relationship between the prevalence of anxiety, depression, and PTSD with socio-demographic characteristics of amputees attending Jaipur Foot Trust center?

1.6 Main Objective

To assess the prevalence of anxiety, depression, and PTSD among amputees attending the Jaipur Foot trust artificial limb center**.**

1.7 Specific Objectives

1. To determine the prevalence of anxiety, depression, and PTSD among amputees attending the Jaipur Foot Trust center.
2. To determine the socio-demographic factors among amputees attending the Jaipur Foot Trust center.
3. To determine the association between anxiety, depression, and PTSD with the socio-demographic factors among amputees attending the Jaipur Foot Trust Center.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter investigates the literature of related empirical studies on the prevalence of anxiety, depression, and PTSD among amputees. Globally, major amputations account for an incidence ranging from 3.6-68.4 per every 100,000 people in the normal population and 5.6 to 600 per every 100,000 people among diabetics from the year 1989 to 2010. (Moxey et al., 2011; Holzer et al., 2014).

Trauma is defined by the DSM-5 as any threat to one's life, physical or sexual safety whether actual or threatened (American Psychological Association (APA), 2013). Trauma leads to 16% of the overall global burden of disease thus a considerable cause of morbidity and mortality mostly in the developing world (Bhutani et al, 2016). Trauma also has been accounted as the most common cause of the global burden of disability with significant implications in the Disability Adjusted Life Years compared to other occurrences and diseases (Gore et al., 2011).

Following an amputation, individuals experienced altered perceptions which cause changes in how they view their bodies resulting in difficulties in their psychosocial adjustment and this may negatively progress to low self-esteem and the consequent development of anxiety and depressive clinical presentations (Padovani et al., 2015). The majority of amputees may experience persistent stress and worry in their financial, educational, occupational, social, family, and marital obligations. Besides it is likely that most amputees go on with their lives in a state of limbo where they are discouraged, pitiable, crestfallen, hopeless, and still grieving. Langer, 1994, described amputee depression as comprising more of indecisiveness, uncertainty, the constant fear of death, self-harm ideations which is different from the common guilt, body image disruption, and fatigue experienced by most patients suffering from Parkinson's disease. A great number of amputees go through emotional breakdowns and often require psychiatric treatment (Kashif et al., 2004).

2.2 Review of Studies

2.2.1 Global Studies

A study among 42 adults lower limb amputees on follow up at the Physical Medicine and Rehabilitation Department of a General Hospital, Porto, Portugal was carried by Senra, (2013) applying a semi-structured interview to look at patients' experiences following amputation, and the Centre Epidemiologic Studies Depression Scale to explore depressive levels. It found that 31% of all the participants had satisfied the tool's criteria for depression. Moreover, patients who reported higher self-awareness levels of impairment, lower levels of identifying with the impairment, and poorer discernment of well-being, and lesser social support had higher depression levels ($P<0.05$)

The occurrence of Acute Stress Disorder (ASD) and Post Traumatic Stress Disorder (PTSD) among 22 traumatic amputees (21male and 1female) with a mean age of 40.8years was retrospectively studied by Cem Copuroglu and colleagues, (2010). The study was conducted at the Department of Orthopedics and Traumatology, Faculty of Medicine, Trakya University, Edirne, Turkey. More than a third i.e. 36.3% of the participants sought psychiatric help early on after the amputations, 22.7% sought psychiatric treatment for Acute Stress Disorder, and 6months to 5years post-amputation, 77.2% required psychiatric care for chronic and delayed PTSD. Therefore, this study postulated that psychiatric care was important for traumatic amputees making it necessary for orthopedic surgeons to always keep in mind the psychiatric well-being of such patients.

There was a 2019 cross-sectional study conducted by Iqbal et al., (2019), aiming at understanding depression and associated features among 196 lower limb amputees aged 18-86 years. These patients were being cared for at rehabilitation clinics of both Kuala Lumpur and Sultanah Bahiyah Hospitals from 1st December 2017 to 31st March 2018. The tools used were the Beck Depression (BDI), Multi-Dimensional Perceived Social Support (MSPSS), World Health Organisation Quality of Life Brief Scale (WHOQOL-BREF), and Mini-International Neuropsychiatric Interview (MINI). The findings included a 47.4% prevalence of depressive symptoms with 24.5% of them getting a Major Depressive Disorder diagnosis.

Hawamdeh et al., (2008) studied anxiety and depression among 56 lower limb amputees from both inpatient and outpatient hospitals and rehabilitation centers in Jordan using the Hospital Anxiety and Depression Scale (HADS) scale. Anxiety and depression were found to be prevalent at 37% and 20% respectively. Being female, poor social support, being unemployed, having gone through a traumatic amputation, recency of amputation, and below-knee amputation were found to be significantly related to higher psychological symptoms. Ways of decreasing disability impact were found to include thorough preoperative preparation, early fitting of prosthetic and mobilization, patients attending vocational rehabilitation, and appropriate psychotherapy which were also recommended.

40 amputees, 90% men and 10% women aged 17 to 71 were studied by Pedro and colleagues (2017) evaluating the prevalence of depression, suicidality, and the correlation between their functionality and depression using the Hamilton Depression Rating Scale, Suicide Intent Scale, and, Functional Independence Measure respectively. This study was carried out in the High Specialty Hospital 'Dr. Gustavo A. Rovirosa Pérez' and the Rehabilitation Center and Special Education located in Tabasco, Mexico. The prevalence was 27.5% for suicidality, 92.5% for depression, 57.5% had full dependence and they noted a significant correlation between depression and lack of functional dependence. The study recommended that interventions be holistic as amputees went through rehabilitation therapy to increase functionality. Reduction of depression and suicidality through psychological and pharmacological therapy was also advised.

While evaluating factors like anxiety, depression, and QoL among patients presenting with chronic persistent pain post-amputation, Padovani et al., (2015) conducted a descriptive explanatory study at the Pain Clinic Outpatient and Orthopedics and Traumatology Service, Hospital de Base, Brazil. They studied 27 amputees using a Semi-structured interview, generic Quality of Life questionnaire SF-12, and Hospital Anxiety and Depression (HADS) scale. A majority of the participants were males aged 18-38 whose amputations were mostly from occupational accidents. This set of participants also showed compromised QoL both in the physical and mental aspects. Furthermore, phantom limb pain was associated with lower QoL with impaired daily functioning and higher anxiety levels in the same set. However, those participants aged 60-80 years of age showed higher levels of depression.

Misbah Ghous et al, (2015) looked at depression prevalence using the Beck Depression Inventory (BDI) among 110 trauma amputees between the ages of 15 to 60 in a cross-sectional study from June 2013 to January 2014 at hospital settings in Rawalpindi and Islamabad. They also applied a researcher-designed questionnaire in an attempt to determine the causes of depression. Prevalence was as follows: 31.8%_(35) mild depression, 14.5 %_(16) borderline depression, 12.7%_(14) moderate depression, 7.3%_(8) with severe depression, and 8.2%_(9) had extreme depression.

A prospective study focusing on psychiatric comorbidity and response to treatment among 100 male amputees at a tertiary care facility at Artificial Limb Center, Pune, India (Baby et al., 2018). The study made use of a clinical interview, General Health Questionnaire (GHQ), Impact of Event Scale, Hospital Anxiety and Depression Scale, McGill Pain Questionnaire, and Dallas Pain Questionnaire. The amputees had gone through their amputation in the past year before the study and that they had also been treated with appropriate medication and psychotherapy. The study concluded that 66% of the respondents had psychiatric disorders, where 40% had adjustment disorder, 20% depressive episodes, 6% PTSD. Moreover, the prevalence of phantom sensation was 72% and phantom pain at 64%. The study recommended early treatment aimed at psychiatric morbidity to help amputees adjust and integrate into life and improve future life satisfaction.

In a rural setting located in Northern India, the association between traumatic amputation and mental health was studied at the Department of Orthopedics, Maharaja Agarsen Institute For Medical Research And Education among 50 lower limb trauma amputees with a mean aged between 14 to 70 (Bhutani et al., 2016). The researchers administered a pre-tested, semi-structured questionnaire and the Hospital Anxiety and Depression Scale (HADS). The mean scores for anxiety and depression from the tools with maximum scores of 21 were 9.10±5.7 and 3.44±3.42 respectively. The study highlighted that traumatic amputees faced a myriad of psychosocial concerns that ought to be treated holistically to improve their general QoL. Optimism and social support are crucial for the population to live a pain-free life with less anxiety and fewer hospital visits.

2.2.2 Regional Studies

A 2009 study compared 42 amputees' (mean age 42.33years) and other 42 orthopedic patients' who were all matched for demographics such as marital status, sex, occupation, and age (Mosaku et al., 2009). This study was conducted at the Obafemi Awolowo University Teaching Hospital Complex, Osun State, Nigeria. Amputees recorded higher anxiety and depression prevalence at 64.3% and 59.5% respectively compared to 14.3% and 12.0% in the control group. The study recommended social and emotional support to ward off anxiety and depression among amputees. However, there is a paucity of literature on the frequency of anxiety, depression, and PTSD among amputees in Kenya.

2.3 Socio-demographic data and symptoms of anxiety, depression, and PTSD

Depression has been significantly correlated to a patient's age at the time of the amputation occurrence (Hegeman et al, 2012); (Iqbal et al., 2019). Patients who undergo amputations at an older age report better outcomes of cognitive adjustment than their younger counterparts (Iqbal et al., 2019). Bhutani et al., 2016 postulates that this could be because of the fewer demands and lower expectations common with such amputees which make them less likely to be overwhelmed with anger. Likewise, patients diagnosed with diabetic complications resulting in amputation were less depressed as they reported having had a little more time to negotiate their state and find useful ways to cognitively adjust to life with their condition (Platisa & Devecerski, 2006); (Iqbal et al., 2019).

Gender is a socio-demographic factor that has been reported to determine amputation outcomes. Females tend to report more reactive depressive symptoms as compared to their male counterparts (Hawamdeh et al., 2008). Pezzin et al., (2000) reported similar findings. However, a majority of the evidence does not indicate any distinctive differences in the psychosocial outcomes in either gender with regards to psychological well-being(G. M. Williamson, 1995.); (G. M. Williamson & Walters, 1996.). In India, Imtiyaz Mansoor et al, 2010, reported that males of a younger age from rural areas showed more psychiatric comorbidity. In the same study of 45% male amputees of age 15-30, 81% of whom had low literacy levels and from the rural areas, 4% had subsyndromal PTSD, 20% with PTSD, 10% GAD, and 6% Panic Disorder but the most common comorbidity in the population was Major Depressive Disorder at 63%.

Marriage is regarded as a protective factor against depression as postulated by various researchers (Bulloch, Williams, Lavorato, & Patten, 2017; Iqbal et al., 2019). Darnall et al., 2005 indicated that individuals who were separated or divorced at the time of their amputation faced a greater likelihood of developing depression than those who were married. Also, self-isolation, withdrawal, and apparent lower levels of social support often result in the presentation of depressive symptoms (G. M. Williamson, 1995.). The presence of an attentive and helpful partner is principally crucial as they tend to assume the various roles if needed and they tend to be committed to look after their partner rather than single amputees who would rely on their parents or any other supportive relative available, (Mosaku et al., 2009a) .

Following an amputation, patients face long-term challenges such as exhaustion, alterations in their pleasurable activities, financial strain, medical expenses, and different reactions from their family and friends. Besides, this population also goes through a wide array of emotional responses that can become the precipitators of adverse reactions without adequate attention and help from family and the society as a whole, (D. Behrouz et al, 2004)

2.4 Association between anxiety, depression, and PTSD with clinical variables

Persons with bilateral amputations exhibit more predictors of depression because they experience higher demand if they desire to use walking aids compared to persons who go through unilateral limb amputations. Ambulation after the amputation of a lower limb necessitates that they apply significant additional strength. It has been estimated that bilateral limb amputees require almost three times the energy and strength needed by unilateral amputees (Iqbal et al., 2019; Pasquina et al., 2014).

Amputations that are done above the knees have not been associated with higher psychopathology symptomatology rates. They are also associated with worse recovery outcomes and more restrictions in terms of one's activity (Shukla, Sahu, Tripathi, & Gupta, 1982). However, a study by (Yilmaz et al, 2016) postulated the opposite. It showed that above-knee amputations lead to higher levels of depression than those below the knee. This was seen to be as a result of the extra effort and strength needed for above-knee amputees to walk than their below-knee counterparts (Pasquina et al., 2014). Upper limb amputation resulted in significant psychiatric distress compared to lower limb amputation which is supported by findings from a

study conducted by Shukla, Sahu, Tripathi, & Gupta, 1982b where upper limb amputees reported 53% psychiatric morbidity and their counterparts reported 47%. However, the side of the body where amputation was done resulted in insignificant differences amongst amputees (Mall et al., 1997).

The cause of amputation is highly correlated to the development of psychiatric morbidity as evidence shows that persons facing lower-limb amputation as a result of trauma presented with more psychological symptoms than those that underwent the amputation for therapeutic reasons. (Iqbal et al., 2019; Hawamdeh et al., 2008; Fisher & Hanspal, 1998; Livneh, Antonak, & Gerhardt, 1999); (Cem Copuroglu et al, 2010). Partially, this could be due to the reason that a large number of people who go through traumatic events are more from a younger age group and people who are still working (Iqbal et al., 2019). Another explanation could be that traumatic amputees may have had sudden amputations where clinical specialists faced restrained time to walk them through the process as well as to explain to them why the amputation was required (Behrouz &, Sousan Valizadeh, Eissa Mohammadi, 2004).

The presence of medical comorbidities was for the most part assumed to be related to depression (Iqbal et al., 2019). Individuals with debilitating medical conditions such as ischemic vascular leg ulcers, on the other hand, may perceive amputation as an escape to suffering. After the elimination of the cause of suffering, the quality of life then improves (Krans-Schreuder et al., 2012). Conversely, losing a limb in a previously fit and stable adult due to trauma would put them at a significant depression risk because their quality of life would undoubtedly change. (Ephraim & Duncan, 2014).

Individuals who go through traumatic amputations seek out psychiatric treatment. In a retrospective study of 22 patients of traumatic amputation, 36.3% went to the psychiatric clinic in the early duration post-amputation where 22.7% required treatment for Acute Stress Disorder. 6 months to 5 years post-amputation, 77.2% required psychiatric support and treatment for chronic and delayed PTSD (Cem Copuroglu, 2010). After lower limb salvage (55.4%) and amputation (64.5%) of 324 Iraq and Afghanistan soldiers, an average of 38.3% tested positive for depression and 17.9% for PTSD resulting in an average of 34% of the population not working post the procedures (Doukas et al., 2013).

Stump pain following amputation resulted in adverse effects such as diminished QoL, negative life changes, anxiety disorders, prosthesis maladjustment, and restricted movement while phantom and chronic pain were great predictors of anxiety and depression thus making it clear that pain is a significant hindrance to recovery among amputees (Bhutani et al., 2016); (D. Desmond et al, 2008); (Van der Schans, Geertzen, Schoppen, & Dijkstra, 2003).

Desteli et al, (2014); Iqbal et al., (2019) noted that amputees who utilized prostheses as an aid in walking were less depressed compared to those who were not using one since prosthesis will enhance mobility and autonomous functioning of the missing limbs (Madsen, Bååth, Berthelsen, & Hommel, 2018). Most tasks were limited without prostheses and other similar roles were also affected by the impairment. Therefore, the existence of a prosthesis may be a crucial go-between for disability and emotions (Horgan & MacLachlan, 2004)

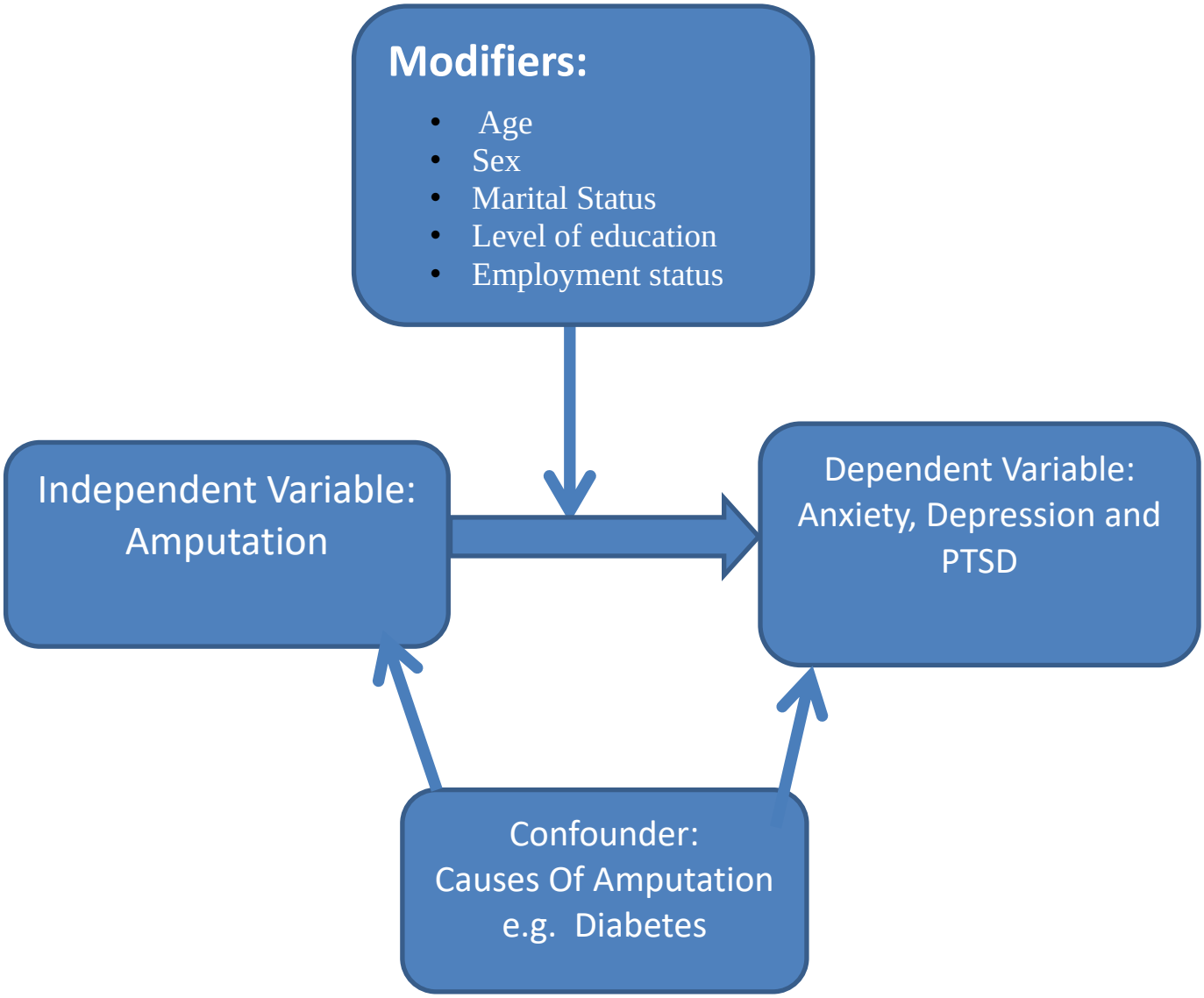
2.5 Correlation between the level of education and employment status of the amputee and levels of anxiety, depression, and PTSD

Iqbal et al., (2019) established that depression was correlated to one's level of education. These findings were similar to other studies that reiterate that amputees with lower levels of education reported more depressive symptoms (Bhutani et al., 2016). Thus, education is crucial in helping an individual get better work opportunities and salaries (Iqbal et al., 2019). Besides, lower education attainment has been associated with a higher risk for depression, (Peyrot et al., 2015). In a study done by Bhutani et al (2016) which considered the subjects' occupation in the statistical research, analyzing their effects on the scores of anxiety and depression, but no meaningful correlation was found (Bhutani et al., 2016).

The conceptual framework displays the variables that influence or may cause anxiety, depression, and/or PTSD among the population under research; amputees. Evidence shows that amputees experience adversity and it is thus critical that all possible factors are studied in this research to come up with clear correlations between amputation and the development and presentation of the said mental disorders. However, there could be factors that either protect or exacerbate the likelihood of the amputees developing anxiety, depression, or PTSD which are included as the modifiers in the framework below. Therefore, it is important to understand the amputee as a whole and the transactional relationship posed by these variables. Additionally, the

study anticipates that the cause for amputation among the population may cause a spurious association since it directly influences both the amputation and the development of anxiety, depression, and PTSD but does not necessarily indicate a correlation.

Figure 1: Conceptual Framework



CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the methodology of the study which includes the study design, methods, and procedures that guided the researcher to identify the sources of data, sample size, and sample design, data collection methods, instruments, and ethical considerations.

3.2 Study Design

The study adopted a descriptive cross-sectional design with a quantitative data collection approach owing to the type and nature of the data collected from the field.

3.3 Study Site

The study was done at the Jaipur Foot Trust artificial limb center located next to Kabete Barracks, along Waiyaki Way, Nairobi. It was established by the Rotary Club of Nairobi in the year 1990 to aid amputees to walk again. In this project, amputees are given artificial limbs at no cost. This service is endorsed by local donors that include individuals, groups, and institutions that are sympathetic to the objectives of the project. The population size of amputees that attended the Jaipur foot trust center was approximately 80 amputees per month translating to 960 amputees per year.

3.4 Study Population

The population consisted of all amputees attending the Jaipur Foot Trust, the target being persons 18 years and above.

Inclusion Criteria

- All male and female patients aged 18 and above.
- Must have a lower and/or upper limb healed amputation.

Exclusion Criteria

- Refuse to give informed consent

3.5 Sample size determination

Using Cochran's formula (Cochran, 1977) with an estimated prevalence of depression of 20 % among amputees in India (Baby et al., 2018), the margin of error(precision) of 5% and a confidence interval of 95%. The following formula was used to establish the sample size:

$$n = \frac{z^2 p(1-p)}{d^2}$$

Where;

n- Sample size

z- Standard normal deviation for α corresponds to a 95% confidence interval.

p- The estimated prevalence of amputee depression is at 20% (Baby et al., 2018).

d- Degree of precision set at 0.05 (5%)

$$n = \frac{1.96^2 0.20(1-0.20)}{0.05^2}$$

= 243 participants.

The corrected sample size for finite population

$$n' = \frac{n}{1+(n-1)/N}$$

Where;

n' = adjusted sample size N = population size

n = sample size

The population of amputees attending Jaipur foot trusts center was approximately 80 amputees per month translating to 240 amputees over three months data collection period. After applying finite population correction the minimum sample size required was 122 participants. Allowing for a 10% non-response rate the minimum sample size required was 136 participants.

3.6 Sampling method

Patients attending Jaipur foot trust centers who met the inclusion criteria were selected using a non-probability purposive sampling method. Data was collected over three months and recruited all amputees attending the clinic at the center.

3.7 Recruitment and Data Collection Procedures

Study participants were recruited from patients receiving services at the Jaipur foot trust center. All eligible participants were recruited both new and those coming for checkups/follow-ups. The screening was done to assess whether the participants met the stated inclusion criteria. This process entailed giving an informed consent document with details of the study and the participants were allowed to ask questions they may have regarding the study. Participants who met the inclusion criteria and willing to participate in the study were requested to sign an informed consent form. They then proceeded to fill the PHQ-9, IES-R, GAD, and socio-demographic questionnaire.

Data Collection Tools

Data was collected using a semi-structured interview comprising of a socio-demographic questionnaire, and tools for depression, anxiety, and PTSD

Measures

Socio-demographic questionnaire

A researcher-designed socio-demographic questionnaire was structured to have the respondent's demographic characteristics such as Sex, Age, Level of Education, Marital Status, Employment status, Unilateral /Bilateral Amputation, Level of Amputation, and reason for amputation.

Depression Inventory

The Patient Health Questionnaire (PHQ-9) was used to assess the severity of depression among the participants as well as their depressive symptomatology singling out the most common depressive symptom among amputees. The PHQ-9 is a self-administered nine-item module for depression and a version of the PRIME-MD diagnostic tool for common mental

illnesses. THE PHQ-9 depression module scores each of the DSM-5 criteria as “Not at all” (“0”) to “Nearly every day” (“3”) (K Kroenke, Spitzer, & Williams, 2001). Therefore, the severity measure of the PHQ-9 ranges from 0-27 for depression where higher scores indicate high levels of depression. The depression severity tabulated according to the total score of every participant as a score of 0-4 no depression, 5-9 mild depression, 10-14 moderate depression, 15-19 moderately severe depression, and 20-27 severe depressive disorder. The PHQ-9 tool took less than a minute to be administered since 85% of the specialists took less than three minutes to evaluate the feedback on the full page PHQ, (Kurt Kroenke, Spitzer, & Williams, 2001)

Generalized Anxiety Disorder Inventory

The Generalized Anxiety disorder (GAD-7) is a self-reported, seven-item anxiety questionnaire for assessing the health of a patient over two weeks. It was designed by Spitzer et al. and has been validated for use in screening and as a severity measure among patients in primary care and general populations ((Spitzer, Kroenke, Williams, & Löwe, 2006). The GAD-7 uses a threshold score of 10 and has a sensitivity of 89% and specificity of 82% for GAD (Löwe et al., 2008). In comparison with the Penn State Worry Questionnaire for Measuring Response (PSWQMR), GAD has been found to have more sensitivity in detecting changes in status in a clinical setting (Swinson, 2006). The items of the GAD-7 assess the degree to which a patient has been bothered by feelings of nervousness, anxiety or being on edge, inability to manage/ stop their worry, having too much worry about different things, having difficulty relaxing, restlessness, being irritable and feeling afraid in the anticipation of something bad might happening. It has scores of “0” (“Not al all”), “1” (“Several days”), “2” (“More than half the days”), and “3” (“Nearly every day”). The scores of 5, 10, and 15 are cut-off points from mild to severe anxiety where further evaluation is recommended for scores above 10. It usually takes about two to five minutes to complete administering this tool.

Post-Traumatic Stress Disorder Inventory

The Impact of Event Scale (IES-R) is a DSM-5 self-report measure for assessing the subjective distress as a result of traumatic events (Weiss, 2007). It is a revised version (22 items) from the older version (Horowitz, Wilner, & Alvarez, 1979) which contained 15 items. The items on the IES-R are directly correspondent with 14 of the 17 symptoms of PTSD in the DSM-IV. Participants were requested to identify a specific event in life that was stressful and indicated

how distressed or bothered they have been over the past seven days as a result of the event. The rating of items is on a 5-point scale ranging from “0” (“Not at all”) to “4” (“Extremely”) yielding a total score of 0- 88. This total can be used to assess partial or full PTSD and has cut-off points for moderate and severe PTSD. Most often IES-R tool takes about ten minutes to be administered, (Horowitz et al., 1979).

3.8 Data Collection and Quality Control

Data collection entailed obtaining data on eligible participants by filling in self-administered questionnaires using paper and pen. Eligible subjects were approached and informed of the study. A voluntary informed consent to participate was obtained from the subject before the administration of the questionnaire. After the subject had filled the questionnaire, all completed questionnaires were scrutinized at the field by the researcher to ensure completeness of the data, including the unique identifier in case of a need to follow up in the future. However, this identity was replaced by a code during data entry for anonymity purposes.

Pretest of Data Collection Tools

The researcher conducted a pre-testing of the tools at Kenyatta National Hospital with a sample size of 10 amputees. This test determined the duration of administering each tool and also verified flaws that were encountered while administering the questionnaire. However, the questions were rather self-explanatory for people with different educational backgrounds save for a few.

3.9 Data Management

3.9.1 Data coding and data entry

After data enumeration, the researcher checked for completeness while in the field. Any missing data for each participant was filled in before leaving the field. Collected data was transported to a central place where it was stored under lock and key. At the central place, data was coded.

A template was created in the Microsoft Access application. The template defined the name (field name), the type (character or numeric) as well as the length (the maximum number of

characters in the field) for each variable, and the number of decimal places for numeric variables, and thereafter data entry was done.

3.9.2 Data cleaning

Data cleaning was done using Microsoft Excel. A clean dataset was stored in a computer hard disk ready for analysis. All the questionnaires were filled and stored in lockable drawers for confidentiality. Cleaning and validation were done when the data had been entered, checked, and corrected. The clean dataset was then exported into SPSS v23 for data analysis.

3.10 Statistical analysis

Descriptive statistics were used to scrutinize the general distribution of data and the depression and anxiety scores, using means and standard deviations for continuous variables and proportions for categorical variables. Independent samples t-test, one-way analysis of variance (ANOVA), was applied to identify group differences. Generalized linear models were used to categorize independent predictors of anxiety, depression, and PTSD. All analyses were conducted using IBM SPSS version 23 (IBM, New York USA). The statistical significance level was set at $p<0.05$ all tests will be 2-tailed.

3.11 Quality assurance procedures

The researcher emphasized the comprehension of the questions and the general concept of the study by the study participants. All the obtained information was recorded and stored in locked cabinets only accessible to the researcher.

3.12 Ethics and informed consent

Ethical approval was sought from the University of Nairobi/Kenyatta National Hospital Ethics Review Committee.

3.12.1 Obtaining Informed Consent

Informed consent documents with details of the study were offered to the study participants and were allowed to ask questions they had regarding the study.

3.12.2 Potential benefits to study participants

The data from the study may help the patients and the clinicians to understand the prevalence of anxiety, depression, and PTSD as well as the risk factors associated with them which can help in the betterment of their management and regular screening and referral for appropriate treatment/ interventions.

3.12.3 Potential risks

No physical harm was anticipated in the study. However, discussion of potentially sensitive topics made some participants uncomfortable, with reliving traumatic experiences in the past. The psychological disturbance was noted among some study participants, and the situation was normalized. However, participants with severe psychological symptoms were given consultation requests to seek further management at the Kenyatta National Hospital Mental Health Unit.

3.12.4 Confidentiality

The researcher assured all the study participants that the study was purely for research/academic purpose and that all the disclosed information was treated with maximum confidentiality. To ensure that confidentiality was observed, the researcher assigned each questionnaire a number, and the respondents were instructed not to write their names on the questionnaires.

3.12.5 Voluntary Participation

The researcher explained to the study participants about the study procedures and the potential risks involved in the study. The participants were allowed to deny their involvement in the study.

3.12.6 COVID 19 Mitigation Procedures

Participants were monitored for signs of respiratory disease and other primary distinguishing symptoms of COVID-19 disease, such as fever, cough, and shortness of breath or trouble breathing, as well as a history of recent exposure to individuals with COVID-19 disease, shortly before the face-to-face appointment. Participants with potential exposure or symptoms indicative of a respiratory condition were not invited for face-to-face visits.

The researcher ensured that she underwent regular temperature checks before entering the research site and that she correctly put on a facemask at all times during the face-to-face interactions.

Suitable infection prevention control measures were ensured at the site of face-to-face visits, as follows:

- Temperature checks were carried out using a non-contact thermometer for all participants and other individuals arriving at the research site.
- There were hand-washing stations and hand sanitizers for all to use.
- During face-to-face interactions, the researcher ensured that participants correctly put on their face masks.
- A minimum physical distance of 1.5 meters in the waiting room was maintained.

CHAPTER FOUR: RESULTS AND DATA ANALYSIS

This chapter describes the collected data following the study objectives that is the prevalence of anxiety, depression, and PTSD among amputees, the socio-demographic characteristics and association between socio-demographic characteristics, and the prevalence of anxiety, depression, and PTSD among amputees.

4.1 Response Rate

The calculated sample size was 136, but 141 participants were interviewed because there was an increase in the number of respondents in the last few days and the researcher did not want to miss out on any willing respondents. Consequently, 141 questionnaires were analyzed reflecting a 104 percent response rate**.**

4.2 Socio-demographic Characteristics of Respondents

The socio-demographic characteristics of the respondents are presented in table 1.

Age: The mean age was 43.4 years and ranged from 18-85 years, with the bulk of the participants aged between 31-50 years.

Sex: More than half of the participants (55.3%) were males and the rest (44.7%) females

Marital Status: The majority of the participants were married (55.3%), 31.9% were single and 12.9% were either divorced/separated/Widowed.

Education level: In terms of education level 35.0% had completed secondary school, 29.3% had less than primary education, 20.7% had completed primary school and 15.0% had completed college/university education.

Occupation: More than 2/3rds (69.3%) were employed, of which 83.5% were self-employed, 15.5% non-government employees and 1.0% were government employees (See figure XX) while 30.7% were unemployed of whom the majority were unemployed able to work (34.9%) and students (30.2%) (See figure 4.1).

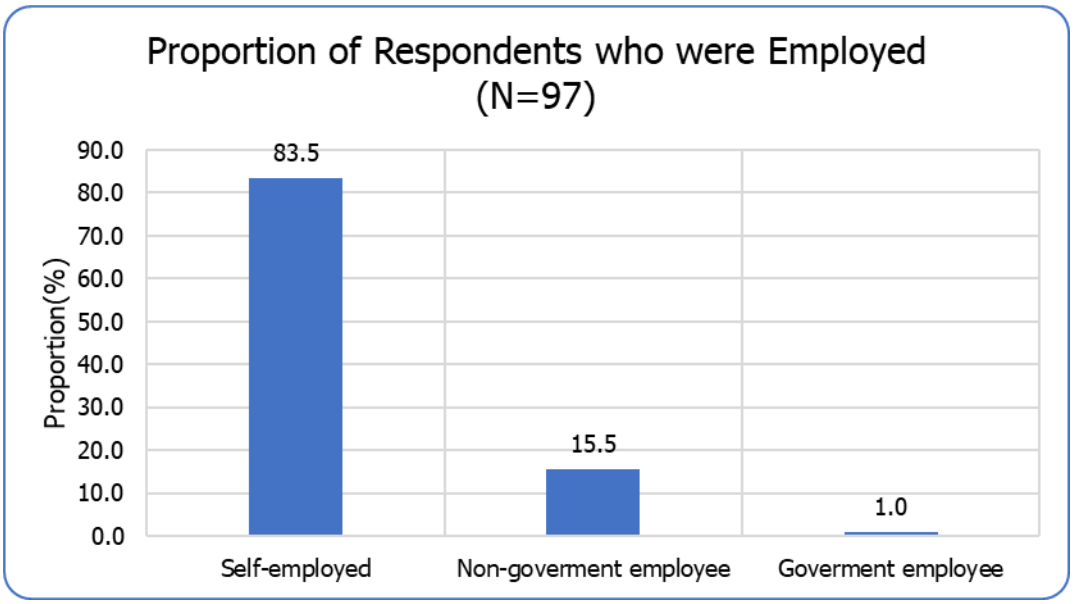
Monthly Income: In terms of monthly income, 45% had an income of <20,000Ksh, 21.7% had an income of more than 20, 000Ksh a month while the rest 33.3% had no income.

Table 1: Socio-demographic Characteristics of the respondents

Variable	**Category**	**Frequency (N=141)**	**Percentage (%)**
Sex	Male	78	55.3
	Female	63	44.7
Age in Years	Mean; Median; Range	43.4; 42; 18 to 85	
Age Category	30 and Below	27	19.1
	31-40 Years	35	24.8
	41-50 Years	39	27.7
	51-60 Years	20	14.2
	Above 60	20	14.2
Marital Status	Single	45	31.9
	Married	78	55.3
	Divorced/Separated/Widowed	18	12.8
Highest level of Education	Less than Primary School	41	29.3
	Primary School	29	20.7
	Secondary/ High School	49	35.0
	College/ University	21	15.0
	Non-Response	*1*	
Employment Status	Employed	97	69.3
	Un-Employed	43	30.7
	Non-Response	*1*	
Monthly Income	No Income	43	33.3
	< 20,000Ksh	58	45.0
	20,000 and Above	28	21.7
	Non-Response	*12*	

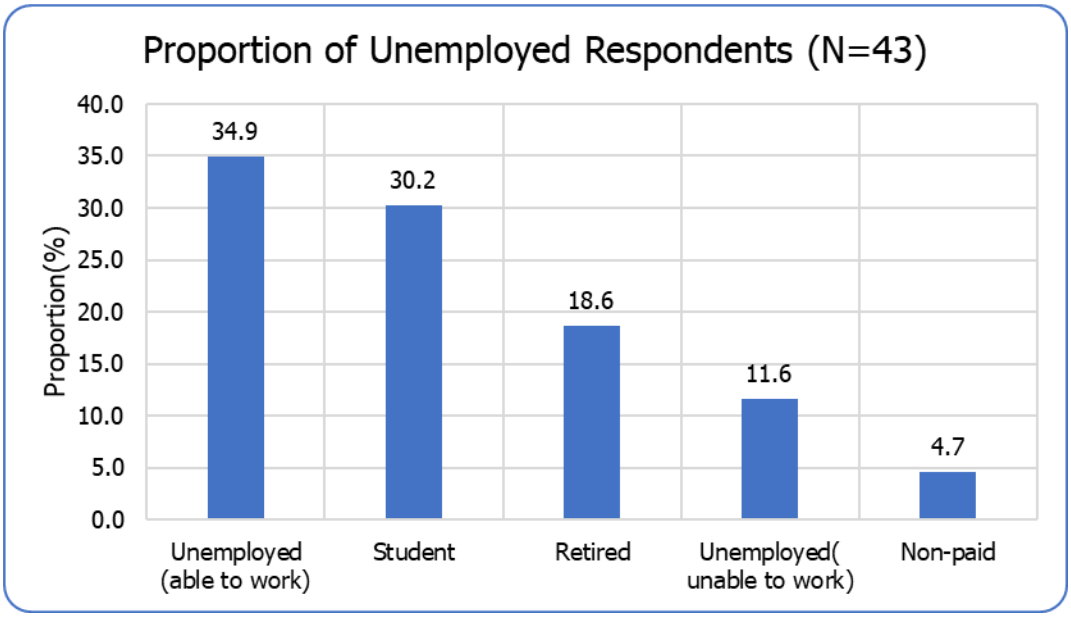
From the Figure below (Fig 4.1), 83.5% of the respondents were self-employed, 15.5% were non-government employees while 1.0% were government employees. This implies that most of the respondents were self-employed.

Figure 4.1



From the figure below (Fig 4.2), 34.9% of the respondents indicated that they were unemployed but able to work, 30.2% were students, 18.6% were retired, 11.6% were unemployed but unable to work while 4.7% of the respondents were non-paid.

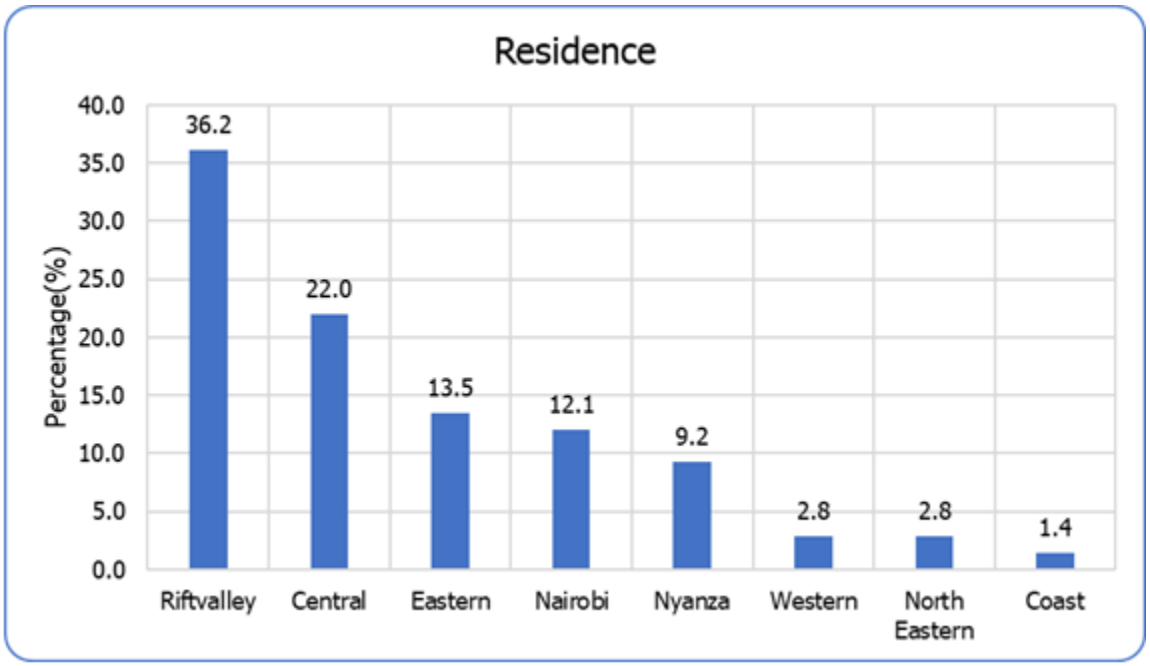
Figure 4.2



4.3 Residences as Per the Provinces

Rift Valley Province had the highest number of respondents at 36.2%, followed by central at 22%, Eastern at 13.5%, Nairobi at 12.1%, and then Nyanza at 9.2%. Furthermore, Western and North Eastern had a similar proportion of respondents at 2.8% with Coast Province having the least number of respondents (1.4%) as shown in Fig 4.3.

Figure 4.3



Psychosocial, Biological and other Characteristics of the Respondents

Amputation Type: About (92.9%) of the respondents had a unilateral amputation, while the rest had a bilateral amputation, of which 70% had their amputation below the knee.

Causes Of Amputation: Non-vasculitis causes accounted for the majority (80.7%) of amputations of which the majority (56%) were caused by road traffic accidents, followed by snake bites (14.3%) (See figure 4.4). Vasculitis causes accounted for 19.3% of the total amputation in which diabetes accounted for (70%) and gangrene (30%).

Walking Aid: Prothesis was used by 73.6% of the respondents as a walking aid, 25% used crutches while 1.4% used a wheelchair.

Presence of Other Illnesses: 23.4% of the respondents indicated that they have been diagnosed with other illnesses, of which 60.6% had diabetes, 45.5% had hypertension, 6.1% had asthma and arthritis respectively. While 18.2% had a comorbid condition (See figure 4.7).

Pain at the Amputation Site: 11.3% of the participants indicated that they experience pain at the amputation site which they rated the level of pain on a scale of 1-10 as shown in (figure 4.5).

Social Support: The majority (87.9%) of the respondents indicated that they receive social support from their families.

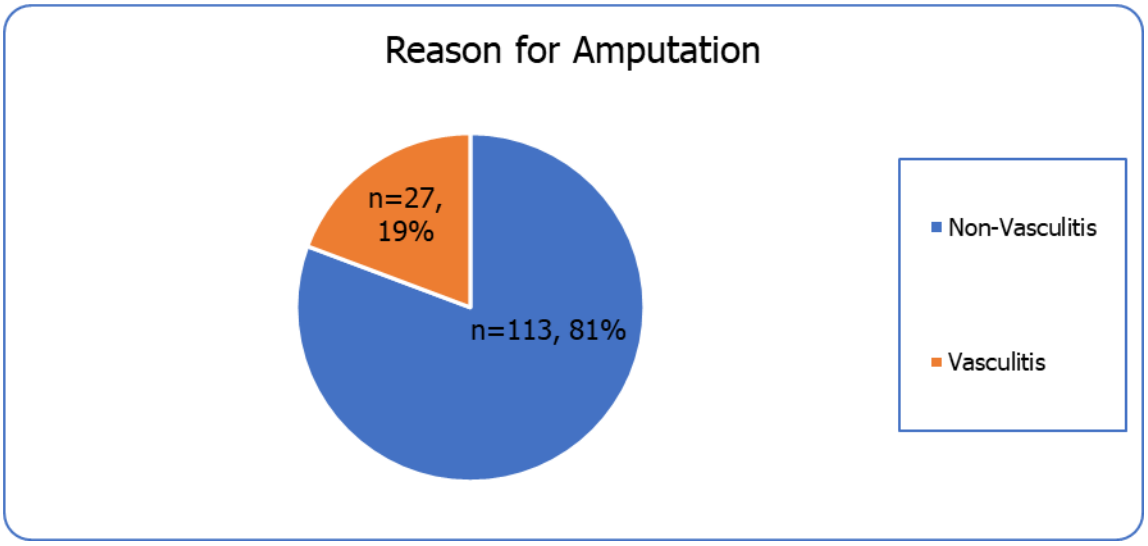
Table 2: Psychosocial, Biological and other Characteristics of the Respondents

Variable	Category	Frequency (N=141)	Percentage (%)
Amputation Type	Bilateral	10	7.1
	Unilateral	131	92.9
Level of Amputation	Above the Knee	42	30.0
	Below Knee	98	70.0
	Non-Response	*1*	
Reason for Amputation	Non-Vasculitis	113	80.7
	Vasculitis	27	19.3
	Non-Response	*1*	
Type of walking Aid	Wheel Chair	2	1.4
	Prosthesis	103	73.6
	Crutches	35	25.0
	Non-Response	*1*	
Presence of other illness	Yes	33	23.4
	No	108	76.6
Experience pain at the amputation site	Yes	16	11.3
	No	125	88.7
Rate your pain on a scale of 1-10 (N=16)	2	4	25.0
	3	3	18.8
	4	1	6.3
	5	3	18.8
	6	3	18.8
	7	1	6.3
	9	1	6.3

Receive Support from your family	Yes	124	87.9
	No	17	12.1

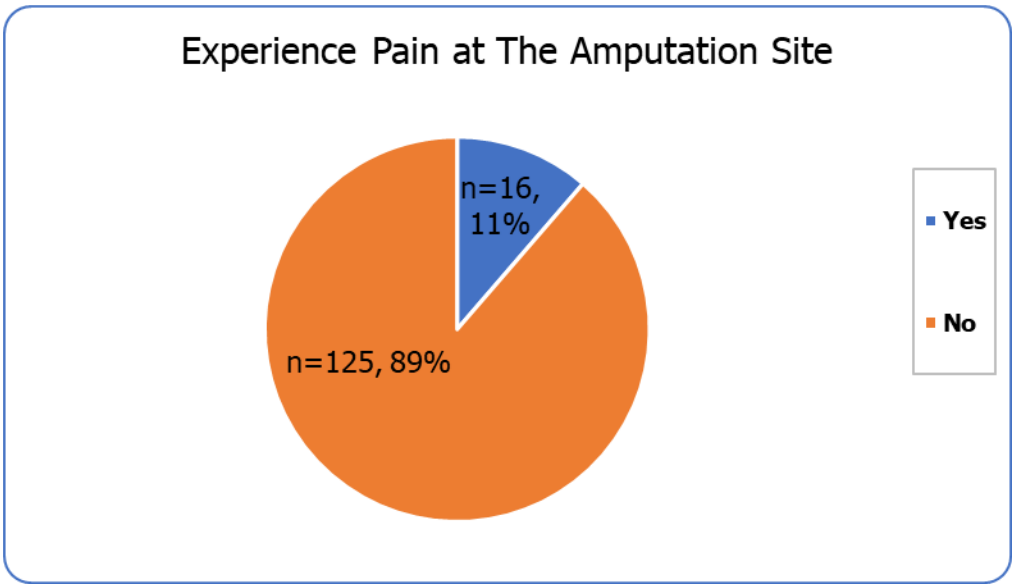
From the Table below, 81% of the respondents indicated their reason for amputation as non-vasculitis while 27% of the respondents indicated their reason for amputation as vasculitis. This implies that the reason for amputation for most of the respondents was non-vasculitis.

Figure 4.4



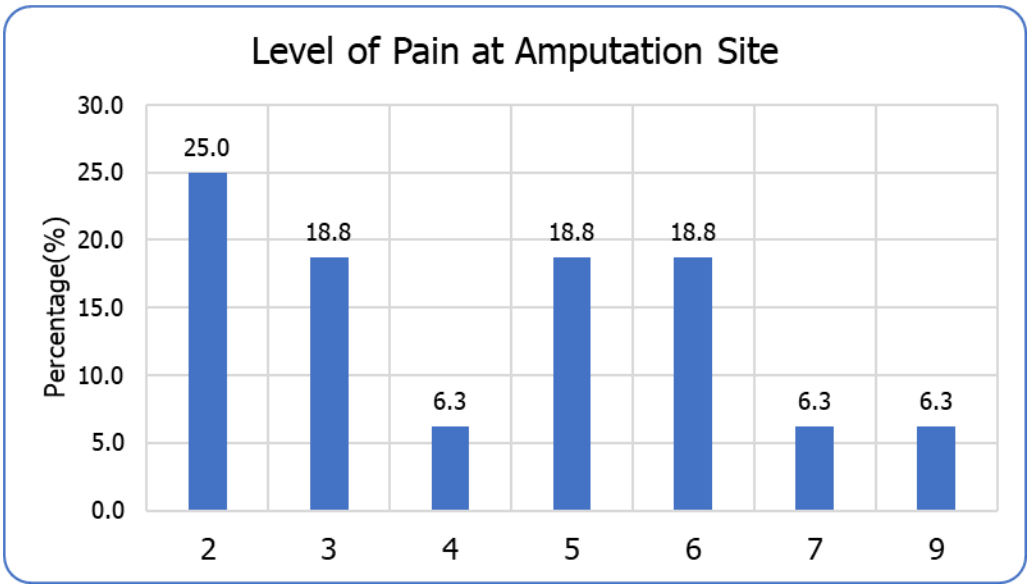
The respondents were further requested to indicate whether they felt pain at the amputation site. The results were as shown in the figure below. From the Figure below(Fig 4.5), most of the respondents about 89% indicated that they did not feel pain at the amputation site while 11% of the respondents indicated that they felt pain at the amputation site.

Figure 4.5



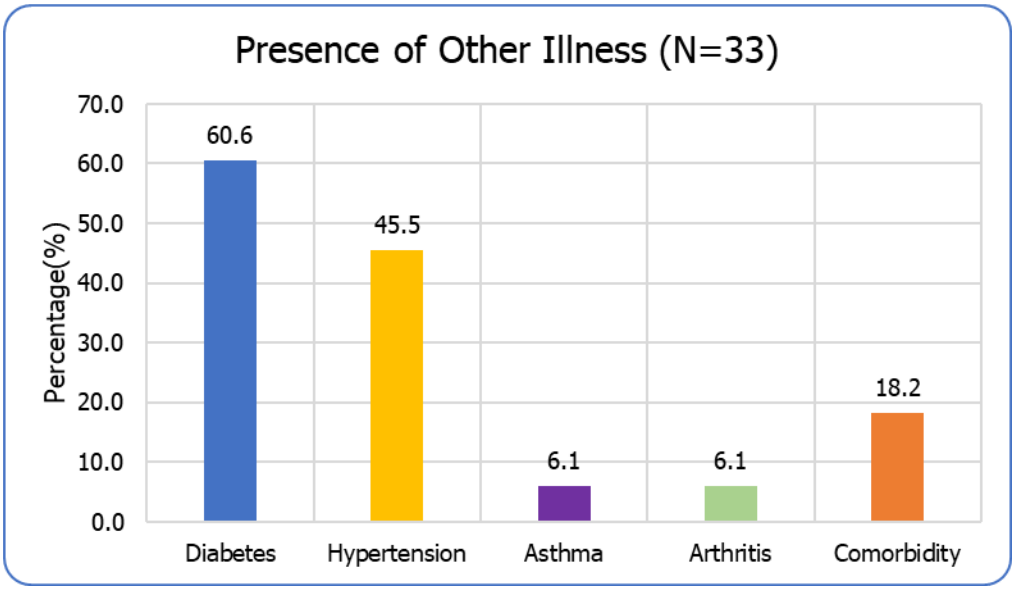
The respondents were requested to indicate the level of pain at the amputation site. From the figure below, 25% of the respondents indicated 2, 18.8% indicated 6, further, 18.8% indicated 6, in addition, 18.8% indicated 3, 6.3% indicated 4, further, 6.3% indicated 7, also 6.3% indicated 9 as their level of pain at the amputation site as shown in figure 4.6.

Figure 4.6



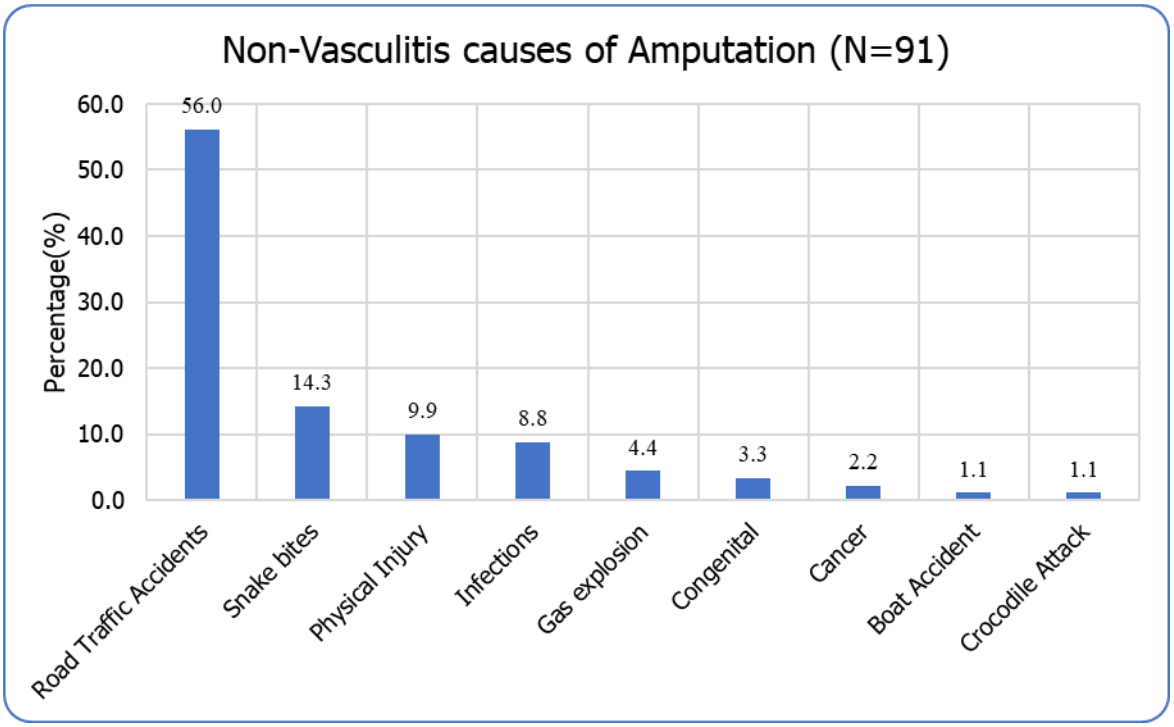
The respondents were requested to indicate the presence of other illnesses. From the figure below, 60.6% indicated diabetes,45.5% indicated hypertension, 18.2% indicated comorbidity, 6.1% indicated asthma while 6.1% indicated arthritis.

Figure 4.7



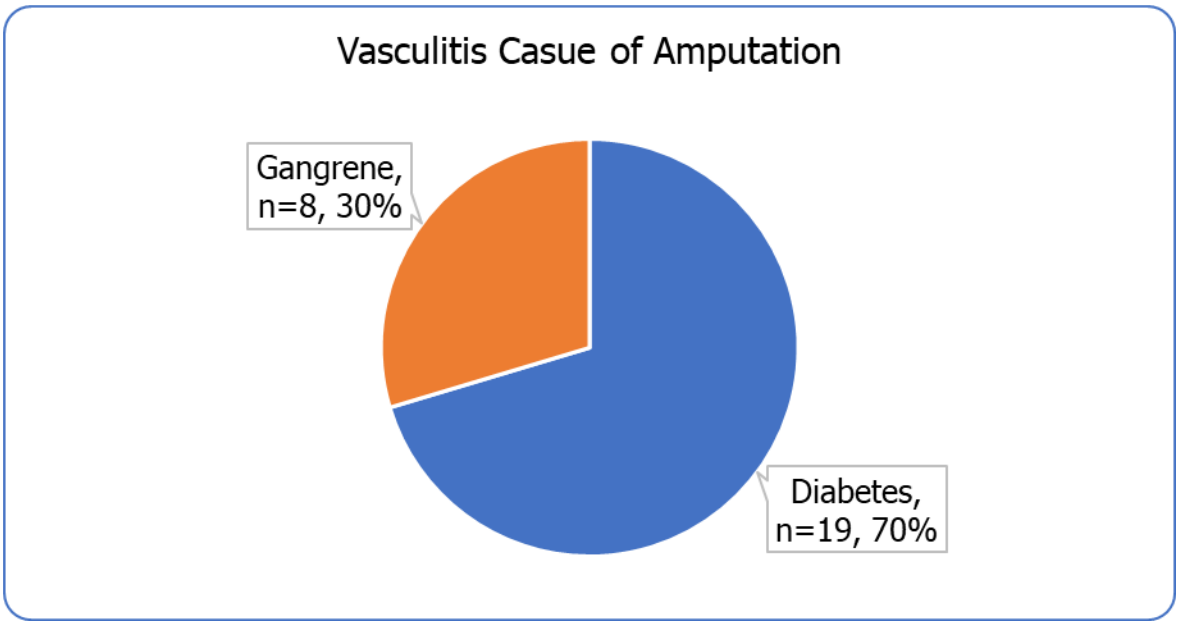
The respondents were requested to indicate the non-vasculitis causes of amputation. From the figure below(figure 4.8),56% of the respondents indicated road traffic accidents, 14.3% indicated snake bites, 9.9% indicated physical injury,8.8% indicated infections,4.4% indicated gas explosion,3.3% indicated congenital, 2.2% indicated cancer,1.1% indicated boat accident while 1.1% indicated crocodile attack.

Figure 4.8



Further, the respondents were requested to indicate the vasculitis causes of amputation. As shown in the table below(figure 4.9), 70% of the respondents indicated diabetes while 30% of the respondents indicated gangrene.

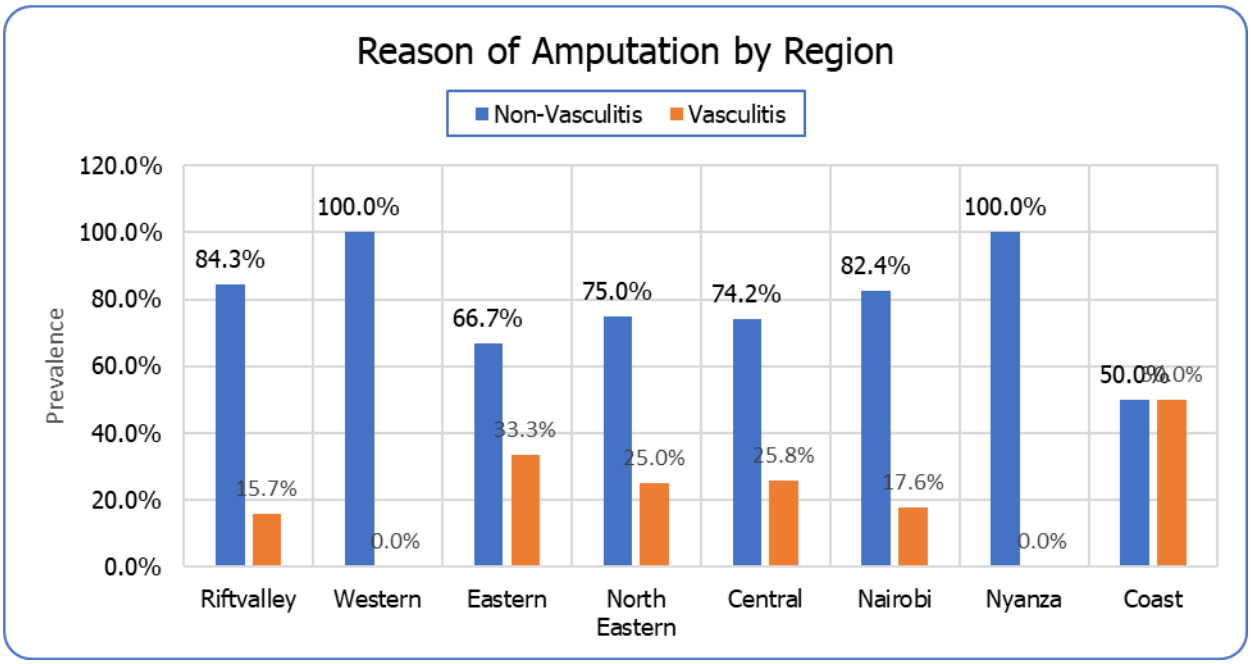
Figure 4.9



4.4 Reasons of Amputation by Region

In the Rift Valley, Non-Vasculitis causes accounted for 84.3% while vasculitis causes accounted for 15.7%. In Western and Nyanza Provinces Non-Vasculitis causes accounted for 100% of the causes of amputations. In Nairobi Province, 82.4% of the cases were due to non-vasculitis causes. In North-Eastern (75%) and Central Province (74.2%) around three-quarters of the causes were due to non-vasculitis causes while vasculitis causes accounted for the rest of the causes. In Eastern Province, 66.7% of the causes of amputation were due to non-vasculitis causes while 33.3% were secondary to vasculitis causes. On the Coast, there was an equal presentation of both vasculitis ad non-vasculitis causes at 50%. Fig 4.10 depicts the above.

Figure 4.10



Reliability of PHQ-9

PHQ-9 Items	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
1. Little interest or less happiness in daily activities	9.83	19.25	0.59	0.752
2. Feeling bored, depressed, or hopeless	9.71	17.21	0.63	0.738
3. Trouble falling or staying asleep, or sleeping too much	9.88	16.61	0.62	0.740
4. Feeling tired or having little energy	10.35	20.23	0.40	0.773
5. Poor appetite or overeating	10.32	17.75	0.55	0.752
6. Feeling bad or as a failure about yourself or a disappointment to	9.59	17.74	0.60	0.745

	your family				
7.	Trouble/problem focusing on things, such as starting and finishing activities	11.20	21.89	0.18	0.797
8.	Moving or talking so slowly that other people could have noticed. Or being unable to relax as usual	11.50	23.39	0.02	0.800
9.	Thoughts that you would prefer being dead, or of hurting yourself	10.31	17.88	0.50	0.762
Cronbach's Alpha					**0.785**

GAD-7

GAD Items	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
GAD 1: Feeling nervous, anxious, or on edge	9.29	14.32	0.61	0.778
GAD2: Not being able to stop or control worrying	8.69	13.41	0.67	0.765
GAD 3: Worrying too much about different things	8.47	13.99	0.64	0.772
GAD 4: Trouble relaxing	9.69	15.37	0.50	0.796
GAD 5: Being so restless that it's hard to sit still	10.16	15.93	0.37	0.815
GAD 6: Becoming easily annoyed or irritable	8.84	14.60	0.47	0.802
GAD 7: Feeling afraid as if something awful might happen	8.95	13.10	0.60	0.781

Cronbach's Alpha **0.813**

IES-R

IES-R Items	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
1. Any reminder brought back feelings about it	34.68	193.01	0.65	0.923
2. I had trouble staying asleep	34.60	183.16	0.69	0.922
3. Other things kept making me think about it	35.10	191.70	0.71	0.922
4. I felt irritable and angry	34.86	190.46	0.61	0.923
5. I avoided letting myself get upset when thought about it or was reminded of it	35.23	193.69	0.70	0.922
6. I thought about it when I didn't mean to	35.38	191.34	0.71	0.922
7. I felt as if it hadn't happened or wasn't real	35.21	191.20	0.70	0.922
8. I stayed away from reminders of it.	35.56	194.98	0.61	0.923
9. Pictures about it popped into my mind.	36.83	206.50	0.34	0.927
10. I was jumpy and easily startled.	36.50	203.24	0.30	0.929
11. I tried not to think about it.	35.62	194.76	0.51	0.925
12. I was aware that I still had a lot of feelings about it, but I didn't deal with them.	34.62	191.04	0.63	0.923
13. My feelings about it were kind of numb.	35.98	200.13	0.56	0.925

14. I found myself acting or feeling like I was back at that time.	35.47	193.24	0.61	0.923
15. I had trouble falling asleep.	34.62	183.70	0.69	0.922
16. I had waves of strong feelings about it.	35.89	198.23	0.53	0.925
17. I tried to remove it from my memory.	35.69	197.07	0.53	0.925
18. I had trouble concentrating.	36.65	204.25	0.35	0.927
19. Reminders of it caused me to have physical reactions, such as sweating, trouble breathing, nausea, or a pounding heart.	37.02	212.22	0.12	0.929
20. I had dreams about it.	34.74	188.92	0.74	0.921
21. I felt watchful and on guard.	34.02	191.29	0.69	0.922
22. I tried not to talk about it.	33.89	192.75	0.66	0.923
Cronbach's Alpha				**0.927**

The reliability of PHQ-9, GAD-7, and IES-R in this sample was 0.785, 0.813, and 0.927 respectively.

Prevalence of PTSD, Depression, and Anxiety

Prevalence of PTSD

A total of 92 participants screened positive for PTSD (Scores ≥33) giving a prevalence rate of 65.2% 95% C.I. 57.4% to 73.0%. (Table 3 and Figure 4.15). The Mean Median, SD, Min. Max and interquartile range are presented in Table 4.

Prevalence of Depression

As shown in Table 3, the prevalence of mild depression was 22.0% 95% C.I. 15.6% to 29.1%; Moderate depression 39.0% 95% C.I. 31.2% to 46.8%; Moderately severe 27.0% 95% C.I. 19.9% to 34.0% and severe depression 1.4% 95% C.I. 0.0% to 3.5%. (Table 3 and Figure 4.11). Among those who endorsed any item on the scale. The level of difficulty in carrying out the tasks was as follows 8.0% indicated that it was not difficult, 65.7% said it was somewhat

difficult, 20.9% said it was very difficult and 6.0% said it was extremely difficult (see figure 4.12). The Mean Median, SD, Min. Max and interquartile range are presented in Table 4.

Prevalence of Anxiety

As shown in Table 3, the prevalence of mild anxiety was 30.5% 95% C.I. 23.4% to 38.3%; moderate anxiety 40.4% 95% C.I. 32.6% to 48.9%; and severe anxiety 20.6% 95% C.I. 13.5% to 27.7% (Table 3 and Figure 4.13). Among those who endorsed any item on the scale. The level of difficulty in carrying out the tasks was as follows 8.0% indicated that it was not difficult, 65.7% said it was somewhat difficult, 19.7% said it was very difficult and 6.6% said it was extremely difficult (see figure 4.14) The Mean Median, SD, Min. Max and interquartile range are presented in Table 4.

Table 3: Prevalence of Depression Anxiety and PTSD

Measure	**Category**	**Frequency (N=141)**	**Percentage (%)**	**95% C.I.**	
				Lower	**Upper**
PTSD	Negative for PTSD (<33)	49	34.8	27.0	42.6
	Positive for PTSD (≥33)	92	65.2	57.4	73.0
Depression	None (0-4)	15	10.6	6.4	15.6
	Mild (5-9)	31	22.0	15.6	29.1
	Moderate (10-14)	55	39.0	31.2	46.8
	Moderately Severe (15-19)	38	27.0	19.9	34.0
	Severe (20-27)	2	1.4	0.0	3.5
Anxiety	Minimal Anxiety (0-4)	12	8.5	4.3	13.5
	Mild Anxiety (5-9)	43	30.5	23.4	38.3
	Moderate Anxiety (10-14)	57	40.4	32.6	48.9
	Severe Anxiety (15-21)	29	20.6	13.5	27.7

Table 4: Descriptive Statistics of Outcome Measures

Measure	Patient Health Questionnaire	General Anxiety Questionnaire	Impact of Events Scale-Revised (IES-R)			
	PHQ-9	GAD	IES-R Total	INT	AVD	HYP
• Mean	11.4	10.7	37.2	13.9	14.7	8.6
• Median	12.0	11.0	37.0	14.0	14.0	9.0
• Std. Deviation	4.9	4.3	14.1	5.8	5.6	3.8
• Minimum	0.0	0.0	0.0	0.0	0.0	0.0
• Maximum	22.0	19.0	75.0	27.0	29.0	19.0
• Interquartile Range	7.0	6.0	17.5	8.0	8.0	5.0

Correlation between Depression, Anxiety, and PTSD

Table 5 presents the Correlation between Depression, Anxiety, and PTSD. The Correlation between PTSD and Depression scores was r=0.688; p<0.001; PTSD and Anxiety scores were r=0.759; p<0.001, Anxiety and Depression scores were r=0.719; p<0.001.

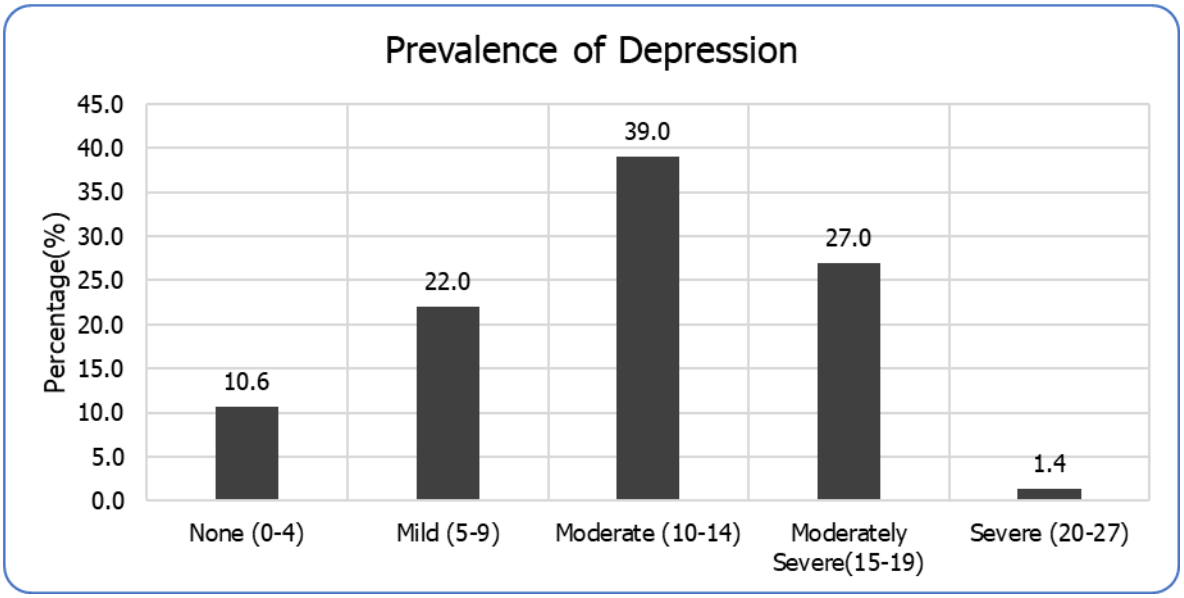
Table 5: Correlation between Depression, Anxiety and PTSD

Pearson Correlation	1	2	3	4	5	6
1. PTSD	1					
2. Depression	0.688**	1				
3. Anxiety	0.759**	0.719**	1			
4. INT-IES-R subscale	0.955**	0.743**	0.756**	1		
5. AVD-IES-R subscale	0.928**	0.529**	0.670**	0.817**	1	
6. HYP-IES-R subscale	0.894**	0.647**	0.681**	0.822**	0.730**	1

Note: **Correlation is significant at the 0.01 level (2-tailed).

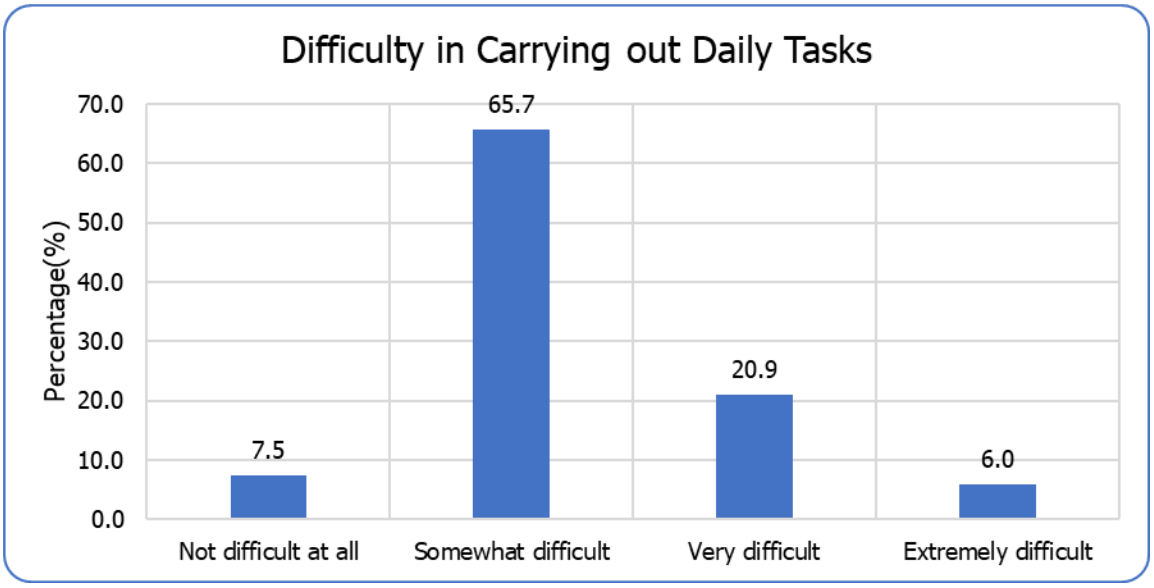
The respondents were further requested to indicate their prevalence of depression. As shown in the figure below (figure 4.11), 39% indicated moderate, 27% of the respondents indicated moderately severe, 22% of the respondents indicated mild, 10.6% indicated none while 1.4% of the respondents indicated severe.

Figure 4.11



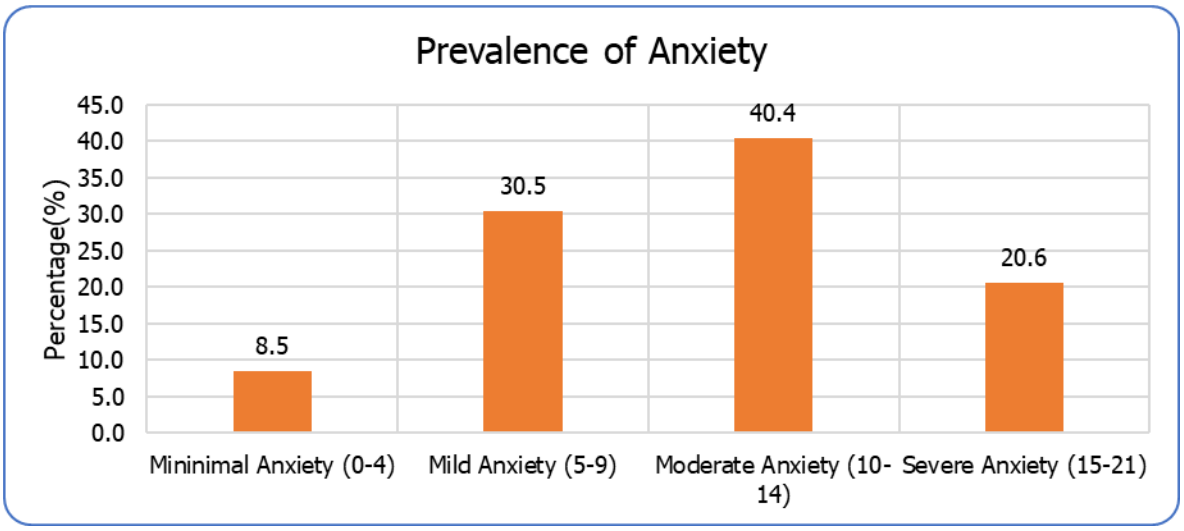
Further, the respondents were requested to indicate whether they experienced difficulty in carrying out daily tasks. As shown in the figure below (figure 4.12), 56.7% of the respondents indicated somewhat difficult, 20.9% indicated very difficult, 7.5% indicated not difficult at all while 6.0% of the respondents indicated extremely difficult.

Figure 4.12



Under prevalence of anxiety as shown in the figure below(figure 4.13), 40.4% of the respondents indicated moderate anxiety, 30.5% of the respondents indicated 30.5%, 20.6% indicated severe anxiety while 8.5% of the respondents indicated minimal anxiety.

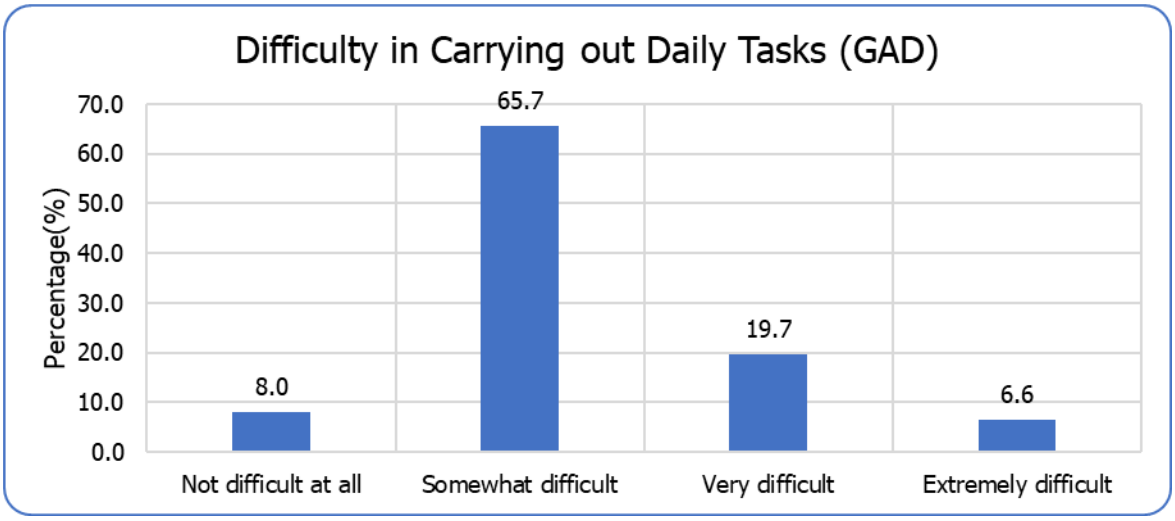
Figure 4.13



Further, the respondents were requested to indicate whether they experienced difficulty in carrying out daily tasks (GAD). As shown in the figure below(figure 4.14), 65.7% of the

respondents indicated somewhat difficult, 19.7% indicated very difficultly, 8.0% indicated not difficult at all while 6.6% of the respondents indicated extremely difficult.

Figure 4.14



Under prevalence of PTSD as shown in figure 4.15, most of the respondents 65% were positive for PTSD while 35% of the respondents were negative for PTSD. This implies that most of the respondents were positive for PTSD.

Figure 4.15

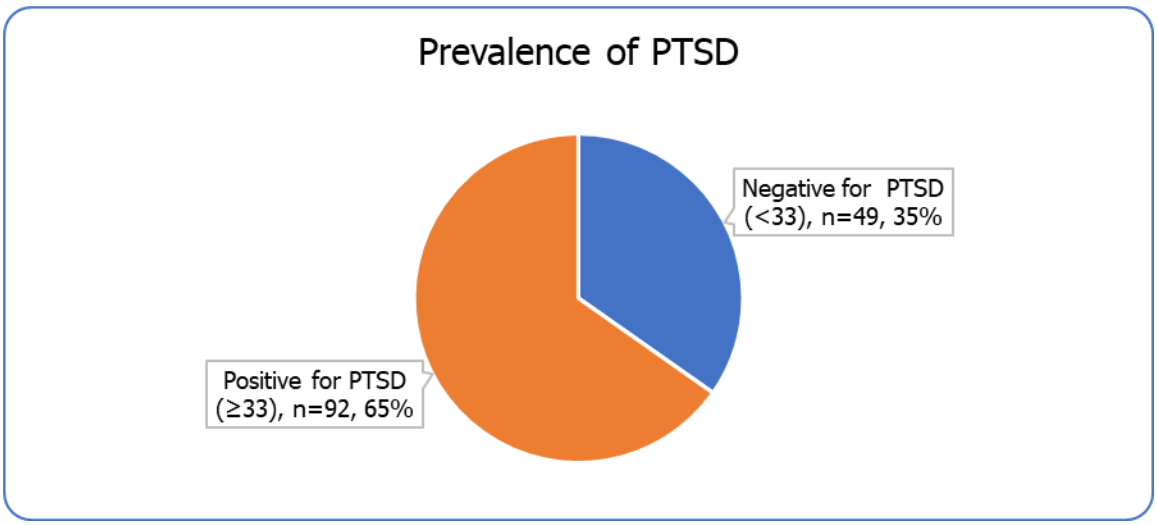


Table 6: presents the socio-demographic and other factors associated with depression **(Bivariate analysis)**. Participants who were employed had significantly higher depression scores as compared to those who were unemployed (p=0.025). Respondents who had unilateral amputation had significantly higher depression scores as compared to those who had bilateral (p=0.022).

Table 6: Socio-demographic and Other Factors Associated with Depression (Bivariate Analysis)

Variable	Category	N	Mean (SD)	p-Value
Sex†	Male	78	10.9(5.1)	0.195
	Female	63	12.0(4.6)	
Age Category‡	30 and Below	27	10.1(6.5)	0.140
	31-40 Years	35	12.3(4.4)	
	41-50 Years	39	12.0(4.2)	
	51-60 Years	20	12.0(4.2)	
	Above 60	20	9.6(4.7)	
Marital Status‡	Single	45	11.5(5.7)	0.670
	Married	78	11.1(4.5)	
	Divorced/Separated/Widowed	18	12.2(4.3)	
Highest level of Education‡	Less than Primary School	41	11.4(4.3)	0.578
	Primary School	29	10.4(4.4)	
	Secondary/ High School	49	11.6(5.6)	
	College/ University	21	12.3(5.1)	
Employment Status†	Employed	97	12.0(4.7)	**0.025**
	Un-Employed	43	10.0(5.2)	
Monthly Income‡	No Income	43	10.0(5.2)	0.061
	< 20,000Ksh	58	11.6(5.1)	
	20,000 and Above	28	12.8(4.1)	
Amputation Type†	Bilateral	10	8.0(7.5)	**0.022**

	Unilateral	131	11.6(4.6)	
Level of Amputation†	Above the Knee	42	12.1(4.7)	0.254
	Below Knee	98	11.1(5.0)	
Reason for Amputation†	Non-Vasculitis	113	11.4(5.2)	0.980
	Vasculitis	27	11.4(3.5)	
Underlying illness†	Yes	33	11.7(3.4)	0.681
	No	108	11.3(5.3)	
Experience pain at the amputation site†	Yes	17	11.5(4.8)	0.505
	No	124	10.6(5.6)	

Note: †-Independent samples t-test**;** ‡-One way analysis of variance-ANOVA

Table 7 presents the socio-demographic and other factors associated with anxiety (Bivariate analysis). Female participants had significantly higher anxiety scores as compared to males (p=0.024).

Table 7: Socio-demographic and Other Factors Associated with Anxiety

Variable	**Category**	**N**	**Mean (SD)**	**p-Value**
Sex†	Male	78	10.0(4.5)	**0.024**
	Female	63	11.6(3.9)	
Age Category‡	30 and Below	27	10.4(5.9)	0.957
	31-40 Years	35	11.1(4.3)	
	41-50 Years	39	10.7(3.4)	
	51-60 Years	20	10.9(4.1)	
	Above 60	20	10.2(4.1)	
Marital Status‡	Single	45	10.9(5.5)	0.823
	Married	78	10.5(3.7)	

	Divorced/Separated/Widowed	18	11.1(3.9)	
Highest level of Education‡	Less than Primary School	41	10.7(4.1)	0.915
	Primary School	29	10.2(3.9)	
	Secondary/ High School	49	10.9(4.5)	
	College/ University	21	11.0(5.3)	
Employment Status†	Employed	97	11.0(4.0)	0.154
	Un-Employed	43	9.9(4.9)	
Monthly Income‡	No Income	43	9.9(4.9)	0.340
	< 20,000Ksh	58	11.1(3.8)	
	20,000 and Above	28	11.2(4.8)	
Amputation Type†	Bilateral	10	8.3(6.4)	0.068
	Unilateral	131	10.9(4.1)	
Level of Amputation†	Above the Knee	42	11.0(4.2)	0.641
	Below Knee	98	10.7(4.4)	
Reason for Amputation†	Non-Vasculitis	113	11.4(5.2)	0.980
	Vasculitis	27	11.4(3.5)	
Underlying illness†	Yes	33	11.0(2.7)	0.694
	No	108	10.6(4.7)	
Experience pain at the amputation site†	Yes	17	10.7(4.3)	0.908
	No	124	10.8(4.7)	

Note: †-Independent samples t-test**;** ‡-One way analysis of variance-ANOVA

Table 8 presents the socio-demographic and other factors associated with PTSD (Bivariate analysis). Respondents who had unilateral amputation had significantly higher PTSD scores as compared to those who had bilateral (p=0.034).

Table 8: Socio-demographic and Other Factors Associated with PTSD

Variable	Category	N	Mean (SD)	p-Value
Sex†	Male	78	36.2(15.0)	0.348
	Female	63	38.5(13.1)	
Age Category‡	30 and Below	27	38.1(21.7)	0.962
	31-40 Years	35	36.8(13.0)	
	41-50 Years	39	36.8(11.1)	
	51-60 Years	20	38.9(9.4)	
	Above 60	20	36.0(13.7)	
Marital Status‡	Single	45	36.8(18.2)	0.822
	Married	78	37.0(12.5)	
	Divorced/Separated/Widowed	18	39.2(8.9)	
Highest level of Education‡	Less than Primary School	41	34.6(13.3)	0.306
	Primary School	29	36.1(15.1)	
	Secondary/ High School	49	38.1(13.2)	
	College/ University	21	41.5(16.4)	
Employment Status†	Employed	97	37.5(12.7)	0.647
	Un-Employed	43	36.3(17.1)	
Monthly Income‡	No Income	43	36.3(17.1)	0.554
	< 20,000Ksh	58	36.5(13.0)	
	20,000 and Above	28	39.9(13.6)	
Amputation Type†	Bilateral	10	28.1(22.1)	**0.034**
	Unilateral	131	37.9(13.2)	
Level of Amputation†	Above the Knee	42	36.9(14.3)	0.840
	Below Knee	98	37.5(14.2)	
Reason for Amputation†	Non-Vasculitis	113	11.4(5.2)	0.980

	Vasculitis	27	11.4(3.5)	
Underlying illness†	Yes	33	38.4(11.2)	0.576
	No	10 8	36.8(14.9)	
Experience pain at the amputation site†	Yes	17	36.8(13.9)	0.378
	No	12 4	40.1(16.1)	

Note: †-Independent samples t-test**;** ‡-One way analysis of variance-ANOVA

Table 9 presents the independent predictors of depression after adjusting for all other variables that were associated with anxiety at the bivariate level. Participants who were employed had significantly higher depression scores as compared to those who were unemployed (β=1.33; 95% C.I. 0.16 to 2.49; p=0.030). Participants who had higher scores of anxiety and PTSD had significantly higher depression scores (β=-0.50; 95% C.I. 0.31 to 0.69; p<0.001) and (β=-0.12; 95% C.I. 0.06 to 0.17; p<0.001) respectively.

Table 9: Independent Predictors of Depression (multivariate analysis)

Variable	**Category**	**β**	**S.E.**	**95% Confidence Interval**		**Sig.**
				Lower	**Upper**	
Gender	Male	0.32	0.56	-0.78	1.41	0.57
	Female	Ref.				
Amputation Type	Bilateral	-1.13	1.05	-3.19	0.94	0.28
	Unilateral	Ref.				
Employment status	Employed	1.33	0.59	0.16	2.49	**0.030**
	Unemployed	Ref.				
Anxiety		0.50	0.10	0.31	0.69	**<0.001**
PTSD		0.12	0.03	0.06	0.17	**<0.001**

Table 10 presents the independent predictors of depression after adjusting for all other variables that were associated with PTSD at the bivariate level. Participants who had higher scores of

anxiety and depression had significantly higher PTSD scores (β=-1.81; 95% C.I. 1.32 to 2.29; p<0.001) and (β=-0.87; 95% C.I. 0.44 to 1.30; p<0.001) respectively.

Table 10: Independent Predictors of PTSD (multivariate analysis)

Variable	**Category**	**β**	**S.E.**	**95% Confidence Interval**		**Sig.**
				Lower	**Upper**	
Gender	Male	1.29	1.53	-1.71	4.29	0.400
	Female	Ref.				
Amputation Type	Bilateral	-2.37	2.89	-8.03	3.29	0.412
	Unilateral	Ref.				
Employment status	Employed	-2.37	1.65	-5.60	0.86	0.150
	Unemployed	Ref.				
Anxiety		1.81	0.25	1.32	2.29	**<0.001**
Depression		0.87	0.22	0.44	1.30	**<0.001**

CHAPTER FIVE: DISCUSSION

Amputation is a procedure, that takes place to save a life after a recommendation. It is at that point considered to be the most appropriate plan of treatment for the patient because of an illness or injury. Nonetheless, this procedure is also life-altering since it changes the life of the patient in a myriad of ways including but not limited to; reduced physical activity, social interactions, esteem, psychosocial well-being, employability, and others. How a patient responds to the loss of limbs is different for amputees in terms of extent and intricacy. Some of the patients go through practical, social, and mental dysfunction following an amputation while other patients are seen to adjust and function relatively well after the amputation (D. M. Desmond et al., 2012). Hence, it is essential to comprehend the associated psychiatric morbidity in this population to appreciate the degree of the issue posed as well as identify and apply the most suitable treatments that would improve the mental health outcomes among this population. This study was set out to study the prevalence of anxiety, depression, and post-traumatic stress disorder among one hundred and forty-one (141) amputees attending the Jaipur foot trust artificial limb center, Nairobi, Kenya.

5.1 Biological. Psycho-social, socio-demographic and other characteristics of the respondents with anxiety, depression, and PTSD

Amputations are surgeries that mutilate and also disrupt the patients' everyday lives. These procedures are also considered distasteful. Moreover, most of them are necessitated in developing countries following trauma and diseases, while amputations in more developed countries are considered for trauma, diabetes, and peripheral vascular disease (Mosaku et al., 2009) (Onuminya et al., 2000).

Findings from this study revealed that middle-aged men (mean age of 43.4 years) among the study participants have undergone amputation. This can be compared to a similar study done by (Falgares, Lo Gioco, Verrocchio, & Marchetti, 2019) where the population had a mean age of 43.8 years. However, this differs from most of the other studies, where most of the study participants were of the younger age group. (Vázquez et al., 2018; Padovani et al., 2015). Most of the participants were male in this study. This is similar to a study done by (Gallagher, O'Donovan, Doyle, & Desmond, 2011). Nevertheless, most studies have shown little disparity in

regards to the clinical results of men and women in terms of psychological well-being following amputation.

At the bivariate level, female participants had significantly higher anxiety scores as compared to males at (p=0.024). Similarly, a study done by (Hawamdeh et al., 2008) showed that forty-four percent of females had anxiety compared to thirty-six percent of males.

Non-vasculitis causes accounted for the majority (80.7%) of amputations. Trauma was postulated to be the common cause of amputations in more than 50% of cases, with a significant percentage being as a result of road traffic accidents as earlier reported (Ogeng'O, Obimbo, & King'Ori, 2009; Awori & Ating'a, 2012). This may be used to explain why anxiety, depression, and PTSD were reported to be higher in this population than in others (Vázquez et al., 2018; Sahu et al., 2016).

Our study found that while adjusting for gender and amputation type, employment was a risk factor for depression and was also highly associated with anxiety and PTSD. We included factors such as gender, amputation type, and employment status in our final model due to the reported increased risk of loss of functionality for male participants as they may be breadwinners for their families, and thus amputations significantly affect their employability based on their severity (Washington, 2013).

It is also consistent that people who experience amputation-related motor skills loss tend to make them more susceptible to adverse reactions (Physiopedia, 2018). Most of the participants reported stigma at the workplace that affected their emotional well-being. In this study, no association was reported between the demographic parameters such as age, marital status, income, level of amputation, the reason for amputation, pain at the amputation site, and depression. Similarly**,** Singh et al., 2009, did not find a correlation between age, gender, level of amputation and, etiology of amputation with development of psychiatric morbidity. On the contrary, Iqbal et al., 2019 found that factors such as being young, single, having low literacy levels, going through bilateral side amputation, experiencing trauma associated with the amputation, inability to get a prosthesis to aid in walking, shorter amputation duration, absence of medical comorbidity that could have necessitated the amputation, a wanting social support system and poor quality of life were correlated to the prevalence of depression.

5.2 Prevalence Of Anxiety, Depression, and PTSD

The findings of this study revealed that a high proportion of individuals who undergo amputation suffered from Anxiety, Depression, and PTSD. The observed rates of psychiatric morbidity where two-thirds of the patients reported PTSD with more than three-quarters of patients being diagnosed with depression and anxiety is alarming. This finding is not distant from what other previous studies have found where researchers reported depression as a highly prevalent psychiatric comorbid condition in amputees, ranging between 13% and 32%. Depression prevalence among amputees in Mexico has also been reported to be as high as 92.5% (Vázquez et al., 2018) which is comparable to what has been found in this study though the sample size was smaller compared to this study by 40. Amputees may present with depressive symptoms (Cavanagh, Shin, Karamouz, & Rauch, 2006; Atherton & Robertson, 2006; D. M. Desmond & MacLachlan, 2006; Phelps, Williams, Raichle, Turner, & Ehde, 2008). Moreover, it has been shown that the presence of depressive symptoms may be linked to an array of debilitating outcomes like increased pain intensity, restriction of activity, self-consciousness, body image associated anxiety, and a significantly reduced quality of life (Asano, Rushton, Miller, & Deathe, 2008; Donovan-Hall, Yardley, & Watts, 2002; Hanley et al., 2004).

Some studies propose that between 15% and 26% of persons with limb loss might experience PTSD, (D. M. Desmond & MacLachlan, 2006; Phelps et al., 2008). For instance, (Muzaffar, Mansoor, Hafeez, & Margoob, 2012; Margoob et al., 2006) all looked at the occurrence of psychiatric comorbidity in people with traumatic amputation from Kashmir valley and they report PTSD prevalence to be at 20% and 80%, respectively. The high prevalence is similar to what was found in this study since trauma accounted for more than fifty percent of the reason for the amputations. The cause for the elevated PTSD prevalence can be related to the amputation itself, or the incident that lead to the amputation, or a mixture of both factors (Margoob et al., 2008). Moreover, there was a significant correlation between depression, anxiety, and PTSD, such that participants who had higher scores on anxiety and depression had significantly higher PTSD scores and vice versa.

A study was done by Sahu, Sagar, Sarkar, & Sagar, 2016, to provide conclusive information concerning the psychological distress among amputees in India established that a considerable

amount of those people who go through an amputation tend to develop psychological distress and psychiatric disorders.

Data collection took place amid the covid-19 pandemic, which has greatly contributed to the high prevalence rate. The pandemic has significant social, economic, and cultural impacts on people's lives. Measures that were taken to combat the pandemic affected day-to-day activities. Containment measures like lockdowns that were imposed by the government, to mitigate covid-19 spread were not conducive to production and processing industries and hence some of the workers were dismissed, (Suleiman, 2020). For the majority of amputees, transport fees had to be sent through mobile money transfer to facilitate the fixing of the prosthesis.

5.3 Conclusion

In summary, depression, anxiety, and PTSD are very common psychological reactions in patients who have undergone amputation. We expected that some of the sociodemographic factors and some amputation-related characteristics would have had a relation with psychiatric comorbidity, but the findings of this study did not show any such relationship except relation between PTSD depression and anxiety.

5.4 Recommendations

1) There is a need to lay down hospital policies that screen for mental illness in patients undergoing amputations
2) Early psychological assessment and interventions after amputations will help prevent psychological illnesses
3) Given the high level of depression, anxiety, and PTSD among amputees, the surgical treatment providers need to liaise with psychiatrists and psychologists so that a comprehensive psychological evaluation can be done when required, and treatment of psychiatric disorders if identified can be initiated. Hence necessary steps to identify and manage psychiatric illness in amputees be initiated in clinical settings.
4) Implementation of stringent road safety regulations would be a feasible control measure.

5) Employers need to make work-related adjustments for employees with disabilities such as accessible lifts and ramps.

5.5 Strengths and Limitations of the Study

The strengths of the study include a relatively large number of amputees, and the use of a structured interview scale adds to the study's strengths. There are few important limitations of the current study that need to be mentioned and addressed in future studies, i.e., poor representation of the female gender, short duration of amputation history, and lack of control group (nontraumatic amputation cases).

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APPENDICES

APPENDIX 1: PARTICIPANT INFORMATION AND CONSENT FORM

Title of Study: Prevalence Of Anxiety, Depression And Post-Traumatic Stress Disorder Among Amputees Attending Jaipur Foot Trust Artificial Limb Centre

Investigator: Dr. Ilham Mohamed, University of Nairobi.

Introduction:

I would like to tell you about a study being conducted by **Dr. Ilham Mohamed,** a Masters of Medicine (Psychiatry) student at the School of Medicine, University of Nairobi. The purpose of this consent form is to give you the information you will need to help you decide whether or not to be a participant in the study. Feel free to ask any questions about the purpose of the research, what happens if you participate in the study, the possible risks and benefits, your rights as a volunteer, and anything else about the research or this form that is not clear. When we have answered all your questions to your satisfaction, you may decide to be in the study or not. This process is called 'informed consent. Once you understand and agree to be in the study, I will request you to sign your name on this form. You should understand the general principles which apply to all participants in medical research: i) Your decision to participate is entirely voluntary ii) You may withdraw from the study at any time without necessarily giving a reason for your withdrawal iii) Refusal to participate in the research will not affect the services you are entitled to in this health facility or other facilities. We will give you a copy of this form for your records.

May I continue? YES /NO

This study has approval by The Kenyatta National Hospital-University of Nairobi Ethics and Research Committee protocol **No_____**

WHAT IS THIS STUDY ABOUT

The purpose of this study is to determine the **Prevalence of Anxiety, Depression, and Post-Traumatic Stress Disorder among Amputees**. Participants in this study will include patients who have a lower and/or upper limb amputation. Participants will be asked questions about their

socio-demographic characteristics, depression, anxiety, and Traumatic Events. There will be approximately 156 participants who will be purposively selected.

WHAT WILL HAPPEN IF YOU DECIDE TO BE IN THIS RESEARCH STUDY?

If you agree to participate in this study, the following things will happen: You will be interviewed by the investigator in a private area where you feel comfortable answering questions. The interview will last approximately 40 Minutes.

ARE THERE ANY RISKS, HARMS DISCOMFORTS ASSOCIATED WITH THIS STUDY?

Medical research has the potential to introduce psychological, social, emotional, and physical risks. One potential risk of being in the study is the loss of privacy. We will keep everything you tell us as confidential as possible. We will use a code number to identify you in a password-protected computer database and will keep all of our paper records in a locked file cabinet. However, no system of protecting your confidentiality can be secure, so it is still possible that someone could find out you were in this study and could find out information about you. Also, answering questions in the interview may be uncomfortable for you. If there are any questions you do not want to answer, you can skip them. You have the right to refuse the interview or any questions asked during the interview. If by any chance we notice some psychological distress during the interview, we will stop it immediately and refer you to a psychosocial counselor based at the clinic for appropriate intervention.

We will do everything we can to ensure that this is done in private.

ARE THERE ANY BENEFITS BEING IN THIS STUDY?

There is no direct benefit to you from participating in the study. However, we hope that, in the future, other people might benefit from this study because it will allow us to learn more about the prevalence of anxiety, depression, and PTSD among amputees

WILL BEING IN THIS STUDY COST YOU ANYTHING?

Participating in this study will not cost you anything apart from the 40 minutes or so of your time.

WILL YOU GET A REFUND FOR ANY MONEY SPENT AS PART OF THIS STUDY?

We shall not provide any monetary refund for participating in the study.

CONFIDENTIALITY AND PRIVACY

The information you provide will be treated confidentially and only authorized members of the research team will have access to it. You will be assigned a unique study ID and no names will be written on the interview forms. Your name or other personal information will not be used in any reports or shared with anyone else. We will use the information for research purposes only.

WHAT IF YOU HAVE QUESTIONS IN THE FUTURE?

If you have further questions or concerns about participating in this study, please call or send a text message to the principal investigator at the phone **or email 0721946477/** ilham444@students.uonbi.ac.ke. For more information about your rights as a research participant, you may contact the Secretary/Chairperson, Kenyatta National Hospital-University of Nairobi Ethics and Research Committee Telephone No**. 2726300 Ext. 44102 email: uonknherc@uonbi.ac.ke.**

WHAT ARE YOUR OTHER CHOICES?

Your decision to participate in research is voluntary. You are free to decline participation in the study and you can withdraw from the study at any time without injustice or loss of any benefits.

CONSENT FORM (STATEMENT OF CONSENT)

Participant's statement

I have read this consent form or had the information read to me. I have had the chance to discuss this research study with a study counselor. I have had my questions answered in a language that I understand. The risks and benefits have been explained to me. I understand that my participation in this study is voluntary and that I may choose to withdraw at any time. I freely agree to participate in this research study.

I understand that all efforts will be made to keep information regarding my identity confidential.

_____ _____

(Signature/ Thumb Print of Participant) (Date)

Statement of Person Who Obtained Consent

The information in this document has been discussed with the participant or, where appropriate, with the participant's legally authorized representative. The participant has indicated that he or she understands the risks, benefits, and procedures involved with participation in this research study.

_____ _____

(Signature of Person who Obtained Consent) (Date)

APPENDIX II: DATA COLLECTION INSTRUMENTS

Socio-demographic Information

	DEMOGRAPHIC INFORMATION	
Q.1	Sex (Record Male / Female as observed)	☐ Male ☐ Female
Q.2	Age in Years	
Q.3	Age category	☐ Below 20 years ☐ 21 - 25 years ☐ 26 - 30 years ☐ 31 – 40 years ☐ Above 40 years
Q.4	Marital Status	☐ Single ☐ Married ☐ Cohabiting ☐ Divorced ☐ Separated ☐ Widowed
Q.5	What is the highest level of education you	☐ No formal schooling

	have completed?	☐ Less than primary school ☐ Primary school completed ☐ Secondary/High school completed ☐ College/University completed ☐ Postgraduate degree ☐ Refused
Q.6	Which of the following best describes your main work status over the last 12 months?	☐ Government employee ☐ Non-government employee ☐ Self-employed ☐ Non-paid ☐ Student ☐ Homemaker ☐ Retired ☐ Unemployed (able to work) ☐ Unemployed (unable to work) ☐ Refused to work
Q.7	What is your average monthly net income?	☐ Less than KS. 20,000 ☐ 20,001 – 35,000 ☐ 35,000 – 50,000

		☐ Above 50,000 ☐ Other (Specify)……
Q.8	Amputation Type	☐ Bilateral ☐ Unilateral
Q.9	Level of Amputation	☐ Above Knee ☐ Below Knee ☐ Other types of amputation
Q.10	Reason for Amputation	
Q.11	Type Of Walking Aid	☐ Wheelchair ☐ Prosthesis ☐ Crutches
Q.12	Do you have any other underlying illness that you have been diagnosed with	☐ Yes ☐ No
Q.13	If yes to Q11 please state the illness	

Q. 14	Do you experience pain at the amputation site	☐ Yes ☐ No
Q. 15	If yes to Q.14 how would you rate your pain On a scale of 1-10	
Q.16	Do you Receive Support from your family?	☐ Yes ☐ No

Patient Health Questionnaire (PHQ-9)

Name: _____ Date: _____

Over the last 2 weeks, how often have you been bothered by any of the following problems?	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself – or that you are a failure or have let yourself or your family down	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed? Or the opposite – being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead or of hurting yourself in some way	0	1	2	3

For office coding: Total Score _____ = _____ + _____ + _____

Total Score _____

If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?

☐ Not difficult at all ☐ Somewhat difficult ☐ Very difficult ☐ Extremely difficult

Generalized Anxiety Disorder 7-item (GAD-7) scale

Over the last 2 weeks, how often have you been bothered by the following problems?	Not at all sure	Several days	Over half the days	Nearly every day
1. Feeling nervous, anxious, or on edge	0	1	2	3
2. Not being able to stop or control worrying	0	1	2	3
3. Worrying too much about different things	0	1	2	3
4. Trouble relaxing	0	1	2	3
5. Being so restless that it's hard to sit still	0	1	2	3
6. Becoming easily annoyed or irritable	0	1	2	3
7. Feeling afraid as if something awful might happen	0	1	2	3
Add the score for each column	+	+	+	
Total Score *(add your column scores)* =				

If you checked off any problems, how difficult have these made it for you to do your work, take care of things at home, or get along with other people?

Not difficult at all _____
Somewhat difficult _____
Very difficult _____
Extremely difficult _____

Source: Spitzer RL, Kroenke K, Williams JBW, Lowe B. A brief measure for assessing generalized anxiety disorder. *Arch Inern Med.* 2006;166:1092-1097.

APPENDIX III: IMPACT OF EVENTS SCALE-REVISED

IMPACT OF EVENTS SCALE-Revised (IES-R)

INSTRUCTIONS: Below is a list of difficulties people sometimes have after stressful life events. Please read each item, and then indicate how distressing each difficulty has been for you DURING THE PAST SEVEN DAYS with respect to _____ _____(event) that occurred on _____(date). How much have you been distressed or bothered by these difficulties?

	Not at all	A little bit	Moderately	Quite a bit	Extremely
1. Any reminder brought back feelings about it	0	1	2	3	4
2. I had trouble staying asleep	0	1	2	3	4
3. Other things kept making me think about it.	0	1	2	3	4
4. I felt irritable and angry	0	1	2	3	4
5. I avoided letting myself get upset when I thought about it or was reminded of it	0	1	2	3	4
6. I thought about it when I didn't mean to	0	1	2	3	4
7. I felt as if it hadn't happened or wasn't real.	0	1	2	3	4
8. I stayed away from reminders of it.	0	1	2	3	4
9. Pictures about it popped into my mind.	0	1	2	3	4
10. I was jumpy and easily startled.	0	1	2	3	4
11. I tried not to think about it.	0	1	2	3	4
12. I was aware that I still had a lot of feelings about it, but I didn't deal with them.	0	1	2	3	4
13. My feelings about it were kind of numb.	0	1	2	3	4
14. I found myself acting or feeling like I was back at that time.	0	1	2	3	4
15. I had trouble falling asleep.	0	1	2	3	4
16. I had waves of strong feelings about it.	0	1	2	3	4
17. I tried to remove it from my memory.	0	1	2	3	4
18. I had trouble concentrating.	0	1	2	3	4
19. Reminders of it caused me to have physical reactions, such as sweating, trouble breathing, nausea, or a pounding heart.	0	1	2	3	4
20. I had dreams about it.	0	1	2	3	4
21. I felt watchful and on-guard.	0	1	2	3	4
22. I tried not to talk about it.	0	1	2	3	4

Total IES-R Score:_____

INT: 1, 2, 3, 6, 9, 14, 16, 20
AVD: 5, 7, 8, 11, 12, 13, 17, 22
HYP: 4, 10, 15, 18, 19, 21

Weiss, D.S. (2007). The Impact of Event Scale-Revised. In J.P. Wilson, & T.M. Keane (Eds.) *Assessing psychological trauma and PTSD: a practitioner's handbook* (2nd ed., pp. 168-189). New York: Guilford Press.

AETR2N 22 1/13/2012

APPENDIX IV: BUDGET

BUDGET (SAMPLE)

Item	Quantity/ People	Days	Unit Cost (Ksh,)	Total Cost (Ksh.)
Stationery	20	N/A	500	10,000
Ethics Payment	1	1	2000	2,000
Pens	30	N/A	20	600
Transport	2	13	400	10,400
Airtime	2	13	100	2,600
Data Entry	1	5	1000	5,000
Data Analysis	1	5	3000	15,000
			TOTAL	45,600
			Contingency (10%)	4,560
			GRAND TOTAL	**50,160**

APPENDIX V: WORK PLAN

WORK PLAN (SAMPLE)

	2020				2021						
Activity	A.	S.	S.	O-D	J	F	F	M	A	M	M
Proposal Writing											
Study Approval by Supervisors											
Submission of the final copy of the proposal											
Ethics Review											
Data Collection and Entry											
Data Analysis											
Preparation of chapters 4 & 5 of the research report											
Draft final report and its submission											
Presentation of the final research project											
Working on panel recommendations											
Submission of final research project											

KIAMBATISHO CHA KWANZA: HABARI YA MSHIRIKI NA FOMU YA IDHINI

Kichwa cha utafiti: Kuenea kwa wasiwasi, unyongovu na dhiki ya baada ya kiwewe kati ya wagonjwa waliokatwa miguu wanaohudhuria Kituo cha Viungo Bandia cha Jaipur Foot Trust

Mchunguzi: Dk. Ilham Mohamed, Chuo kikuu ya Nairobi

Utangulizi

Ningependa kuwaeleza kuhusu somo ambalo linaongozwa na **Dk. Ilham Mohammed**, mwanafunzi wa Shahada ya Uzamili ya Tiba (Psychiatry) katika Shule ya Medicine, Chuo Kikuu cha Nairobi. Madhumuni ya fomu hii ya idhini ni kukupa habari utakayohitaji kukusaidia kuamua ikiwa ni mshiriki wa utafiti huo au la. Jiskie huru kuuliza maswali juu ya kusudi la utafiti, ni nini kitatokea ikiwa utashiriki katika utafiti , hatari na faida zinazowezekana, haki zako kama kujitolea, bila chochote kingine juu ya utafiti au fomu hii ambayo haijulikaniwazi. Wakati tumejibu maswali yako yote kukuridhisha, unaweza kuamua kujihusisha kwenye somo au la. Utaratibu huu unaitwa "idhini ya habari ya Mara tu utakapoelewa na kukubali kuwa kwenye utafiti, nitakuomba utie sahihi jina lako kwenye fomu hii. Unapaswa kuelewa kanuni za jumla ambazo zinatumika kwa washiriki wote katika utafiti wa matibabu: i) Uamuzi wako wa kushiriki ni wa hiari kabisa, ii) Unaweza kujiondoa kutoka kwa utafiti wakati wowote bila lazima kutoa sababu ya kujiondoa kwako iii) Kukataa kushiriki katika utafiti haitaathiri huduma unazostahiki katika kituo hiki cha afya au vituo vingine. Tutakupa nakala za fomu hii kwa kumbukumbu zako**,**

Naomba niendelee! NDIO _____ LA_____

Utafiti huu umeidhinishwa na Itifaki ya Kamati ya Maadili na Utafiti ya Hospitali ya Kitaifa ya Kenyatta – Chuo Kikuu cha Nairobi **Nambari _____**

KUSUDI LA UTAFITI HUU

Kusudi la utafiti huu ni kuamua **Kuenea kwa Wasiwasi, Unyongovu, na Kiwewe kati ya wagonjwa waliokatwa miguu**. Washiriki katika utafiti huu watajumuisha wagonjwa ambao wamekatwa mguu wa chini/ au wa juu. Washiriki wataulizwa maswasli juu ya tabia zao za kijamii na idadi ya watu, unyongovu, wasiwasi, na Matukio ya Kiwewe. Kutakuwa na takriban washiriki 156 ambao watachaguliwa kwa makusudi

NINI KITAKACHOTOKEA UKIAMUA KUWA KWENYE UTAFITI HUU?

Ikiwa unakubali kushiriki katika utafiti huu, mambo yafuatayo utahojiwa na mchunguzi katika eneo la kibinafsi ambapo unahisi raha kujibu maswali. Mahojiano hayo yatachukuwa takriban Dakika 40.

KUNA HATARI ZOZOTE ZINAZODHURU AU KULETA HASARA ZINAZOHUSIANA NA UTAFITI HUU?

Utafiti wa kimatibabu una uwezo wa kuanzisha hatari za kisaikolojia, kijamii, kihemko,na kiafya. Hatari moja iwapo ya kuwa katika utafiti ni kupoteza faragha. Tutaweka kila kitu unatuambia kama siri iwezekanavyo. Tutatumia nambari ya kukutambulisha katika hifadhidata ya kompyuta iliyolindwa na nywila na tutaweka kumbukumbu zetu zote za karatasi kwenye kabati la faili iliyofungwa. Walakini, hakuna mfumo wowote wa kulinda usiri wako unaweza kuwa salama, kwa hivyo bado inawezekana kwamba mtu anaweza jua habari kukuhusu. Pia, kujibu maswali kwenye mahojiano au maswali yoyote yanayoumiza wakati wa mahojiano, tutaiacha mara moja na kukupeleka kwa mshauri wa kisaikolojia anayeishi katika klinki ya afya ya akili, katika Hospitali ya Kenyata kwa uingiliaji unaofaa. Tutafanya kila tuwezalo kuhakikisha kuwa inafanyika katika sehemu fiche.

KUNA FAIDA ZOZOTE ZINAKUWA KATIKA UTAFITI HUU?

Hakuna faida ya moja kwa moja kwako kwa kushiriki katika utafiti huu. Walakini, tunatumahi kuwa, katika usoni za kibinafsi, watu wengine wanaweza kufaidika na utafiti huu kwa sababu itaturuhusu kujifunza zaidi juu ya kuenea kwa wasiwasi, unyongovu na dhiki ya baada ya kiwewe kati ya watu waliokatwa miguu. Kushiriki katika utafiti huu hautakugharimu chochote isipokuwa dakika zako 40 au zaidi zako.

JE, UTAGHARIMIKA KWA KUSHIRIKI KATIKA UTAFITI HUU?

Kushiriki katika utafiti huu hakutakugharimu chochote isipokuwa muda wako wa takiban dakika arobaini.

UTAPATA PESA ZOZOTE KWA KUSHIRIKI KATIKA UTAFITI HUU?

Hakuna malipo yoyote utakayopata kwa kushiriki katika utafiti huu.

USIRI

Habari unayotoa itashughulikiwa kwa siri na wanachama tu walioidhinishwa wa timu ya utafiti. Utapewa kitambulisho cha kipekee cha kusoma na hakuna majina yatakayopewa kuandika kwenye fomu za mahojiano. Jina lako au habari nyingine ya kibinafsi haitatumika katika ripoti zozote au kushirikishwa na mtu mwingine yeyote. Tutatumia habari hiyo kwa madhumuni ya utafiti tu pekee.

NINI UKIWA NA MASWALI BAADAYE?

Ikiwa una maswali zaidi au wasiwasi juu ya kushiriki katika utafiti huu, tafadhali piga simu au tuma ujumbe mfupi kwa mpelelezi mkuu kwa simu **0721946477** au barua pepe ilham444@students.uonbi.ac.ke

Kwa habari zaidi juu ya haki zako kama mshiriki wa utafiti , unaweza kuwasiliana na Katibu / Mwenyekiti Barua pepe: uonherc@uonbi.ac.ke, au nambari ya simu 2726300 ext 44102

CHAGUO ZAKO ZINGINE NI NINI?

Uamuzi wako wa kushiriki katika utafiti ni wa hiari. Uko huru kukataa kushiriki katika utafiti na unaweza kujiondoa kutoka kwa utafiti wakati wowote bila udhalimu na upotezaji wa ada yoyote

FOMU YA IDHINI

Taarifa ya mshiriki

Nimesoma fomu hii idhini au habari hiyo imesomwa kwangu. Nimepate nafasi ya kujadili utafiti huu na mshauri wa masomo nimajibiwa maswali yangu kwa lugha ambayo inayoeleweka. Nimeelezwa hatari na faida za kushiriki. Ninaelewa kuwa kushiriki kwangu katika utafiti huu ni kwa hiari na kwamba ninaweza ujiondoa wakati wowote. Ninakubali kwa hiari kushiriki katika utafiti huu.

Ninaelewa kuwa juhudi zote zitafanywa kutunza habari kuhusu kitambulisho changu kuwa siri

_____ _____

(Saini Thumb Uchapa wa Mshiriki) (tarehe)

Taarifa ya Mtu Ambaye Amepata Idhini

Maelezo katika hati hii yamejadiliwa na mshiriki au inapofaa, na mwakilishi aliyeidhinishwa kisheria. Mshiriki ameonyesha kuwa anaelewa hatari, faida, na taratibu zinazohusika katika utafiti huu.

_____ _____

(Saini ya mtu aliyepata Idhini) (tarehe

KIAMBATISHO II: VYOMBO VYA KUKUSANYA DATA

Habari ya kijamii

Q1	Jinsia (Rekodi Mwanaume / Mwanamke kama inavyoonekana)	☐ Mwanaume ☐ Mwanamke
Q2	Umri katika Miaka	
Q3	Jamii ya umri	☐ Chini ya miaka 20 ☐ Miaka 21-25 ☐ Miaka26-30 ☐ Miaka 31-40 ☐ Zaidi ya miaka 40
SWA4	Hali ya ndoa	☐ Mseja ☐ Nimeolewa ☐ Kuishi pamoja tu ☐ Nishapata Talaka ☐ Tumetengana ☐ Mjane
SWA5	Je! Ni kiwango gani cha juu cha elimu uliyomaliza?	☐ Hakuna elimu rasmi ☐ Chini ya shule ya msingi ☐ Shule ya msingi imekamilika

		☐ Shule ya Sekondari imekamilika ☐ Chuo kikuu kimekamilika ☐ Shahada ya Uzamili ☐ Hakuna majibu
SWA6	Je! Ni yapi kati yafuatayo yanayofafanua hali yako kuu ya kazi katika miezi 12 iliyopita?	☐ Mfanyakazi wa Serikali ☐ Mfanyakazi asiye wa serikali ☐ Kazi zisizolipwa ☐ Mwanafunzi ☐ Mtengenezaji wa nyumba ☐ Mstaafu ☐ Asiye na ajira (hawawezi kufanya kazi) ☐ Alikataa kufanya kazi
SWA7	Je! Mapato yako ya kila mwezi ni nini ?	☐ Chini ya KS. 20,000 ☐ 20,001 – 35,000 ☐ 35,001- 50,000 ☐ Taja nyingine …….
SWA8	Aina ya mkato kwa mguu	☐ Pande mbili

		☐ Upande mmoja
SWA9	Kiwango cha kukatwa	☐ Juu ya Goti ☐ Chini ya Goti ☐ Aina zingine za kukatwa viungo
SWA10	Sababu ya Kukatwa	
SWA11	Aina ya msaada wa Kutembea	☐ Kiti cha magurudumu ☐ Prosthesis ☐ Magongo
SWA12	Je! Una ugonjwa mwingine wowote ambao umepatikana nao	☐ Ndio ☐ La
SWA13	Ikiwa ndio kwa SWA12 tafadhali sema ugonjwa	
SWA14	Je! Unapata maumivu kwenye tovuti ya kukatwa kiungo	☐ Ndio ☐ La
SWA15	Ikiwa ndio kwa Q14 unawezaje kupima maumivu yako Kwa kiwango cha 1-10	

Q16	Je! Unapokea msaada kutoka kwa familia yako	☐ Ndio ☐ La

Kidodosi juu ya Afya ya Wagonjwa (PHQ-9)

Jina:_____ tarehe:_____

Katika kipindi cha wiki mbili zilizopita umekuwa ukisumbuliwa na matatizo haya yafuatayo?	Haijatokezea kabisa	Siku kadhaa	Zaidi ya nusu ya siku	Takriban kila siku
1. Kutokuwa na hamu au raha ya kufanya kitu	0	1	2	3
2. Kujiskia tabu sana au kukata tamaa	0	1	2	3
3. Matatizo ya kupata usingizi au kuweza kulala sana	0	1	2	3
4. Kujiskia kuchoka au kutokuwa na nguvu	0	1	2	3
5. Kutokuwa na hamu ya kula au kula sana	0	1	2	3
6. Kujisikia vibaya-au kujiona kuwa umeshindwa kabisa au umejiangusha au kuikatisha tamaa familia yako	0	1	2	3
7. Matatizo ya kuwa makini kwa mfano unaposoma gazeti au kuangalia TV	0	1	2	3
8. Kutembea au kuongea taratibu sana mpaka watu wakawa wameona tofauti? Au kinyume chake kwamba hutulizani na unahangaika sana kuliko ilivyo kawaida	0	1	2	3
9. Mawazo kuwa ni afadhali zaidi ufe au ujidhuru kwa namna fulani	0	1	2	3

Jumla ya alama _____=____+____+____

Kama ulitia alama matatizo yoyote, matatizo hayo yamefanya iwe vigumu kivipi kwako kufanya kazi yako, kushughulikia vitu nyumbani, au kutangamana na watu wengine?

____ Sio ngumu ___Ngumu kidogo ____ Ngumu sana ___ Ni ngumu kupindukia

Kiwango cha jumla cha shida ya wasiwasi 7- vipengee (GAD-7)

Juu ya kazi za mwisho ni mara ngapi umekuwa ukisumbuliwa na shida ifuatayo	Si uhakika wote	Siku kadhaa	Zaidi ya nusu siku	Karibi kila siku
1. Kuhisi woga,wasiwasi au makali	0	1	2	3
2. Kutokuwa na uwezo wakudhibiti wasiwasi	0	1	2	3
3. Kuhofia sana juu ya vitu tofauti	0	1	2	3
4. Shida kupumzika	0	1	2	3
5. Kuwa na wasiwasi sana kwamba ni ngumu kukaa kimya	0	1	2	3
6. Kukasirika au kukasirika kwa urahisi	0	1	2	3
7. Kuhisi hofu kama jambo baya linaweza kutokea	0	1	2	3
Zidisha alama za kila safu	+	+	+	

JUMLA =_____

Kama ulitia alama matatizo yoyote, matatizo hayo yamefanya iwe vigumu kivipi kwako kufanya kazi yako, kushughulikia vitu nyumbani, au kutangamana na watu wengine?

Sio ngumu hata kidogo _____

Ni ngumu sana _____

Ngumu sana _____

Ngumu kupindukia _____

KIAMBATISHO III: Athari za Matukio Wavu – Marekebisho

ATHARI ZA MATUKIO YALIYOPITWA UPYA (IES-R)

MAELEKAZO: Hapa chini kuna orodha ya ugumu ambao wakati mwingine watu huwa nao baada ya matukio ya kusumbua ya maisha. Tafadhali soma kila kitu, kasha uonyeshe jinsi kila shida imekuwa taabu kwako KWA WAKATI WA SIKU SABA ZILIZO KUPITA kuhusu _____ (tukio) ambalo lilitokea _____ (tarehe). Umekuwa kiasi gani kwa kufadhaika au kusumbuliwa na shida hizi?

	Hakuna	**Kidogo**	**Wastani**	**Kiasi cha haja**	**Kupita kiasi**
1. Ukumbusho wowote ulileta hisia juu yake	0	1	2	3	4
2. Nilikuwa na shida kukaa usingizi	0	1	2	3	4
3. Vitu vingine viliendelea kunifanya nifikirie juu yake					
4. Nilihisi kukasirika na kukasirika	0	1	2	3	4
5. Niliepuka kujiacha nikasirike wakati nilifikiria juu yake na kukumbushwa kwake					
6. Nilifikiria juu yake wakati sikukusudia	0	1	2	3	4
7. Nilihisi kana kwamba haikutokea au haikuwa ya ukweli	0	1	2	3	4
8. Nilikaa mbali na ukumbusho juu	0	1	2	3	4

	Hakuna	**Kidogo**	**Wastani**	**Kiasi cha haja**	**Kupita kiasi**
yake					
9. Picha juu yake zilijitokeza akilini mwangu	0	1	2	3	4
10. Niliruka na kushtuka kwa urahisi	0	1	2	3	4
11. Nilijaribu kutofikiria juu yake	0	1	2	3	4
12. Nilijua bado nilikuwa na hisia nyingi juu ya hilo jambo, lakini sikushughulisha nalo	0	1	2	3	4
13. Hisia zangu juu ya hilo jambo zilikuwa ganzi	0	1	2	3	4
14. Nilijikuta nikifanya au kuhisi kana kwamba nilikuwa nyuma wakati huo	0	1	2	3	4
15. Nilikuwa na shida kulala	0	1	2	3	4
15. Nilikuwa na hisia kali juu ya hilo jambo	0	1	2	3	4
16. Nilijaribu kuiondoa kwenye kumbukumbu yangu	0	1	2	3	4
17. Nilipata shida kuzingatia	0	1	2	3	4
18. Ukumbusho juu yake unanifanya kuwa na athari za mwili, kama	0	1	2	3	4

	Hakuna	**Kidogo**	**Wastani**	**Kiasi cha haja**	**Kupita kiasi**
vile jasho, shida ya kupumua, kichefuchefu, au kuponda moyo					
19. Nilikuwa na ndoto juu yake	0	1	2	3	4
20. Nilihisi kukesha na kujilinda	0	1	2	3	4
21. Nilijaribi kutozungumza juu yake	0	1	2	3	4

Alama ya jumla IES-R_____