

**TYPES AND MANAGEMENT OF ALCOHOL-RELATED PHYSICAL INJURIES AMONG  
PERSONS WITH ALCOHOL USE DISORDER IN KIAMBU  
COUNTY, GITHUNGURI SUB-COUNTY**


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**DECLARATION**

This thesis is my original work and has not been presented for a degree in any other University.

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**DEDICATION STATEMENT**

This work is dedicated to my late mother Priscilla Wairimu Mukui who worked round the clock to ensure that I got the best education.

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**ABBREVIATION AND ACRONYMS**

<b>AAM:</b>	Alcohol-Attributable Mortality
<b>AUD:</b>	Alcohol Use Disorder
<b>AHRQ:</b>	Agency for Healthcare Research and Quality
<b>CDC:</b>	Centers for Disease Control and Prevention
<b>DALY:</b>	Disability-Adjusted Life Years
<b>HHS:</b>	Department of Health and Human Services
<b>ICECI:</b>	International Classification of External Causes of Injury
<b>KNBS:</b>	Kenya National Bureau of Standards
<b>MOH:</b>	Ministry of Health
<b>NACADA:</b>	National Campaign Against Drug Abuse Authority
<b>NCADD:</b>	National Council on Alcoholism and Drug Dependence
<b>NICE:</b>	National Institute for Health and Care Excellence
<b>OIPRC:</b>	Ontario Injury Prevention Resource Center
<b>ONS:</b>	Office for National Statistics
<b>RTA:</b>	Road Traffic Accident
<b>UN:</b>	United Nations
<b>WHO:</b>	World Health Organization

## DEFINITION OF OPERATIONAL TERMS

**Alcohol drinker:** Someone who drinks alcohol.

**Injury:** Damage to biological organisms, which is caused by physical harm (Agency for Healthcare Research and Quality (AHRQ), 2008).

**Major injury:** Injuries that require major surgery, casting (plaster) or advanced medical examination (AHRQ, 2008).

**Minor injury:** Injuries that require a simple intervention (AHRQ, 2008).

**Moderate injury:** Injuries that require minor surgery like suturing or even the fixing of splints (bone immobilizers) to the affected part (AHRQ, 2008).

**Person with alcohol use disorder:** This is an alcohol drinker, who has had alcohol harm his/her health, working ability or interpersonal relationships as manifested by having a score of  $\geq 8$  in the World Health Organization (W.H.O) AUDIT (W.H.O, 2013).

**Physical injury:** Damage to the skin, ligaments, muscle or tendon through impact, tearing, puncturing or cuts with a focus on soft tissue injuries and an exclusion of injuries to the bone.

**Violence:** Refers to any behavior involving physical force aimed at hurting, destroying or even killing another person. Violence in this study mainly thus referred to any physical assault resulting from the confrontation between the person with alcohol use disorder and another person (Office for National Statistics, 2015).

**ABSTRACT**

Around 5.1% of the worldwide disease burden and injury, as well as 5.9% of all fatalities are linked to alcohol abuse. In Kenya, Kiambu County is one of the leading counties in alcohol abuse and alcohol-related physical injuries. The study established the types and management of alcohol-related physical injuries among 383 persons with alcohol use disorder in Githunguri Sub-county, Kiambu County. The cross-sectional survey specifically occurred from March-November 2015 in Githiga and Ngewa County wards. An Alcohol Use Disorders Identification Test (AUDIT) and a questionnaire helped in enrollment to study and data collection. Respondents were asked about the physical injuries they had sustained in the preceding 12 months and how they managed them. The Statistical package for social sciences (SPSS) helped in computing the proportion for each injury. Chi-Square aided in measuring the relationship between study variables whereby p value of  $\leq 0.05$  was statistically significant. Incisions and abrasions were the leading injuries mainly occurring on the head and upper extremities. Leading contributors of alcohol abuse were socialization, loneliness and anxiety. The injuries were higher among males, those with secondary level of education, separated/divorced and 18-29 year-olds. Gender, level of education, marital status and age had a statistically significant relationship with injuries. Only 35.5% of the injured respondents had sought medical care. Alcohol-related physical injuries were a significant but largely neglected contributor of disease burden. County and national governments should thus create a broad-based strategy to reduce the injuries by addressing issues such as male-child neglect, unemployment, poverty and drinking socialization.

## CHAPTER ONE: INTRODUCTION

### 1.1 Background to the Study

Alcohol-related physical injuries among persons with alcohol use disorder have received disproportionately little attention as a key public health concern in Kenya (WHO, 2014). Alcohol abuse is an issue that affects many citizens in many countries across the globe. Worldwide, persons aged above 15 years consume an average of 6.2 litres of alcohol annually. This translates to around 13.5 grams of alcohol daily, with men said to drink more than women (WHO, 2014). The most consumed alcoholic drink is spirits (50.1%), followed by beer (34.8%) and then wine (8%), with the rest (7.1%) representing alcoholic beverages (rice wine, fermented beverages and fortified wines).

World Health Organization (WHO) (2014) indicates that alcohol abuse is a big risk factor for unintentional and intentional physical injuries, with 5.1% of the worldwide disease burden and injury, as well as 5.9% of all fatalities linked with alcohol. Alcohol abuse normally accounts for about 20.4% of the unintentional injuries and 3% of intentional injuries worldwide (Ibid.).

Regionally, alcohol-related physical injuries are high in countries where alcohol consumption rates are high. The rate of the injuries tends to be directly proportional to the Blood Alcohol Concentration (BAC). In Africa, there are about 29.8% current drinkers, 12.8% former drinkers and 57.4% lifetime drinkers (WHO, 2014). If this high rate of drinking is not addressed, there will continue to be more alcohol-related

physical injuries to the detriment of the persons with alcohol use disorder who always have to suffer the associated consequences of the injuries.

In Kenya, the emergency departments in many hospitals regularly receive many cases of alcohol-related physical injuries particularly at night National Agency for the Control of Alcohol and Drug Abuse (NACADA) (2011). Alcohol abuse has thus remained a significant social problem in Kenya and it comes with severe health ramifications. According to a recent report by (NACADA, 2011), alcohol consumers in Kenya are starting at a very young age, with 50% of the abusers being from 15-29 years of age. The situation is worsened by the consumption of illicit brew and overconsumption of legal alcohol.

In a study on factors leading to alcohol abuse among the students in the University of Nairobi, Hassan (2013) highlights the association between alcohol abuse and alcohol-related physical injuries reported in the University. Further, the report indicates that on a global scale, an upwards of 1400 students aged between 18-24 years die annually from alcohol-related injuries, with most of them being unintentional injuries. Accordingly, above 500,000 students within the same age category tend to sustain alcohol-related injuries annually (Ibid.). Excessive drinking patterns contribute to sexual and interpersonal violence, including physical fights.

In Kiambu County, especially in Githunguri Sub-county, the prevalence of alcohol-related physical injuries has been significantly high because of the increased alcohol abuse rate, which was estimated at 53% (NACADA, 2011). In studying alcohol-related physical injuries, as per the aim of this study, the research would create public

awareness on the consequences of alcohol abuse in Githunguri Sub-county and hence allow for advocacy for behavior change among alcohol drinkers. Kariuki (2010) highlights the historical trends in drug abuse in the Kenyan provinces. In terms of alcohol abuse, Kiambu County has been in the top two as revealed in a rapid assessment survey of the drug abuse patterns involving 383 interviewed drug abusers. In this survey, among the 383 drug abusers who participated in the study, the highest (55) number of those who were abusing alcohol were from Eastern province, with 40 from central province (Currently Kiambu), 40 from Nairobi, 38 from Western/Nyanza, 30 from Rift valley and 22 from the Coast.

Over time, Kiambu has continued to record a higher number of persons with alcohol use disorder, with recent NACADA (2017) report shows Nairobi and Kiambu County (particularly Githunguri Sub-county) leading in the consumption of packaged alcohol. In a three day conference in Nairobi, NACADA chairman stated that persons with alcohol use disorder in Kiambu spend more than Kshs. 300 daily on alcohol.

## **1.2 Statement of the Problem**

Abusing alcohol increases the risk of physical injuries due to its depressant effects that slows down the brain and alters the response mechanism of the body (NACADA, 2011). At the same time, someone who has abused alcohol is more likely to take certain risks. Combined, the reactions tend to increase the chance of sustaining physical injuries. The more a person drinks alcohol, the more likely s/he is to have alcohol-related physical injuries. The effects of the physical injuries in Githunguri Sub-county are quite severe, with some persons with alcohol use disorder becoming disabled and others dying (NACADA, 2011). In Githunguri Sub-county, alcohol-related physical injuries have been on the rise due to the high prevalence of alcohol

intake estimated at about 53% (NACADA, 2011). Considering the pervasive nature of the alcohol-related physical injuries among persons with alcohol use disorder in Githunguri Sub-county, it was important to conduct a study to find out the what and how of alcohol-related physical injuries in the area with a view of mitigating them. With such a study, it becomes easy to understand the commonest types of alcohol-related injuries sustained their disaggregated burden and the factors that contribute to the injuries.

### **1.3 Justification of the Study**

The study is justified because there is limited data on the commonest types of alcohol-related physical injuries, disaggregated burden and factors leading to the injuries in Githunguri. In fact, Shield et al., (2012) also indicates that globally, the existing literature has associated alcohol abuse with many injuries and deaths, but data on the specific disaggregated burden is still limited. In Kenya, lacking sufficient data on the alcohol-related physical injuries is a major gap, especially considering the fact that there is a huge proportion of Kenyans who consume alcohol, with 28.6% of the consumption being illegally produced or unrecorded (WHO, 2014).

In a NACADA report (2011) on alcohol abuse in Central Province, the prevalence of alcohol use in many communities was averagely high at 53%. The report also indicates that 60% of the alcohol drinkers consumed beer before noon, a factor that interfered with their work and reduced their productivity. This reflects the situation in Githunguri Sub-county, which lies within the region. If not addressed, alcohol abuse will continue causing alcohol-related physical injuries, disabilities and a potential increase in the annual global deaths from alcohol, which have in the recent past been estimated at >2.5 million (HHS, 2014).

The study is also justified because the existing national government policies regulating alcohol production and intake are not fully enforced in Githunguri Sub-county (NACADA, 2011). It was thus imperative to study alcohol-related physical injuries in order to compile data that would help in making decisions regarding the appropriate interventions to curb the physical injuries among persons with alcohol use disorder. For persons with alcohol use disorder to reduce their alcohol intake and possibly quit drinking alcohol, they need to understand the negative impact of their behavior on personal health. Through this research, it became possible to highlight the association between alcohol abuse and physical injuries.

#### **1.4 Research Questions**

- i. What are the psycho-social characteristics of persons with alcohol use disorder in Githunguri Sub-county?
- ii. What are the types of physical injuries and parts of the body injured among persons with alcohol use disorder in Githunguri Sub-county?
- iii. How are the alcohol-related injuries managed by the persons with alcohol use disorder in Githunguri Sub-county?

#### **1.5 Research Objectives**

##### **1.5.1 Main objective**

- i. To establish the types and management of alcohol-related physical injuries among persons with alcohol use disorder in Githunguri Sub-county.

##### **1.5.2 Specific objectives**

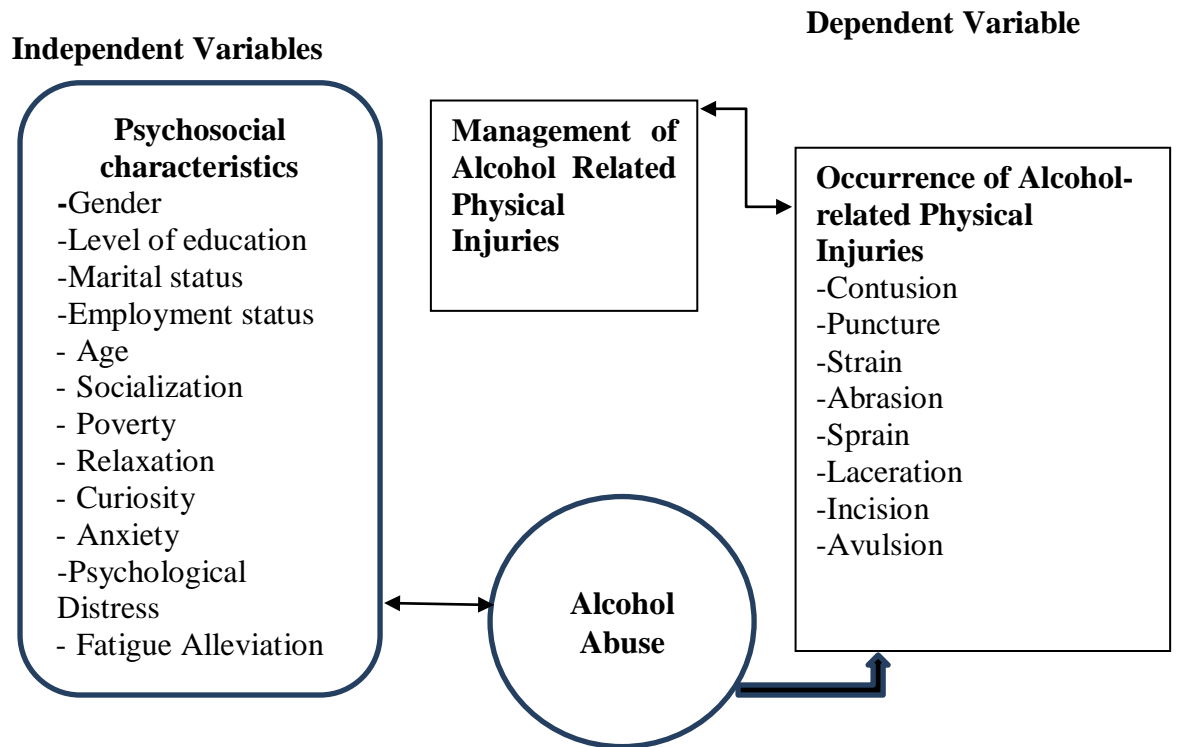
- i. To find out the psycho-social characteristics of persons with alcohol use disorder in Githunguri Sub-county

- ii. To establish the types of alcohol-related physical injuries and parts of the body injured among persons with alcohol use disorder in Githunguri Sub-county
- iii. To find out the various ways in which the injuries are managed by persons with alcohol use disorder in Githunguri Sub-county

### **1.6 Study Limitations**

One of the study limitations was that some of the persons with alcohol use disorder and especially females were reluctant to reveal their drinking habits but the researcher persuaded them to be honest and sincere. Following this effort to convince them, many agreed to participate in the study. The poor terrain in some areas made interfered with my movement.

## 1.7 Conceptual Framework



**Figure 1.1: Conceptual Framework**

Adapted and amended from Gururai et al., (2011)

### **1.7 Significance of the Study**

The results of this study will be important to many individuals and families living in Githunguri Sub-county, especially persons with alcohol use disorder who will get to learn about the negative consequences of their behaviour, including its association with physical injuries. Kiambu County and Non-Governmental Organizations (NGOs) will use the findings in devising interventions for rehabilitating persons with alcohol use disorder who sustain injuries. Policy makers, including the national government will also use the findings in enforcing policies to regulate alcohol abuse. Using the findings, health professionals will be able to quantify the magnitude of the alcohol-related injuries. Henceforth it would be possible to develop a concrete strategy of addressing them, especially in the emergency department for the benefit of the affected persons with alcohol use disorder and the society in general.

## CHAPTER TWO: LITERATURE REVIEW

### 2.1 Introduction

In the International Classification of External Causes of Injury (ICECI), alcohol-related physical injuries fall under Code 6 and involve unintentional and intentional injuries occurring after alcohol intake (Peck, 2012). Following alcohol intoxication, some alcohol drinkers tend to behave in an aggressive manner, which may cause injuries to their friends, strangers or family members or inflict self-harm (Alliston, 2012). The unintentional injuries include falls, road traffic accidents, poisoning, burns and drowning, while intentional ones include violence, civil conflict and suicide. In the classification of persons with alcohol use disorder, there are problem drinkers, heavy drinkers, binge drinkers and alcohol-dependent drinkers.

Globally, by the year 2012, 4.5% of the disease burden and injury was associated with alcohol abuse (Alliston, 2012). The local statistical estimates also indicate that about 10-18% of the injured patients in the emergency units in the hospitals are alcohol-related physical injury cases (NACADA, 2014). Specifically, Alliston (2012) established a significant causal relationship between alcohol abuse and physical injuries sustained in road traffic accidents, falls, violent injuries and fire fatalities. For some victims, the physical injuries tend to cause death as shown in Table 1.1. In the table, Alcohol-attributable deaths refer to the number of deaths in a population, which occur due to alcohol consumption. Conversely, population-attributable fraction represents the proportional reduction in the mortality, which may occur if exposure to alcohol were reduced to no exposure at all.

**Table 1.1: Alcohol-attributable deaths as well as population-attributable fractions by the type of injury:  
(Alliston, 2012)**

Injury	Distribution of alcohol-attributable deaths (%)	Population-attributable fractions (%)
Road traffic accidents	11.9	21.0
Other unintentional injuries	9.9	19.2
Violence	8.0	30.1
Self-inflicted injuries	4.0	10.7
Poisonings	3.0	19.2
Drownings	2.7	15.7
Falls	2.1	11.2

Regionally, the issue of alcohol-related physical injuries is alarming in countries where the abuse of alcohol is increasing and relevant public health policies are not in place or not implemented. This problem has particularly been a concern in places where poverty levels are high and consumption of illicit brew is prevalent. The problem of drinking in Africa is even worsened by this era of increasing number of multinational alcohol brewing companies competing to increase their profitability. It is in this regard that many governments in Africa including the Kenyan, Tanzanian and Ugandan governments have been striving to put up the right measures to fight alcohol abuse and in turn reduce alcohol-related physical injuries (WHO, 2011).

In Kenya, there are many alcohol-related physical injury cases reported at the outpatient hospital departments. This has for instance been the case in Kenyatta National Hospital at the casualty department. The most worrying thing is that the injured persons sometimes do not get the desired attention at the outpatient department yet the injury might be severe. Most of the injuries occur over the

weekends especially at night because of the darkness (NACADA, 2011). In 2000, more than 140 Kenyans in Mukuru Kaiyaba (Makadara) and Mukuru Kwa Njenga (Embakasi) lost their lives, many became blind and others were hospitalized following the consumption of kumi kumi, a type of illicit brew (WHO, 2004). Some of the alcohol-related physical injuries occur during the Road Traffic Accidents (RTAs) involving drunk drivers. Around 85% of the RTAs are due to human error, mainly comprising speeding, improper overtaking, misjudgment and losing control. In such errors, alcohol abuse tends to be a major contributing factor (Manyara, 2013).

In Githunguri, alcohol-related physical injuries have continued to increase due to the high prevalence of alcohol intake that is estimated at around 53% (NACADA, 2011). Githunguri Sub-county is in Kiambu County where the consumption of illicit brews has increased over time despite the public health efforts to curb the practice.

## **2.2 Psycho-social Characteristics of Persons with Alcohol Use Disorder**

In a WHO (2007) report on the alcohol-related physical injuries at the emergency departments in 12 countries (South Africa, Argentina, Belarus, Brazil, China, Canada, Czech Republic, Mexico, India, Mozambique, Sweden and New Zealand) majority of the injured patients were aged under 35 years, with a sharp peak in young adult and late teen groups. The report also indicates that in all the research centers, there were more injured male patients than female patients. The other finding from this study was that in most of the centers, most of the injured persons with alcohol use disorder were of low to middle income/socio-economic status.

It was also notable that in Mozambique, Sweden and Brazil, the majority of the injured persons with alcohol use disorder were of very low or low socio economic status. In all the study countries, the injured patients who had taken alcohol within 6 hours of the injury tended to consume alcohol more frequently than the ones who were not drunk before sustaining injuries hence making them have a higher BAC (WHO, 2007). In 11 countries, the drunk injured patients drunk at least on a weekly basis.

In South Africa, China and Canada, there was a strong correlation between heavy alcohol drinking trends and injury. Across all the study countries, the persons with alcohol use disorder were injured by other persons who were deliberately seeking to hurt them. Apart from in Asia, the perpetrator in the other countries was an acquaintance/friend who was also an person with alcohol use disorder (WHO, 2007). The injuries mainly happened in the public places except in Czech Republic and Canada where most injuries occurred in the injured persons' homes. There was a moderate likelihood for the injured persons to sustain the injuries from the last location where they were drinking from.

In United Nations Office on Drugs and Crime [UNODC] (2014) report, alcohol abuse in Kenya is prevalent among the young adults aged 15-29 years, with persons  $\geq 65$  years being the least affected. Although alcohol abuse and its adverse consequences cut across race, nationality and gender, the males are more affected than females. Stressful situations such as unemployment have exacerbated alcohol abuse and in turn alcohol-related physical injuries in Kenya.

According to Kuruga (2016), liquor still remains the most commonly abused substance nationwide and continues to harm Kenyans as highlighted by a myriad of catastrophes linked with abuse and adulteration of alcohol. Among the brews produced, traditional brews remain the most accessible for many persons, followed by spirits and wines and eventually chang'aa. Around 30% Kenyans falling between 15-65 years have already consumed liquor in life (Ibid.). About 13.3% Kenyans consume liquor, with a good number being dependent on alcohol. Most of the consumption is in rural areas, even though the consumption in urban areas is also alarming.

There are certain psychosocial factors that are related to alcohol, hence making an individual prone to drinking and predisposed to injury. The main factors mentioned in a number of studies with regards to their relationship with alcohol abuse include poverty, psychological distress, socialization, fatigue alleviation, relaxation and curiosity.

Poverty can in one way or the other trigger a person to drink alcohol to forget about the family problems (Cherpitel et al., 2009). According to Gongera et al., (2013), alcohol abuse is confined mainly to the poorest areas that are mostly characterized by unstable and low income families. The abuse of local alcohol prevails in persons who earn low income. However, the affluent persons also engage in alcohol consumption because they can manage to purchase the bottled wine, beer and spirit. It is the Poverty can either be absolute or relative in classification.

Absolute poverty refers to a situation whereby a person lacks basic resources necessary for sustaining a minimum level of welfare. The commonest applied

absolute poverty line is a dollar per capita a day, which is ideally the estimate value of the minimum resources necessary for an individual not to be termed poor (United Nations (UN), 2010). The line applies in a global context and thus implies that any individual living on < \$1 daily is poor . The development of this line was initially done using a standard basket containing the crucial goods and services for meeting the minimum maintenance requirements in a household (Instituto Nacional De Estadística (INE), 2005). Therefore, the threshold for poverty is determined by the basket's monetary value plus some fixed cash to cater for additional expenditure including rent or petrol. In Kenya, the dollar is exchanged at an average of 100 Kshs.

Relative poverty on the other hand refers to certain conditions that are subject to the society where an individual lives. From this dimension, an individual is poor if they are evidently disadvantaged socially or financially with respect to other persons within their environment (INE, 2005). Relative poverty hence has a close association with the idea of inequality.

Therefore, relative poverty varies between nations and places and changes with time. For instance more urban places have greater education, electricity, energy and modern toilets, which raise the poverty line. Persons in relative poverty are poor because of lack of the capabilities to attain certain community standards within their residence (INE, 2005). As an exemplar, a person who resides in a wealthy estate may still be rated poor if they lack as many luxuries like those of the rich persons in the estate. Important to note is that the classification of an individual as poor relies heavily on the level of development of the community under study and not in any other society.

According to a County Government of Kiambu (2013) report, drug abuse including the abuse of local brew and second generation beer has emerged in Kiambu as a big threat economic growth and development. The situation has arisen due to the increased unemployment rates among the youths secondary to the dwindling returns from the tea and coffee sector. Moreover, the alcohol abuse has contributed to school drop-outs and poor rates of transition from the lower to higher learning institutions. In turn, this has caused a deterioration of security and further accelerated unemployment. This challenge thus creates an urgent need for sensitization campaigns against alcohol abuse.

Over time, poverty levels in Kiambu County have grown due to the rising unemployment, population pressure, landlessness, high costs of buying agricultural inputs, low prices of the produced good, insecurity, HIV/AIDS, poor infrastructure and inability to get loans (County Government of Kiambu, 2013).

Accordingly, Morris (2009) indicates that in Central Kenya, poverty is cited as one of the main causes of alcohol abuse. When people abuse alcohol, they in turn become more prone to alcohol-related physical injuries because alcohol destabilizes their gait and balance. According to Morris (2009), poverty drives many people in Central Kenya to second-generation alcohol that does not have the government's control, is made under insanitary circumstances and is of high potency. Gradually, those who take such alcohol develop dependency as they try to drink many bottles to become drunk. Musungu and Kosgei (2015) indicates that if the government is to curb alcohol abuse in Central Kenya, it requires coming up with a strategic approach of addressing

poverty, which causes the production, as well as consumption of cheap low-quality liquor.

The other factor includes psychological distress, which is measurable by assessing loneliness, suicidal ideas, anxiety, sadness, or the number of close friends a person has at a particular time (Peltzer and Pengpid, 2012). The other factors that are measurable through asking closed-ended questions include socialization, fatigue alleviation, relaxation and curiosity.

According to Gururai et al., (2011), people drink alcohol for various self-proclaimed reasons. One of the reasons involves the normalization process of drinking, which begins in social circles, advancing later to the compulsive individual consumption. The solitary drinking, on the other hand, leads to addictive and habitual consumption in the rural areas. About 93% of the alcohol drinkers were introduced to drinking by friends, 62% consumed alcohol for social reasons, 6% drunk for curiosity, 24% drunk to overcome fatigue and 8% drunk to alleviate psychological distress.

Meena et al.,(2002) also indicated that 26% of the persons with alcohol use disorder used alcohol as a means of overcoming worries and another 15% claimed alcohol would help them to work or think better, while 8% drunk to relax. Singh et al., (2000) also reported the aspect of drinking to fit in the social group of friends among 75% of participants in a study to determine alcohol prevalence in urban and rural areas in India.

### **2.3 Type of Alcohol-related Physical Injury and Parts of the Body Injured**

Just as any other injury, alcohol-related injury can be of different types depending on the way the injury occurs. The injury can be a wound in form of a contusion, a puncture, a strain, an abrasion, a sprain, a laceration, an incision, or an avulsion, among other types (Beemer, 2013).

A contusion (Plate 1.1) involves a bruise on the skin, which leads to accumulation of lymph or blood within the affected muscle (Beemer, 2013). It mostly occurs secondary to blows to a person's skin, which in turn damage the blood vessels. The affected area can be purplish and raised as blood leaks from the injured vessels or as the immune system fights the injury.



**Plate 1.1 (Contusion):**

Beemer, (2013)

A puncture (Plate 1.2) involves a skin penetration by a very sharp object, which is mainly pointed like an ice pick, nail, thumbtack or teeth (PAM, 2010). The puncture rarely bleeds excessively and may close up fast if managed well. If not treated appropriately, the punctures may equally become septic (Ibid.)

**Plate 1.2 (Puncture):**

Beemer, (2013)

A strain (Plate1.3) is an injury involving tendons and muscles normally described as a torn muscle/tendon (Beemer, 2013). Tendons connect the muscle to the bone. The strain may present with pain, inability to move a joint, swelling or muscle spasms. The most common strains are the hamstring and back strains. Its management involves resting the affected area, icing the part, covering it with a bandage, compressing it, doing physical exercises, physiotherapy or taking analgesics (Ibid.)

**Plate 1.3 (Strain):**

Beemer, (2013)

An abrasion (Plate 1.4) is the scraping off or rubbing of the skin (University of Wisconsin Health (UWH), 2013). Floor burns, rope burns as well as skinned elbows or knees are all considered abrasions. Abrasions may become septic very easily because of the germs and dirt that embed in the affected tissues.



**Plate 1.4 (Abrasion):**

UWH, (2013)

A sprain (Plate 1.5) is an injury to the ligamentous tissue (UWH, 2013). It normally involves the twisting of ligaments that connect the bones at a specific joint. The twisting is often not sufficient to cause a dislocation. The person may present with pain in the affected joint, bruising, swelling or inability to move the affected joint. Just like a strain, its management involves resting the affected area, icing the part, covering it with a bandage, compressing it, doing physical exercises, physiotherapy or taking analgesics.



**Plate 1.5 (Sprain):**

Beemer, (2013)

A laceration (Plate 1.6) is a jagged, irregular and rough edged tissue tear. It easily gets contamination with debris and bacteria if not managed properly (PAM, 2010). The laceration can be large or small and may result from falls against rough surfaces or a

blow from blunt or sharp instruments. The affected part is often compressed and shifted out of its usual place by the internal or external force.



**Plate 1.6 (Laceration):**

Beemer, (2013)

An incision (Plate 1.7) represents a wound made by a sharp instrument like a broken glass, razor and knife. Characteristically, an incision is a smooth cut without often running across a straight line (UWH, 2013). Any incision is likely to bleed freely considering the fact that the injury tears the person's blood vessels without any ragged edges. The injury however rarely damages surrounding tissues.



**Plate 1.7 (Incision):**

Beemer, (2013)

An avulsion (Plate 1.8) is a skin tear associated with significant bleeding (UWH, 2013). Normally, an avulsion forcibly detaches the affected body structure from the usual insertion point. The surface trauma thus tears away the skin layers to expose the underlying body structures such as the muscle, subcutaneous tissue, bone or tendon.



**Plate 1.8 (Avulsion):**

Beemer, (2013)

When assessing the injury type, it is important to pay attention to its specific nature. The recommendation should be to first find out the injury type before even classifying it as intentional or unintentional. In the classification of injuries, intentional injuries occur out of the abusers' deliberate action to inflict damage in self or in other persons while unintentional injuries occur when the abuser did not expect it or did not expect to injure other persons.

The types of the unintentional injuries linked with alcohol abuse include falls, road traffic accidents, drowning, fractures, falls, fires, poisoning, blunt injuries, stabs, bites and cuts (CDC, 2014). The unintentional injuries have a huge impact on the society, considering the number of lives lost due to such injuries. In the latest projection of Disability-adjusted Life Years (DALYs), unintentional injuries will on a global scale, contribute to 134,465,000 DALYs in 2015 (WHO, 2014). In Africa, the DALYs attributable to unintentional injuries will amount to 26,038,000 in 2015. The use of DALYs helps in measuring the disease burden, which is expressed as years lost

because of disability, early death or ill health. The measure gives a summation of Years of Life Lost (YLL) and Years Lived with Disability (YLD) due to a specific cause. It is also on record that injuries contributes to many deaths, with unintentional injuries attributed to about 3,594,000 deaths globally in 2011 alone (HHS, 2014).

In the general population, the global prevalence of injuries is around 17% (WHO, 2015). In a study by Williams et al., (2009) to estimate the prevalence or proportion of the alcohol-related injury in Sydney, unintentional injuries accounted for around 88.5% of all alcohol-related injuries. This meant that following alcohol consumption, unintentional injuries were more common than intentional injuries. From the study by Gururaj et al., (2011), 20-25% of RTA and 15-20% of falls were secondary to alcohol abuse.

By contrast, intentional injuries normally include violence, civil conflict and suicide, with the suicide being attempted or fully accomplished through hanging or taking of substances, which are harmful to the body with an intention to cause death (Hope et al., 2005). The violence on the other hand can take different forms, with domestic violence in terms of intimate partner violence being the most common. Odera (2003) also shows a correlation between alcohol-related injuries and violence among the patients reporting injuries in the emergency departments in Eldoret. According to WHO (2014), intentional injuries will contribute to around 50,373,000 DALYs globally. In Africa, the DALYs attributable to intentional injuries will amount to 11,127,000 by 2015. In the global death statistics reported in 2011 alone, intentional injuries contributed to about 1365 deaths (HHS, 2014).

In some studies, the prevalence of intentional injuries among persons with alcohol use disorder is even higher than unintentional injuries. Cherpitel et al., (2013) found that among the alcohol-related injuries experienced by Americans, intentional injuries caused 57.9% of Alcohol Attributable Mortality (AAM) and 57.5% of DALYs while unintentional injuries accounted for 17.2% of AAM and 16.4% of DALYs. From another study, Gururaj et al., (2011) indicates that alcohol consumption contributes to around 20-25% of the completed suicides, as well as 30-35% of the attempted suicide, with nearly 33% of domestic violence in India occurring after alcohol abuse.

In terms of the parts of the body injured, alcohol-related physical injuries can occur in different body parts depending on the injury type and place of impact. Some of the parts include the head, the neck, upper extremities, the trunk and lower extremities (Watt et al., 2005). The drunken persons may hurt themselves on the parts accidentally, they may hurt themselves on purpose, someone else may hurt them accidentally or someone may hurt them on purpose (Peltzer and Pengpid, 2012). The injuries may either occur at the bar or restaurant, along the person's way home or at home. At home, the persons with alcohol use disorder may harm themselves or sustain injuries from their spouses or family members (Alliston, 2012).

#### **2.4 Management of the Alcohol-related Injuries**

Physical injuries may damage the soft tissues (skin, fascia, muscle, ligaments, tendons and capsules). In turn, this causes abnormal fluid to build up in the affected area and the swelling may eventually be visible (Meyer, 2010). Unfortunately, the swelling increases pressure hence inhibiting healing, as well as causing muscle spasm and pain. Broadly, the management of the injuries primarily involves the assessment of the patient's airway, breathing as well as circulation. The airway should remain patent to

facilitate adequate ventilations. The injury site should also be exposed in order to clear the wounds of the foreign bodies that can cause further contamination (PAM, 2010). After the cleaning, bleeding should be controlled through compressors like bandages and consideration for elevating the affected region made.

For instance, for the management of cuts, lacerations and incisions, it is advisable to start by stopping the bleeding through compression. Subsequently, the wound requires cleaning through NaCl irrigation or betadine wipes (Meyer, 2010). To avoid contamination and facilitate healing, the wound should be closed or dressed with a sterile bandage. However, if the injury is moderate, it can be sutured before the bandaging.

In order to reduce the bleeding at the injured site for the physical injuries, it is important to apply the R.I.C.E.D approach and avoid the H.A.R.M factors. To start with, the R.I.C.E.D approach has five main themes as per each letter.

**R.I.C.E.D approach:**

**Rest:** Helps in minimizing any further damage, allows for detailed injury assessment and reduces the blood flow (Meyer, 2010).

**Ice:** Assists in reducing spasms and pain while at the same time minimizing swelling. It does so by constricting the surrounding blood vessels and reducing fluid leakage and blood flow. Ice comes in form of gel packs or frozen peas and can be applied for 20 minutes with a break of 2 hours off the ice (Oxford University Hospitals, 2014). Before application, it is recommended that ice should be wrapped in a soft damp towel instead of placing it directly onto the bare skin.

Compression: The main aim of compressing the area is to reduce swelling and bleeding (Meyer, 2010). The compressors can be in form of a cohesive bandage, elastic bandage or strapping. Pressure aids in reducing blood flow to the surrounding blood vessels, supporting the affected area and immobilizing it. However, the bandaging should not be too tight because tightening can cut off the circulation of blood.

Elevation: Best practice recommendations is to elevate the area above the heart level in order to decrease blood supply by making blood flow to go up hill (Oxford University Hospitals, 2014). Similarly, gravity makes the swelling to spread towards the lymph nodes. It can be done on a medical kit or on a chair.

Diagnosis: In order to classify the injury and treat it accordingly, it is important to consult a clinician, especially if the swelling or pain worsens. During the diagnosis, the clinician should seek to understand the mechanism of the physical injury, underlying internal physical injuries, external bleeding, and risk of infection/contamination. It is also necessary to consider high risk injuries and underlying medical conditions because all these factors will inform the diagnosis and subsequent treatment (UWH, 2013). Broadly, all the injured patients should be assessed for pain and a Nonsteroidal Anti-inflammatory Drugs (NSAIDs) like paracetamol or diclofenac administered in case the patient complains of pain. In addition, minor injuries would require a simple intervention such as cleaning and compression. The cleaning can be through irrigation with normal saline, Conversely, moderate injuries would require minor surgery such as suturing or even the fixing of splints (bone immobilizers) to the affected part (AHRQ, 2008). However, if an injury is major, it would require major surgery, casting (plaster) or advanced medical examination (AHRQ, 2008).

**H.A.R.M factors:**

Within 24-72 hours of the physical injury, it is good to avoid the H.A.R.M-full factors.

Heat: Normally, heat increases bleeding and swelling within the affected area. The injured person should thus avoid hot baths, liniments, saunas, heat packs, showers and hot water cans.

Alcohol: It is wrong to consume alcohol when injured because it thins blood hence increasing the swelling and bleeding. Moreover, it adds to the toxins in the injured part thus worsening the injury (Meyer, 2010). Alcohol also masks the pain hence interfering with the assessment of the severity of the injury. Unfortunately, by increasing swelling and bleeding, alcohol lengthens the recovery time because tissue regeneration and injury rehabilitation only commences after the disappearance of the swelling.

Running: Avoiding running is necessary after sustaining an injury because running tends to increase tissue damage and overloads other areas in a compensatory mechanism. The injured person should thus avoid running or excessive movement within the 72 hours of injury.

Massage: Because of its effect in enhancement of blood circulation, massage is prohibited within the first hours of sustaining the injury. Unfortunately, people tend to erroneously do rub downs, mobilizations or massage on the affected area.

**2.5 Summary of Literature Review Isolating the Gaps to be addressed**

A number of gaps emerge from the aforementioned literature review on alcohol-related physical injuries. Persons with AUD are known to contribute to about 10-18% physical injuries reported in the outpatient emergency department of many

hospitals(NACADA, 2014). However, there is limited data on characterization of the psycho-social characteristics of the persons with AUD.

Literature also points toward limited data on the commonest types of alcohol-related physical injuries among the persons with AUD. In as much as there is enough literature linking alcohol abuse and alcohol-related physical injuries, research has broadly classified the injuries as either unintentional or intentional (CDC, 2014). However, it is not clear about the specific types of alcohol-related physical injuries sustained and parts of the body injured. For a better understanding of the burden, it is thus important to desegregate the data further by type of injuries. Shield et al., (2012) indicates that globally, the existing literature has associated alcohol abuse with many injuries and deaths, but data on the specific disaggregated burden is still limited. In Kenya, lacking sufficient data on the alcohol-related physical injuries is a major gap, especially considering the fact that there is a huge proportion of Kenyans who consume alcohol, with 28.6% of the consumption being illegally produced or unrecorded (WHO, 2014). This study seeks to unravel the specific types of injuries sustained after the abuse of alcohol.

The alcohol-related physical injuries sustained are also attributed to certain causes, which are not well elaborated in literature. There is a mention of the social entities that make persons to abuse alcohol. However, there is limited data on studies that seek to find the correlation between the perceived causative factors for alcohol abuse, which may in turn cause the alcohol-related physical injuries. This study envisages getting to the root cause of the alcohol-related injuries in Githunguri Sub-county.

The last gap realized in this study is in line with the management of the alcohol-related physical injuries. Once a person with AUD sustains a physical injury attributable to alcohol abuse, there is a laid out protocol on how the management should unfold. However, there is limited data on whether this protocol is adhered to the later after the injury. The study seeks to find out exactly how the injured persons tend to manage their injuries. The other gap that appeared in the literature review was the poor adherence to the physical injury management protocol. Most of the injuries are managed in the outpatient department in the hospital (NICE, 2010). According to Charalambous (2002), in the first contact with the clinician, the patient is done a complete assessment in order to identify all existing problems other than the injury. Mismanagement of the injuries tends to cause serious complications, with about 6.25% of the male deaths attributable to alcohol Vis a Vis the 1.1% of the female deaths (NCADD, 2013).

As the management protocol dictates, the injuries require the implementation of the R.I.C.E.D approach and avoidance of the H.A.R.M factors. However, very few persons receive injury management through this process. Partly, this could be due to the poor health seeking behavior of the injured persons. Whenever persons with alcohol use disorder get injuries, it is recommendable that they visit the hospital for management (Gold, 2014). Perhaps, in the current study, it is necessary to understand the process through which the affected persons managed their injuries right from the point of occurrence. This is necessary since not every person visits the hospital.

## **CHAPTER THREE: MATERIALS AND METHODS**

### **3.1 Research Design**

The research involved a descriptive cross-sectional survey study design. This design was important because it helped in determining the proportion or prevalence of the studied aspect at the given point in time (Levin, 2006).

### **3.2 Variables**

#### **3.2.1 Independent Variables**

Psycho-social characteristics largely represented the independent variables. They included, psychological distress, which was measured as the total of the 5 items in Appendix 3. Other independent variables included poverty, socialization, fatigue alleviation, relaxation and curiosity. To understand the way they are measured, see Appendix 3.

#### **3.2.2 Dependent Variable**

The dependent variable was alcohol-related physical injuries. The study questionnaire helped in determining the type of physical injury, manner of occurrence and place of occurrence.

### **3.3 Location of the Study**

The study was conducted in Githunguri Sub-county, Kiambu County. Githunguri's Longitude and Latitude is 36.78 and -1.06 respectively. The Sub-county covers a total area of 173.5km<sup>2</sup> and has five administrative divisions namely Githiga, Githunguri, Ikinu, Komothai and Ngewa County wards (County Government of Kiambu, 2013). Politically, Githunguri as a constituency has 3 divisions, 7 locations and 20 Sub-locations. The Sub-county is characterized by high-elevation plains, hills and

plateaus. Falling within the lower highland zone, Githunguri is essentially a dairy and tea zone although some activities such as horticultural crops, sheep and maize farming are equally practiced (Ibid.).

As part of Kiambu County, the population structure of Githunguri Sub-county is transitional where persons aged 0-14 years, currently making about 35% of entire population are reducing in number (KNBS, 2013). The youths between 15-34 years are conversely increasing and currently comprise 40% of the entire population. In total, Githunguri Sub-county has an estimated population of 146,373 residents out of which 72,104 and 74,269 are males and females respectively (Ibid.). When the population is desegregated by age, about 21,073 fall within the age bracket of 0-5 years, about 51,342 within (0-14 years), 27,496 (10-18 years), 49,948 (15-34 years), 86,044 (15-64 years) and 8,987 (65+ years).

About 12.9% of the population is considered not to have formal education, 51.8% have primary education and 35.4% have attained secondary education and above. Of the 34% of persons without formal education, 38% and 39% of the ones who have attained primary and secondary education or above respectively work for pay (KNBS, 2013). Overall, (30.7%) work for pay, (13.3%) have a family business, (30.5%) have a family agricultural holding, (0.7%) are interns/volunteers, (6.5%) are retired/homemakers, (12.6%) are full time students, (0.4%) are incapacitated and (5.2%) do not work.

Generally, about 17% of the population is considered to be unemployed in Kiambu County and this is attributed to the high population growth rate of 2.81%, the growing

labour force without an increase in the available resources (County Government of Kiambu, 2013). Because of the dwindling formal jobs, people are resorting to self-employment. The self-employment has grown to about 31% with those in the rural areas engaging in agriculture and those in urban areas setting up small scale businesses/industries.

Regarding the type of cooking fuel used, (0.7%) use electricity, (6.5%) paraffin, (4.4%) LPG, (0.6%) biogas, (68.8%) firewood, (18.6%) charcoal, (0%) solar and (0.4%) others. In terms of the lighting, (41.9%) use electricity, (0.6%) pressure lamp, (32.8%) lantern, (23.3%) tin lamp, (0.3%) gas lamp, (0.1%) fuel wood, (0.6%) solar and (0.3%) others (Ibid.). In terms of human waste disposal, (0.62%) use main sewer, (1.5%) septic tank, (0.07%) Cess pool, (5.19%) VIP latrine, (43.41%) Pit latrine, (50.8%) improved sanitation, (48.94%) pit latrine uncovered, (0.15%) bucket, (0.06%) bush, (0.05%) other, (49.2%) unimproved sanitation.

### **3.4 Study Population**

The study population comprised of alcohol drinkers in Githunguri Sub-county: the Sub-county has around 28,544 households (KNBS, 2013), while the target population was the persons with alcohol use disorder in the area.

### 3.5 Sampling Techniques and Sample Size Determination

#### 3.5.1 Sampling Techniques

**Table 3.1: Sampled county wards together with number of villages and households in Githunguri Sub County**

County Ward	Number of villages	No. of Households	Sample Wards
Githiga	81	8317	√
Ngewa	64	6479	√
Ikinu	62	5976	×
Githunguri	56	5072	×
Komothai	30	2700	×

Sampled county wards together with number of villages and households in Githunguri

Sub-county adapted from KNBS (2009): Key: √ Sampled × Not sampled

Githunguri Sub-county was purposively selected due to the reportedly high prevalence of alcohol abuse and alcohol-related physical injuries. Githiga and Ngewa County wards were randomly selected out of 5 Wards in the Sub-county. Before selection of persons with alcohol use disorder, 1968 homes with known heavy drinkers perceived to be persons with alcohol use disorder were mapped out with the help of Community Health Extension Workers (CHEWs) and Community Health Volunteers (CHVs). Systematic random sampling of 214 households in Githiga and 169 in Ngewa using the sampling frame was done, where every 5<sup>th</sup> household sampled from the frame to screen for a person with alcohol use disorder. In each of the households selected, the researcher screened for a person with alcohol use disorder using W.H.O AUDIT tool (score of  $\geq 8$ ). If a household had more than one person with alcohol use disorder, only one was randomly selected and the process continued in other households until saturation

### 3.5.2 Sample Size Determination

The sample was determined using Fischer et al., (2002) formula

$$n_0 = \frac{Z^2 pq}{d^2}$$

$n_0$  represents the sample size

Z represents a standard deviation normally given as 1.96

p represents an estimated proportion having a certain attribute: take P to be 0.53 (lifetime prevalence of alcohol intake in Githunguri Sub-county is 53%) (NACADA, 2011)

q represents the total probability minus p i.e. I-P,  $1-0.53=0.47$

d represents the desired precision level (normally 0.05 if 95% confidence level is desired).

Thus:

$$n_0 = \frac{1.96^2 \times 0.53 \times 0.47}{0.05^2} = 383 \text{ households of persons with alcohol use disorder}$$

To get the number of households to cover within each county ward, the number of villages in each county ward was divided by the total number of villages in both county wards and multiplied by 383 as follows:

$$\text{Githiga} = \frac{81 \times 383}{145} = 214 \text{ households}$$

$$\text{Ngewa} = \frac{64 \times 383}{145} = 169 \text{ households}$$

Both county wards have a total number of 14,796 household. Using the prevalence of alcohol intake of 53% indicated by NACADA, approximately  $(53/100 \times 14796)$  7842 households have alcohol drinkers. WHO (2011) also indicates that in the region,

25.1% of the alcohol drinkers tend to abuse alcohol. Approximately,  $(25.1/100 \times 7842)$  1968 households thus have persons with alcohol use disorder. In order to get the nth term for the household to select, the total estimated number of households with persons with alcohol use disorder was divided by the expected coverage as follows:

$$\text{nth term} = \frac{1968}{383} = \text{Every } 5^{\text{th}} \text{ household}$$

### **3.6 Inclusion Criteria and Exclusion Criteria**

#### **3.6.1 Inclusion Criteria**

The person with alcohol use disorder needed to have a score of  $\geq 8$  in the W.H.O alcohol-screening AUDIT in order to be included (W.H.O, 2013).

The persons with alcohol use disorder had to be residing within Githiga or Ngewa County wards and had to be at least 18 years of age because it is the consenting age.

The persons with alcohol use disorder who consented to the study.

#### **3.6.2 Exclusion Criteria**

Persons with alcohol use disorder who were unable to answer the questions properly for being too drunk at the time of data collection.

Persons with alcohol use disorder who were mentally ill and thus not in a position to give reliable responses.

Persons with alcohol use disorder who did not consent to the study.

Persons with alcohol use disorder residing outside Ngewa and Githiga County wards.

### **3.7 Data Collection Tools/Instruments**

The data collection tools in the study were an alcohol screening tool known as AUDIT and a researcher-administered questionnaire. The AUDIT had questions to assess whether the participant fitted in the inclusion criteria. The questionnaire was on

the other hand comprehensive and helped in collecting the necessary data about the alcohol-related injuries among the participants. Most of the questions were closed ended, while a few were open ended in structure.

### **3.8 Pre-testing**

The aforementioned data collection tools were pretested using 40 respondents. To do the pretesting, the research used residents in Ruiru Sub-county, Kiambu County. The respondents were specifically persons with alcohol use disorder sampled in the Sub-county. The pilot sample was thus similar to the study sample because the results obtained were to aid in standardizing and validating the questionnaire.

#### **3.8.1 Validity**

To ensure validity, there was pretesting of the data collection tools in Ruiru Sub-county before doing the main study. This was to aid in making sure that the tools could collect the intended data as accurately as possible for validity purposes.

#### **3.8.2 Reliability**

For reliability purposes, the researcher consistently used the AUDIT in screening for the persons with alcohol use disorder because the tool is standardized and recommended by the World Health Organization. In addition, the sampling was done randomly so that the sample obtained was representative of all persons with alcohol use disorder in Githunguri Sub-county.

### **3.9 Data Collection Techniques**

Five Community Health Extension Workers (CHEWs) helped in the identification of households with desired characteristics in the research area. Upon reaching an eligible respondent, consent was sought by the researcher. Together with the principal

investigator, two registered nurses and a medical doctor helped in administering the questionnaire to the eligible respondents. After an eligible participant was selected using the AUDIT, there was administration of the questionnaire to the participant to collect data on the independent and dependent variables. Confidentiality of collected data was ensured through coding of questionnaires and storage of the questionnaires in safe cabinets.

### **3.10 Data Analysis**

Data collected was analyzed using Statistical Package for Social Sciences (SPSS) version 22. Some data analysis involved the calculation of the frequencies and percentages of the attributes studied. The other analysis done was Chi-square to establish the existence of any significant statistical relationship between independent variables and the dependent variable. There was also a calculation of the odds ratio to quantify the magnitude of the statistical difference for the variables that had a significant statistical relationship. In particular, the researcher thus did a calculation of the proportion of alcohol-related physical injuries among the participants. The analysis also involved the establishment of the relationship between independent variables and alcohol-related physical injuries. There was also bivariate analysis of the injuries among the males and females. The inferential statistics helped in determining the relationship between independent variables and alcohol-related physical injury. After the analysis, the quantitative information was presented in form of pie charts, tables and graphs.

### **3.11 Logistical and Ethical Considerations**

Before commencing the study, the researcher sought approval from Kenyatta University graduate school. Ethical clearance was sought from Kenyatta University

ethical review committee. National Commission of Science, Technology and Innovation also gave its permission for data collection. As part of community considerations when designing the study, permission was sought from Kiambu County government for pretesting of data collection tools. The permission from the County government to carry out the study was also sought with the help of the county public health officers.

It was important to approach community gatekeepers. In particular, the area chiefs in the two wards and a community elder in each village were approached before collecting data. The research had relevance to the community because they would henceforth understand the alcohol-related physical injuries and ways of preventing them. There was also consent seeking from the respondents before the screening and administration of the questionnaire. After interviewing every respondent, the researcher assessed the need for referral to the hospital or rehabilitation center for medical attention and initiated the process. Moreover, psychological debriefs for those who seemed to have experienced the psychological effects of the study were provided immediately after the interviewing process.

Another form of community consideration was in making sure that the research helps in solving the pervasive alcohol-injuries physical in Githunguri Sub-county. The research thus contributed to the capacity building by enabling Githunguri Sub-county residents to curb alcohol intake based on the information provided on its adverse consequences, including the alcohol-related physical injuries. The results obtained are made available to the Sub-county offices for the community members to access them. To ensure confidentiality, the information gathered was not shared with anyone who

is not party to the research. Immediately after data collection, the information gathered and tools were stored in a safe cabinet. In addition, after data analysis, the same safe storage was ensured.

## **CHAPTER FOUR: RESULTS**

### **4.1 Psycho-social Characteristics of the Persons with alcohol use disorder**

This objective sought to collect data on the psycho-social characteristics of the alcohol abusers in Githunguri Sub-county. Table 4.1 shows all the psycho-social characteristics studied, which included, gender, level of education, marital status, employment status, age, absolute poverty, socialization, fatigue alleviation, relaxation, curiosity, sadness, anxiety, loneliness, suicidal ideation and lack of close friends.

**Table 4.1: Psycho-social characteristics of the persons with alcohol use disorder**

<b>Characteristics</b>	<b>Categories</b>	<b>Frequency</b>	<b>Percentage</b>
Gender	Male	285	74.4
	Female	98	25.6
Level of education	No formal Education	59	15.4
	Primary	97	25.3
	Secondary	106	27.7
	College	81	21.1
	University	34	8.9
	Post graduate	6	1.6
Marital status	Single	114	29.8
	Married	172	44.9
	Separated	57	14.9
	Divorced	20	5.2
	Widowed	20	5.2
Employment status	Unemployed	63	16.4
	Retired	5	1.3
	Housewife	12	3.1
	Casual labourer	142	37.1
	Employed	56	14.6
	Self-employed	105	27.4
Age categories	18-29	110	28.7
	30-39	100	26.1
	40-49	91	23.8
	50-59	47	12.3
	>59	35	9.1
Absolute Poverty	Present (Spends <Kshs. 100 daily)	62	16.2%
	Absent (Spends >Kshs. 100 daily)	321	83.8%
Socialization	Drunk alcohol for socialization	228	59.5%
	Did not drink for socialization	155	40.5%
Fatigue Alleviation	Drunk alcohol to alleviate fatigue	179	46.7%
	Did not drink to alleviate fatigue	204	53.3%
Relaxation	Drunk alcohol to feel relaxed	145	37.9%
	Did not drink to relax	238	62.1%
Curiosity	Drunk alcohol out of curiosity	90	23.5%
	Did not drink out of curiosity	293	76.5%
Sadness	Had been sad at some point	179	46.7%
	Had not experienced sadness	204	53.3%
Anxiety	Experienced high levels of anxiety	99	25.85
	Experienced low levels of anxiety	48	12.53
	Did not have anxiety	236	61.62
Loneliness	Had high levels of loneliness	104	27.15
	Had low levels of loneliness	79	20.63
	Had no loneliness	200	52.22
Suicidal Ideation	Had experienced suicidal ideations	64	16.7%
	Not experienced suicidal ideations	319	83.3%
Lack of close friends	Had no close friends	7	1.8%
	Had close friends	376	98.2%

Overall, 100% (383) respondents participated in the study. Male respondents comprised the majority 74.4% (n=285), with female respondents making up 25.6% (n=98) of the total number of participants. Table 4.1 also shows that the highest 27.7% (n=106) number of participants had secondary education as their highest level of education, while the lowest 1.6% (n=6) proportion of participants 1.6% (n=6) had a postgraduate degree. Majority 44.9% (n=172) participants were married, while only 5.2% (n=20) were either divorced or widowed. In the category of the employment status, the highest 37.1% (n=142) proportion of participants were casual labourers and the least 1.3% (n=5) were retired. Table 4.1 also shows that the highest 28.7% (n=110) percentage of participants were in the age bracket of 18-29 years, while the least 9.1% (n=35) proportion of participants were more than 59 years of age.

The other psycho-social characteristics of alcohol abusers studied included poverty, socialization, fatigue alleviation, relaxation, curiosity, sadness, anxiety, loneliness, suicidal ideation and lack of close friends.

Poverty in this study was viewed in two dimensions of absolute poverty and relative poverty. Absolute poverty was a subset of average expenditure per day. Relative poverty showed the specific levels of deprivation and was assessed through the other indicators including use of electricity, cooking fuel used in household as well as presence of toilets at home. Table 4.2 shows data gathered on the poverty indicators for the absolute and relative poverty.

**Table 4.2: Poverty and poverty indicators**

Poverty indicator	Categories	Frequency	Percentage(N = 383)
<b>Absolute Poverty</b>			
Expenditure per day	More than Kshs.100	321	83.8
	Less than Kshs.100	62	16.2
<b>Relative Poverty (Relative measures of deprivation)</b>			
Use of electricity	Using	111	29.0
	Not Using	272	71.0
Cooking fuel used	Gas	140	36.6
	Charcoal	116	30.3
	Wood	111	29.0
	Paraffin	10	2.6
	Electricity	6	1.6
Type of toilet used (N = 339)	Pit latrine	277	81.7
	Flush toilet	57	16.8
	Communal toilet	4	1.2
	Other	1	.3
Hunger	Never gone hungry	330	86.2
	Gone hungry: always	2	0.3
	Gone hungry: Daily	9	2.3
	Gone hungry: Monthly	42	11.2
	<b>Overall Gone Hungry from the 3 preceding rows</b>	53	13.84%

In terms of absolute poverty, which is the actual measure of poverty, Table 4.2 shows that only a minority 16.2% (n=62) were experiencing absolute poverty by the virtue of spending less than Kshs. 100 per day as compared to 83.8% (n=321) of the respondents who were spending more than Kshs. 100 and hence were not considered to have absolute poverty.

In the assessment of specific levels of deprivation otherwise termed relative poverty, those who were not using electricity in their house, not cooking with gas or electricity, not having pit latrine/ flush toilet and having gone hungry due to lack of food were considered to be experiencing relative poverty. In line with the first assessment indicator on use of electricity, only 29% (n=111) were having relative poverty because they were not using electricity in their homes. Accordingly, in terms of the

cooking fuel, a majority 61.88% (n=237) could not afford to cook with gas or electricity as the main cooking fuel in the home and were thus considered to experience relative poverty. Regarding the type of toilet used for those respondents who had a toilet at home, only 1.4% (n=5) had relative poverty because they never had a pit latrine or a flush toilet. In terms of hunger, 13.84% (53) had gone hungry due to lack of food.

The study also sought to examine any unpleasant emotions or feelings, which might have affected the functioning of persons with alcohol use disorder and in turn led them to indulge in alcohol abuse. Such emotions could in turn indicate whether the participant had experienced some form of psychological distress. The level of psychological distress would then inform whether there was an association between alcohol abuse and psychological distress.

The indicators of psychological distress were loneliness, anxiety, suicidal ideation, sadness and number of close friends. Table 4.1 shows the psychological distress indicators and their frequencies among the participants.

Table 4.1 shows that only 27.15% (n=104) of the respondents were feeling having high levels of loneliness, 25.85% (n=99) were having high levels of anxiety, 16.7% (n=64) were having suicidal ideation, over one third 46.7% (n=179) were sad, while only 1.8% (n=7) did not have close friends.

The study also sought to establish whether the need to socialize drove the respondents to abusing alcohol. Table 4.1 shows the results obtained with regards to this indicator. Majority 59.5% (n=228) of the respondents were drinking for socialization.

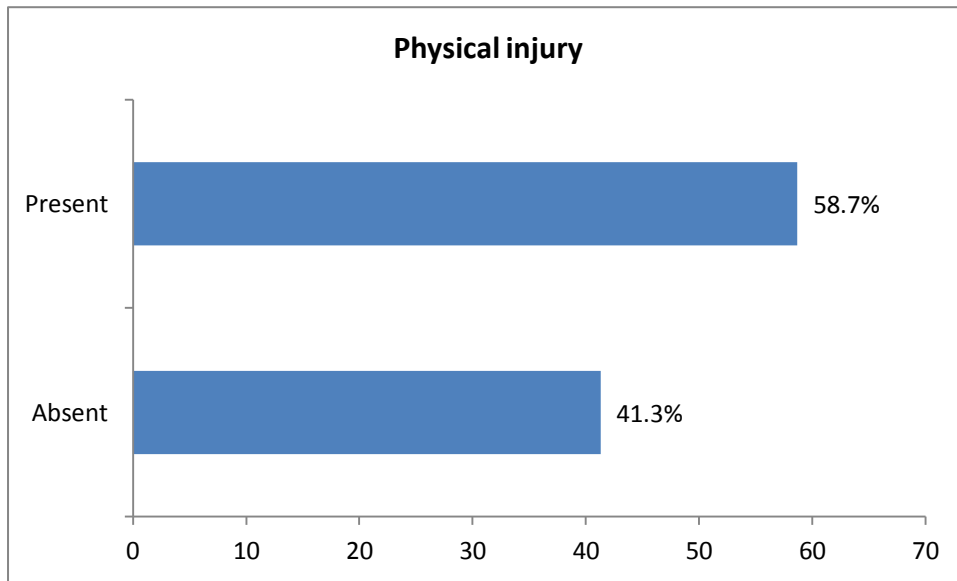
Fatigue alleviation was the other factor that was studied as a potential cause of alcohol abuse. The study sought to establish whether the need to alleviate fatigue drove the respondents to abusing alcohol. Table 4.1 shows the results obtained with regards to this indicator. The results shows that 46.7% (n=179) were drinking for fatigue alleviation. These respondents claimed to have experienced high levels of fatigue owing to the tedious work. The only way of alleviating the fatigue for these residents was through drinking. Over time, their behavior resorted into alcohol abuse, with some indulging on alcohol on a daily basis.

The other factor that was a subject of research as a cause of alcohol abuse was relaxation. The study thus sought to establish whether the need to relax drove the respondents to abusing alcohol. Table 4.1 shows the results obtained with regards to this indicator. The results show that 37.9% (n=145) were drinking for relaxation purposes.

Curiosity was another characteristic that was a subject of research as a cause of alcohol abuse. The study thus sought to establish whether the curiousness to taste alcohol and experience different alcoholic brands drove the respondents to abusing alcohol. The results show that among the persons with alcohol use disorder interviewed, 23.5% abused alcohol for curiosity purposes.

Other than studying the psycho-socio characteristics of the persons with alcohol use disorder, the study further sort to establish the proportion of respondents who experiences alcohol-related physical injury due to drunkenness. The research first grouped participants based on whether someone had sustained an injury or not. In this section, the respondents were asked whether they had experienced a physical injury due to drunkenness. Some of the persons with alcohol use disorder sustained alcohol-

related physical injuries, while others did not have any injuries due to drunkenness. Figure 4.1 shows the percentage of persons with alcohol use disorder who sustained alcohol-related physical injuries and those who did not.



**Figure 4.4: Proportion of respondents with alcohol-related physical injury due to drunkenness**

Figure 4.1 shows that over half 58.7% (n=225) of the respondents sustained alcohol-related physical injuries after drinking alcohol, while 41.3% (n=158) did not experience any alcohol-related physical injuries after drinking alcohol.

To test the association between socio-demographic characteristics and alcohol-related physical injuries, the research checked on the number of participants who had alcohol-related injuries and those who did not have injuries for each category of demographic features. Table 4.2 shows the association of socio-demographic features and alcohol-related physical injuries.

**Table 4.3: Socio-demographic characteristics and alcohol-related physical injury**

		Physical injury		Significance
		Present	Absent	
		F (%)	F (%)	
Gender	Male	181 (63.5%)	104 (36.5%)	$\chi^2=10.422$ ; p=0.001, df=1
	Female	44 (44.9%)	54 (55.1%)	
Level of education	No formal education	35 (59.3%)	24 (40.7%)	$\chi^2=16.746$ ; p=0.001, df=3
	Primary	73 (75.3%)	24 (24.7%)	
	Secondary	51 (48.1%)	55 (51.9%)	
	College/University	66 (54.5%)	55 (45.5%)	
Marital status	Single	58 (50.9%)	56 (49.1%)	$\chi^2=23.879$ ; p=<0.001, df=3
	Married	124 (72.1%)	48 (27.9%)	
	Separated/Divorced	34 (44.2%)	43 (55.8%)	
	Widowed	9 (45.0%)	11 (55.0%)	
Age categories	18-29	54 (49.1%)	56 (50.9%)	$\chi^2=14.501$ ; p=0.006, df=4
	30-39	62 (62.0%)	38 (38.0%)	
	40-49	56 (61.5%)	35 (38.5%)	
	50-59	24 (51.1%)	23 (48.9%)	
	>59	29 (82.9%)	6 (17.1%)	
Employment status	Employed	31 (55.4%)	25 (44.6%)	$\chi^2=0.862$ ; p=0.973, df=5
	Casual labourer	83 (58.5%)	59 (41.5%)	
	Unemployed	36 (57.1%)	27 (42.9%)	
	Self-employed	64 (61.0%)	41 (39.0%)	
	Housewife	8 (66.7%)	4 (33.3%)	
	Retired	3 (60.0%)	2 (40.0%)	

The study found out that alcohol-related physical injuries were higher among males, where about 63.5% (n=181) of the males had sustained alcohol-related physical injuries. The injuries were commonest among participants with primary education as the highest level of education. Results in table 4.3 show that about 75.3% (n=73) of the persons with primary education had alcohol-related physical injuries. About 72.1% (n=124) of the married persons had the highest number of alcohol-related injuries in the study, while 45% (n=9) of the widowed had the least number of injuries. The age category with the highest number of alcohol-related injuries was 30-39 years old, in which 62% (n=62) had alcohol-related injuries. The lowest number of alcohol-related injuries was in the age category of 50-59 years, in which 51% (n=24) sustained alcohol-related injuries. The casual labourers also had the highest number of alcohol-related injuries in which 58.5% (n=83) of the casual labourers had sustained alcohol-related injuries. The retired had the least number of injuries, where 60% (n=3) of the retired persons had sustained alcohol-related injuries.

Out of the five socio-demographic variables investigated, four had a statistically significant relationship with alcohol-related physical injuries, including gender ( $\chi^2 = 10.422$ ;  $p = 0.001$ ,  $df = 1$ ), level of education ( $\chi^2 = 16.746$ ;  $p = 0.001$ ,  $df = 3$ ), marital status ( $\chi^2 = 23.879$ ;  $p < 0.001$ ,  $df = 3$ ), and age ( $\chi^2 = 14.501$ ;  $p = 0.006$ ,  $df = 4$ ). There was no statistically significant association between alcohol-related physical injury and employment status ( $\chi^2 = 0.862$ ;  $p = 0.973$ ,  $df = 5$ ) (Table 4.3).

#### **4.2 Types of Alcohol-related Physical Injuries and Parts of the Body Injured**

This objective sought to establish the types of alcohol-related physical injuries that the affected persons with alcohol use disorder sustained and the specific body part

injured. The specific categorization of the types of alcohol-related injuries included incisions, abrasions, lacerations, strains, sprains, contusions, punctures and avulsions. The other area of concern was the parts of the body injured, which was assessed through a self-report as well as visual examination, where possible.

#### 4.2.1 Types of the Alcohol-related Physical Injuries

The study sought to determine the nature of physical injuries among respondents who reported to have experienced alcohol-related physical injuries. This was assessed by examining the injuries reported by each respondent and categorizing them as incisions, lacerations, abrasions, avulsions, sprains, punctures, contusions or strains. Table 4.4 shows the types of alcohol-related physical injuries sustained by respondents.

**Table 4.4: Types of physical injuries**

<b>Nature of injury</b>	<b>Frequency</b>	<b>Percentage(N = 225)</b>
Incision	68	30.2
Abrasion	55	24.4
Laceration	55	24.4
Strain	38	16.9
Sprain	37	16.4
Contusion	37	16.4
Puncture	32	14.2
Avulsion	32	14.2

Table 4.4 shows that among all the alcohol-related injuries sustained by the study respondents, incisions made up 30.2% (n=68), abrasion 24.4% (n=55), lacerations 24.4% (n=55), strains 16.9% (n=38), sprains 16.4% (n=37), contusions 16.4% (n=37), punctures 14.2% (n=32) and avulsions 14.2% (n=32).

The study also sought to compare the types of alcohol-related injuries among males and female respondents. Therefore, during the analysis stage, the research compared the various types of injuries sustained by gender in a bivariate analysis. Table 4.5 shows the comparison.

**Table 4.5: Type of alcohol-related physical injury by gender**

Type of alcohol-related physical injury	Male		Female	
	Frequency	Percent	Frequency	Percent
Laceration	39	21.5%	16	36.4%
Contusion	30	16.6%	7	15.9%
Avulsion	27	14.9%	5	11.4%
Incision	56	30.9%	12	27.3%
Puncture	22	12.2%	10	22.7%
Strain	30	16.6%	8	18.2%
Abrasion	42	23.2%	13	29.5%
Sprain	23	12.7%	14	31.8%

Table 4.5 shows that males have a higher 76% (n=269) number of alcohol-related injuries in all injury categories as compared to females, who had 24% (n= 85) of all the alcohol-related physical injuries sustained. Majority 30.9% (n=56) of the male respondents who had injuries had incisions, while majority 36.4% (n=16) of the female respondents who had injuries had lacerations (Table 4.5). Overall, all types of alcohol-related physical injuries were more common among males than females.

Having established the types of the alcohol-related physical injuries sustained, the study further sought to determine the cause of alcohol-related physical injuries among the respondents or how the injuries occurred. Table 4.6 shows the characterization of the alcohol-related physical injuries sustained.

**Table 4.6: Characterization of the occurrence of alcohol-related physical injuries**

<b>How the alcohol-related physical injury happened</b>	<b>Frequency</b>	<b>Percentage</b>
Fell to sustain an injury	150	66.7%
Hit by a blunt Object	107	47.6%
Cut by a sharp object	91	40.4%
Bitten by another person	26	11.6%
Involved in a Road Traffic Accident	21	9.3%
Burnt	21	9.3%
Stabbed	21	9.3%

From Table 4.6, around 66.7% (n=150) of the alcohol-related physical injuries occurred after the persons with alcohol use disorder fell, 47.6% (n=107) occurred as a result of blunt injuries, 40.4% (n=91) occurred from cuts and 11.6% (n=26) occurred due to bites. The number of alcohol-related physical injuries that occurred due to RTA, burns and Stabs were equal at 9.3% (n=21) each (Table 4.5).

To expound on the causes, the study further sought to determine whether the alcohol-related physical injuries were self-inflicted or externally inflicted. Table 4.7 shows the exact details of the way the injuries occurred.

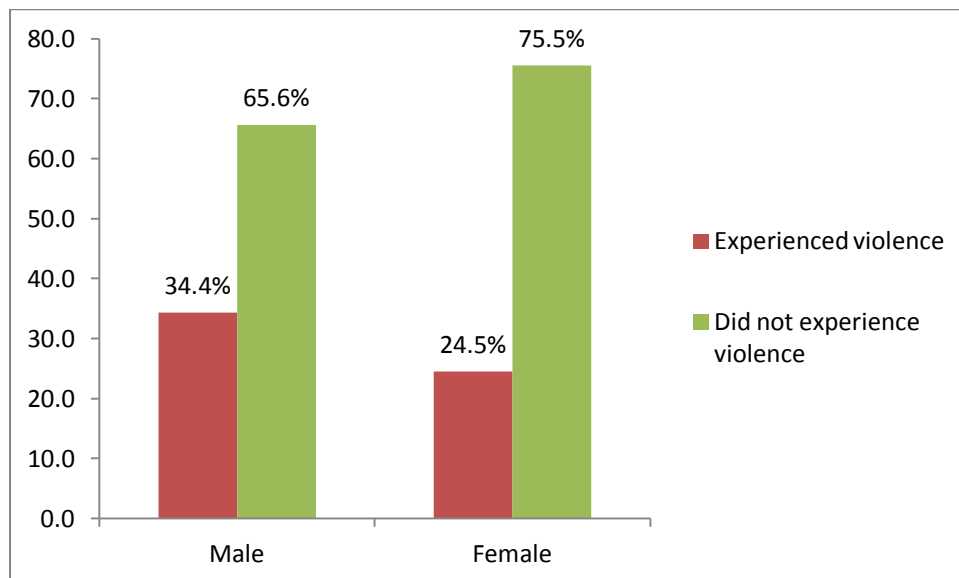
**Table 4.7: Self-inflicted versus externally-inflicted physical injuries**

<b>Self-inflicted or Externally-inflicted</b>	<b>Frequency</b>	<b>Percentage (N = 225)</b>
I hurt myself accidentally (Self-inflicted)	114	50.7
I hurt myself on purpose (Self-inflicted)	4	1.8
Someone else hurt me on purpose (Externally-inflicted)	81	36.0
Someone else hurt me accidentally (Externally-inflicted)	26	11.5

Table 4.7 shows that more than half 52.5% (n=118) of the respondents had self-inflicted alcohol-related physical injuries, while 47.5% (n=107) had externally inflicted alcohol-related physical injuries. Some of those who had their injuries

externally inflicted claimed that other persons took advantage of their drunken state to injure them.

Considering the association of alcohol-related physical injuries with violence among the persons with alcohol use disorder, the study further sort sought to establish the prevalence of violence due to alcohol abuse among both male and female respondents. The research thus looked at whether the alcohol abuse contributed to violence, especially in terms of fights or rather physical engagements between the person with alcohol use disorder and other persons at the drinking place, on their way home or at home. Figure 4.2 shows the rate of physical violence among male and female persons with alcohol use disorder.

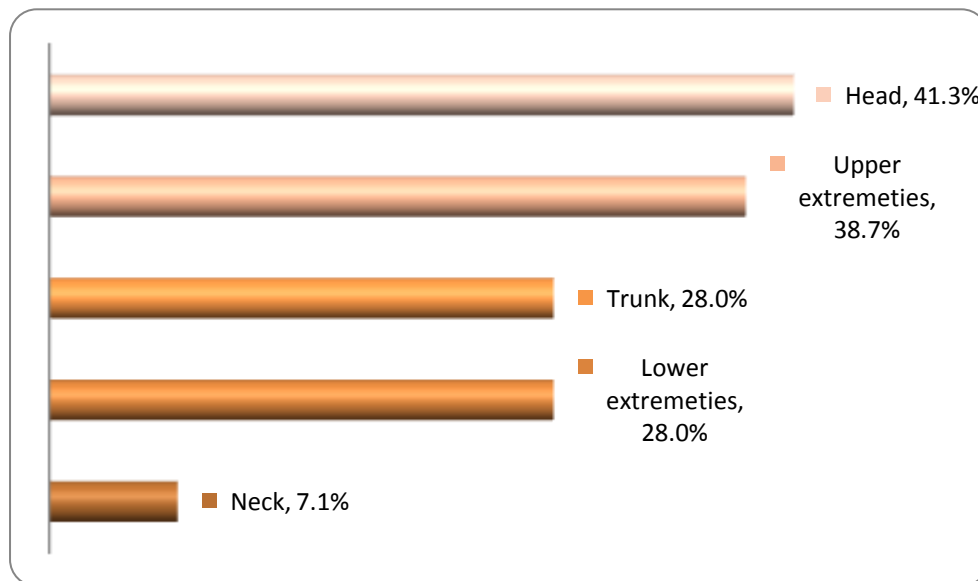


**Figure 4.5: Violence due to Alcohol Abuse**

Figure 4.2 shows that 34.4% (n=98) of the male persons with alcohol use disorder in the study had experienced violence after alcohol intake as compared to 24.5% (n=24) of the female persons with alcohol use disorder who had experienced violence after alcohol intake.

#### 4.2.2 Parts of the Body Injured

The study sought to establish the parts of body that had alcohol-related physical injuries. For easy classification, the rule of nine was applied whereby the questions targeted injuries on head, upper extremities, trunk, lower extremities, and the neck. The researcher adopted the rule of nine from the method used to assess the surface area of the body damaged by burns. The rule classifies the body into five regions including head, upper extremities, trunk, lower extremities, and the neck and was thus useful in classifying the body parts in this study for the sake of the analysis. Figure 4.3 shows the parts of the body injured when the person with alcohol use disorder sustained the injury.



**Figure 4.6: Parts of the Body Injured**

Figure 4.3 reveals that over two fifths 41.3% (n=92) of participants who sustained injuries suffered on the head, 38.7% (n=87) in the upper extremities, 28% (n=63) on the trunk, 28% (n=63) on the lower extremities and 7.1% (n=16) on the neck.

In addition, the study sought to analyze the body part injured by each type of alcohol-related physical injury. The analysis was meant to show case the main parts that each type of injury affected. Table 4.8 carries the data from the analysis.

**Table 4.8: Body part injured by each type of alcohol-related physical injury**

Type of alcohol-related physical injury	Upper extremities	Lower extremities	Head	Trunk	Neck
Laceration	17 (11.97%)	13 (13.4%)	31 (17.71%)	17(14.91%)	3(12.5%)
Contusion	15(10.56%)	14(14.43%)	16(9.14%)	5(4.39%)	1(4.17%)
Avulsion	10(7.04%)	9(9.28%)	19(10.86%)	4(3.51%)	2(8.33%)
Incision	25(17.61%)	15(15.46%)	38(21.71%)	24(21.05%)	10(41.67%)
Puncture	9(6.34%)	6(6.19%)	19(10.86%)	12(10.53%)	3(12.5%)
Strain	22(15.49%)	11(11.34%)	16(9.14%)	11(9.65%)	2(8.33%)
Abrasion	26(18.31%)	12(12.37%)	21(12%)	30(26.32%)	3(12.5%)
Sprain	18(12.68%)	17(17.53%)	15(8.57%)	11(9.65%)	0(0%)
<b>Totals</b>	<b>142 (25.72%)</b>	<b>97 (17.57%)</b>	<b>175 (31.70%)</b>	<b>114 (20.65%)</b>	<b>24 (4.35%)</b>
<b>NB*Totals does not equal 225 because of multiple responses</b>					

As shown in Table 4.8, among the alcohol-related physical injuries reported on the upper extremities, abrasions contributed to the highest 18.31% (n=26) percentage while punctures formed the least 6.34% (n=9) percentage. On the lower extremities, sprains were the most 17.53% (n=17) common while punctures were the least 6.19% (n=6) common. Among the alcohol-related physical injuries on the head, incisions contributed to the highest 21.71% (n=38) percentage while sprains formed the least 8.57% (n=15) percentage. On the trunk, abrasions were the most 26.32%(n=30) common while avulsions were the least 3.51% (n=4) common. Among the alcohol-related physical injuries on the neck, incisions contributed to the highest 41.67% (n=10) percentage while sprains formed the least 0% (n=0) percentage. The abrasions were highest on the upper extremities and the trunk while the incisions were highest on the head and the neck.

### 4.3 Injury Management

This objective sought to understand whether the injured respondents sought medical care, managed the injury from home or ignored the injury. If the respondent managed the injury from home, a mention of the method used was also required. The questionnaire thus had a provision where the respondent indicated what they did after sustaining the injury with respect to its management.

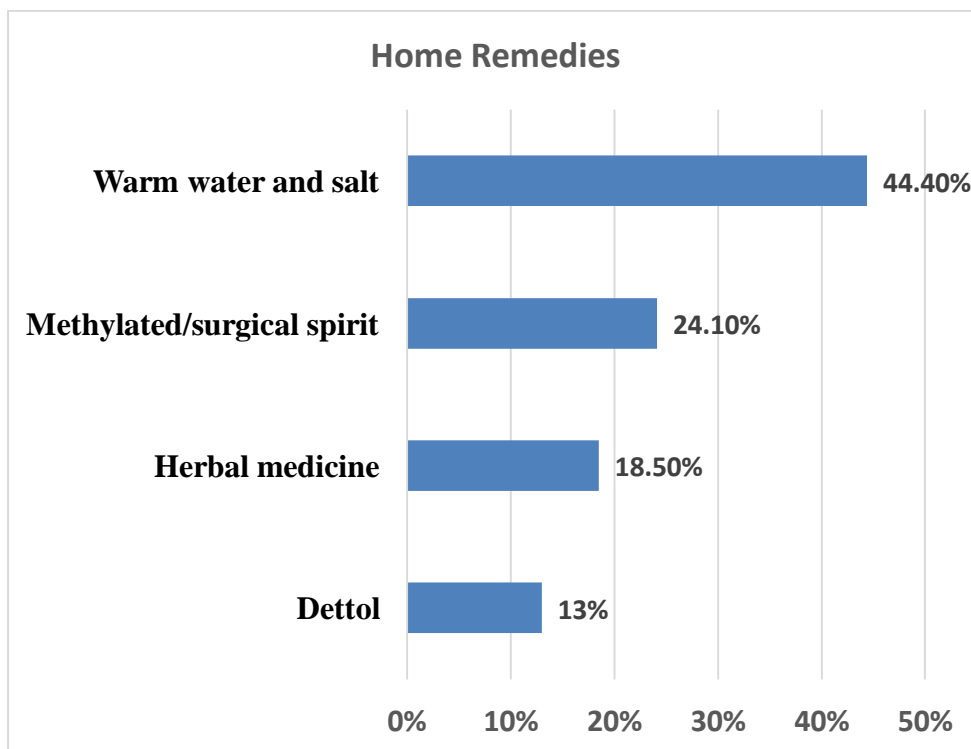
Injury management focuses on the manner in which alcohol-related physical injuries should be handled. Thoughtful management of alcohol-related physical injuries ameliorates prognosis and avoids complications. In the current medical guidelines, it is appropriate for a person to seek medical treatment in case of alcohol-related physical injury in order to avoid complications such as tetanus. Table 4.9 shows how the injured respondents managed their injuries.

**Table 4.9: Injury management**

<b>Injury Management</b>	<b>Frequency</b>	<b>Percent</b>
Managed from home	67	29.8%
Sought medical care	80	35.5%
Ignored it	78	34.7%

Out of the respondents who sustained alcohol-related physical injuries, only 35.5%(n=80) sought medical care for the alcohol-related physical injuries they had suffered. About 29.8% (n=67) managed the alcohol-related physical injuries from their homes and 34.7% (n=78) ignored them.

To understand more about the home management of the alcohol-related physical injuries among the injured respondents, the study asked for specific on home management for those who said they managed their injuries entirely at home. Figure 4.4 breaks down the home management practices reported by the injured respondents.

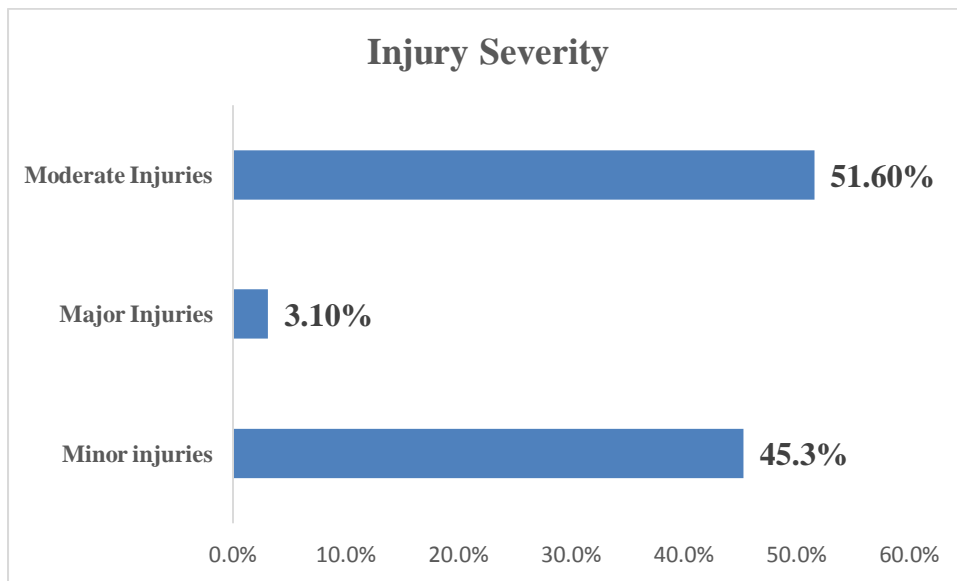


**Figure 4.4: Home remedies used to manage alcohol-related physical injuries**

According to Figure 4.4, for those who managed the alcohol-related physical injuries from their homes, there were those who used boiled water and salt 44.4% (n=30), methylated spirit 24.1% (n=16), herbal medicine 18.5% (n=12) while others cleaned the injuries with Dettol 13% (n=9). Some complaints from management at homes were that the injuries could at times become septic.

After getting to understand the way the alcohol-related physical injuries were managed, the study further questioned the respondents on the severity of the injuries. The interviewer first explained the various degrees of injury severity before getting

the answers from the respondents. As per AHRQ (2008) rating of injury severity, minor injuries were those that required a simple intervention, moderate injuries sutures or even splints (bone immobilizer) while major injuries required surgery, casting (plaster) or advanced medical examination. Figure 4.5 shows the alcohol-related physical injury severity analysis.



**Figure 4.5: Alcohol-related physical injury severity**

As depicted on figure 4.5, about 45.3% (n=102) had sustained minor injuries, 51.6% (n=116) had sustained moderate injuries and 3.1% (n=7) had sustained major injuries.

Additionally, the study sought to establish the places where alcohol-related physical injuries occurred to the respondents. This was assessed by asking the respondents the specific place where they experienced alcohol-related physical injuries. Table 4.17 shows the location where the persons with alcohol use disorder experienced their alcohol-related physical injuries.

**Table 4.10: Location where the person with alcohol use disorder experienced the alcohol-related physical injury**

<b>Location where the injury occurred</b>	<b>Frequency</b>	<b>Percentage</b>
Along the way home	122	54.2%
At the drinking joint	56	24.9%
At home	47	20.9%

Table 4.10 shows that more than half 54.2% (n=122) of the alcohol-related physical injuries had happened to the respondents on their way home. The remaining 24.9% (n=56) persons sustained their alcohol-related physical injuries at the drinking point and 20.9% (n=47) experienced the alcohol-related physical injury at home.

## **CHAPTER FIVE: DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS**

### **5.1 Discussion**

#### **5.1.1 Psycho-social Characteristics of the Respondents**

After analyzing the psycho-social characteristics of the participants, there were certain trends that were observable across each category of the socio-demographic characteristics. The study showed that more males than females were abusing alcohol. Among the eligible participants, males made up about three quarters (74.4%). It was however notable that a big number of females were also abusing alcohol considering the fact that about a quarter (25.6%) of the participants were females. The results are consistent with those of Obot & Room (2005) indicating that males are consistently more than twice as likely as females to score  $\geq 8$ , a conventional threshold used in identifying potential alcohol use disorders. These results are similar to the findings by WHO (2007) where the number of males injured after abusing alcohol was higher than that of females, with most of the injured being under 35 years of age. UNODC (2014) also asserts that although alcohol abuse cuts across race, nationality and gender, the males are more affected than females.

In Githunguri Sub-county, most of the male persons with alcohol use disorder who were the most affected as aforementioned, had studied up to secondary school because the results indicated that slightly more than a quarter (27.7%) of the respondents had only attained secondary education. However, the problem of alcohol abuse was also witnessed among the respondents who have attained higher education, including those with postgraduate degrees, although the numbers are relatively fewer than for those with lower level of education below secondary school. The trend is

expected in Githunguri Sub-county considering the population structure whereby 12.9% of the population is considered to lack formal education, 51.8% have primary education and only 35.4% have attained secondary education and above (KNBS, 2013). The trend in alcohol abuse can also be slightly attributed to the findings by the County Government of Kiambu (2013) that early alcohol abuse has contributed to school drop-outs and poor rates of transition from the lower to higher learning institutions.

The married persons formed the highest number of persons with alcohol use disorder and this might explain why alcohol is breaking families in Kiambu County (NACADA, 2011). Analyzing this finding jointly with the fact that the young persons aged between 18-29 years formed the highest (28.7%) percentage of the persons with alcohol use disorder, points toward early marriages in Githunguri Sub-county. These early marriages coupled with alcohol abuse problems can be a major issue especially for the married persons with offspring who look up to them for support and upbringing. The individual problem thus has far reaching effects to the children who are left to grapple with their lives when the parent is not responsible enough to nurture them well.

From the categorization of persons with alcohol use disorder in terms of employment status, casual laborers formed the most affected group. These findings are very worrying considering the fact that casual laborers mostly earn little money yet engage in alcohol abuse. The results reflect the situation in Githunguri Sub-County whereby in terms of employment status, the persons who work for pay, especially the casual laborers form the greatest majority (KNBS, 2013). Most of the persons result to

casual labour for lack of formal employment. In the analysis of the job structure in Githunguri Sub-County, KNBS (2013) indicates that (30.7%) work for pay, (13.3%) have a family business, (30.5%) have a family agricultural holding, (0.7%) are interns/volunteers, (6.5%) are retired/homemakers, (12.6%) are full time students, (0.4%) are incapacitated and (5.2%) do not work. The situation is bound to worsen due to the increased unemployment rates among the youths secondary to the dwindling returns from the tea and coffee sector in Githunguri (County Government of Kiambu, 2013). Generally, about 17% of the population is considered to be unemployed in Kiambu County and this is attributed to the high population growth rate of 2.81%, the growing labour force without an increase in the available resources (Ibid.).

The youth seemed to abuse alcohol more than other age categories. Young men and women who had married in their 20s formed the bigger proportion of persons with alcohol use disorder. The growing number of young persons with alcohol use disorder in Githunguri Sub-county may be attributed to the growing number of youths in the Sub-county. According to a KNBS (2013) report, the population structure of Githunguri Sub-county is transitional where persons aged 0-14 years, currently making about 35% of entire population are reducing in number (KNBS, 2013). The youths between 15-34 years are conversely increasing and currently comprise 40% of the entire population. The implication of the findings is that there would be need to customize the interventions for fighting alcohol abuse in Githunguri Sub-county to the youth.

Accordingly, the study results echo the United Nations Office on Drugs and Crime [UNODC] (2014) report showing that alcohol abuse in Kenya is prevalent among the young adults aged 15-29 years, with persons  $\geq 65$  years being the least affected. Moreover, Kuruga (2016) indicates that around 30% Kenyans falling between 15-65 years have already consumed liquor in life. The situation among the youths seems to be similar globally as reported by World Health Organization. In a WHO (2007) report on the alcohol-related injuries at the emergency departments in 12 countries (South Africa, Argentina, Belarus, Brazil, China, Canada, Czech Republic, Mexico, India, Mozambique, Sweden and New Zealand) majority of the injured patients were aged under 35 years, with a sharp peak in young adult and late teen groups.

The proportion of respondents who had alcohol-related physical injuries was higher (58.7%) than that of the respondents (41.3%) who did not have alcohol-related physical injuries. The results implied that alcohol-related physical injuries were a significant problem among persons with alcohol use disorder. The prevalence (58.7%) of alcohol-related physical injuries among persons with alcohol use disorder is thus relatively higher than the global prevalence of injuries in the general population estimated at around 17% (WHO, 2015). These results thus highlight the huge impact of the alcohol abuse in Kiambu County.

In terms of the relationship between the socio-demographic characteristics and alcohol-related physical injury, the study showed that alcohol-related physical injuries were higher among males than females. These findings could be attributable to the fact that the numbers of males who drink alcohol are more than the females who drink alcohol. The implication of those results is that being a male is a risk factor for

alcohol-related physical injury. The findings were consistent with those of Nolen-Hoeksema (2004) who found that women tend to take less alcohol hence ending up with fewer problems related to alcohol, including alcohol-related physical injuries. Compared to men, women rarely manifest the predisposing factors for abusing alcohol and appear to have some factors that protect them against problems related to alcohol use (Ibid.). Women also have a lower likelihood of having characteristics related to excessive alcohol drinking including drinking to alleviate distress, aggressiveness, sensation-seeking and antisociality.

The other way of explaining the reason as to why the study had more males with alcohol use disorder who sustained alcohol-related physical injuries than females is found in the Ontario Injury Prevention Resource Center (OIPRC)2008 report, which indicates that compared to women, men have a higher likelihood of drinking alcohol every day, taking more alcoholic drinks weekly, drinking harmfully or hazardously and reporting alcohol-related problems. Equally, women may shy off from disclosing their alcohol-drinking habits or reporting the alcohol-related physical injuries because the society expects them to have certain feminine traits that do not allow them to drink excessively or report their problems resulting from alcohol abuse(OIPRC, 2008).

The other noticeable thing is that persons with alcohol use disorder who had attained primary level of education were more likely to have alcohol-related physical injuries as compared to those who had attained college/university education. This is an indication that the more educated a person is, the more the likelihood of drinking responsibly and hence the lower the chances of sustaining alcohol-related physical

injuries. The percentage (70.7%) of the injured respondents who had attained secondary education and lower was actually higher than that of the respondents (29.3%) who had pursued their education beyond secondary school in the institutions of higher learning. This may be an indication that education can play a major role in empowering people on responsible drinking in order to prevent alcohol-related physical injuries and other consequences. The findings mirror those of Hassan (2013) that explain why there are more alcohol-related physical injuries among the persons with lower educational qualifications.

According to Hassan (2013), alcohol abuse is starting at a very tender age when the children have not even joined the institutions of higher learning or when they have just joined. On a global scale, an upwards of 1400 students aged between 18-24 years die annually from alcohol-related injuries, with most of them being unintentional injuries. Accordingly, above 500,000 students within the same age category tend to sustain alcohol-related injuries annually (Ibid.). Excessive drinking patterns contribute to sexual and interpersonal violence, including physical fights.

The other finding in terms of the socio-demographic factors and alcohol-related physical injury is that the married respondents were 3.258 times more likely to have physical injuries as compared to widowed respondents. The high number of physical injuries among the married persons could be attributed to their higher rates of alcohol abuse compared to the respondents in the other marital categories. In a study on alcohol abuse and families in Nandi community, Kenya, Birech et al., (2013) found that the high rates of alcohol abuse and its related problems such as alcohol-related physical injuries among the married are attributable to the myriad of challenges they

experience in their marital lives. From their interviews on the respondents, the authors could get confessions from married respondents who claimed to drink in order to forget all their problems in marriage. The problems in marriage are bound to increase among the study population considering the fact that a good proportion of the married participants were in their early 20s and thus lacked the necessary experience to deal with life challenges.

Another possible explanation of the high number of alcohol-related physical injuries among the married couples could be due to or related to domestic violence. In the study, a number of persons sustained injuries at home after being assaulted by persons who were intending to inflict pain on them. At home, one of the suspects that can assault a drunken person among the married respondents is the intimate partner. According to WHO (2006), there have been strong links found between the use of alcohol and Intimate Partner Violence (IPV). Alcohol abuse tends to increase the likelihood of occurrence, as well as severity of IPV. In many circumstances, excessive alcohol drinking creates stressful and unhappy partnerships, which increases the chances of violence and conflict (Ibid.).

In addition, Hassan (2013) also highlights that excessive drinking patterns contribute to sexual and interpersonal violence, including physical fights. Alliston (2012) also indicates that following alcohol intoxication, some alcohol drinkers tend to behave in an aggressive manner, which may cause injuries to their friends, strangers or family members or inflict self-harm. Odera (2003) also links alcohol abuse to violence with his findings showing a correlation between alcohol-related physical injuries and violence among the patients reporting injuries in the emergency departments in

Eldoret. In a global scale, Gururai et al., (2011) indicates that alcohol consumption contributes to around 20-25% of the completed suicides, as well as 30-35% of the attempted suicide, with nearly 33% of domestic violence in India occurring after alcohol abuse.

In terms of the age of the respondents, the young persons aged 30-39 years had the biggest number of alcohol-related physical injuries. This means that people indulged in alcohol abuse at a very early age. The study also showed that the percentage of respondents who sustained alcohol-related physical injuries and were  $\leq 50$  years of age was higher (76.4%) than of those aged above 50 years who comprised of 23.6% of the injured persons. The age category given here is slightly different from what NACADA gives as the most affected group. NACADA (2011) asserts that the youthful population is largely indulging in alcohol abuse; a factor that predisposes them to different problems including alcohol-related physical injuries. According to a recent report by NACADA (2011), alcohol consumers in Kenya are starting at a very young age, with 50% of the abusers being from 15-29 years of age. Irrespective of the age, it is notable that over indulgence in alcohol drinking reduces the balance and gait and hence makes the individual unable to stand upright and with staggering, the risk of alcohol-related physical injury increases.

The inferential analysis showed that out of the socio-demographic factors studied, being a male, not having attained higher education, being married and abusing alcohol at an early age have a significant statistical association with alcohol-related physical injuries. When such factors are identified, it becomes easy for the policy makers to understand the entry point when it comes to preventing alcohol abuse and in turn

alcohol-related physical injuries in Githunguri Sub-county. The Alcoholic Drinks Control Act that is already in place requires enforcement especially on the above affected groups. More government injunctions against alcohol abuse are also necessary. It is however necessary to derive tailored approaches to reaching each of the groups that are most affected.

Another noticeable feature from the study results is that there are persons who were considered to have absolute poverty and others relative poverty. There is thus a potential connection between poverty and indulgence in alcohol abuse. In terms of absolute poverty, the study found out that only a minority 16.2% were experiencing absolute poverty by the virtue of spending less than Kshs. 100 per day as compared to 83.8% of the respondents who were spending more than Kshs. 100 and hence were not considered to have absolute poverty. Perhaps, this is reflective of the growing poverty levels in Githunguri Sub-county and the entire Kiambu County attributed to the rising unemployment, population pressure, landlessness, high costs of buying agricultural inputs, low prices of the produced good, insecurity, HIV/AIDS, poor infrastructure and inability to get loans (County Government of Kiambu, 2013).

This 2013 report specifically shows that about 17% of the population are considered to be unemployed in Kiambu County and this is linked to the high population growth rate of 2.81%, the growing labour force without an increase in the available resources (County Government of Kiambu, 2013). Because of the dwindling formal jobs, people are resorting to self-employment. The self-employment has grown to about 31% with those in the rural areas engaging in agriculture and those in urban areas setting up small scale businesses/industries. However, some of the self-employment

opportunities are not yielding fruits because of the high costs of buying agricultural inputs, low prices of the produced good. This is the case because Githunguri is essentially a dairy, coffee and tea zone, with activities such as horticultural crops, sheep and maize farming equally being practiced (Ibid.).

Quantification of relative poverty was on the other hand done through looking at those were not using electricity in their house, not cooking with gas or electricity, not having pit latrine/ flush toilet and having gone hungry due to lack of food. In line with the first assessment indicator on use of electricity, only 29% (n=111) were having relative poverty because they were not using electricity in their homes. The percentage (71%) of the persons with alcohol use disorder who were using electricity was seemingly higher than the percentage (58.1%) of persons in the general population using electricity in Githunguri Sub-county as indicated by KNBS. According to KNBS (2013), statistics on lighting in the general population in Githunguri Sub-county indicate that about 41.9% use electricity, (0.6%) pressure lamp, (32.8%) lantern, (23.3%) tin lamp, (0.3%) gas lamp, (0.1%) fuel wood, (0.6%) solar and (0.3%) others.

Accordingly, in terms of the cooking fuel, a majority 61.88% (n=237) could not afford to cook with gas or electricity as the main cooking fuel in the home and were thus considered to experience relative poverty. These findings slightly agree with those of KNBS (2013) who found only (0.7%) using electricity, (0.6%) using biogas, and (0%) solar, with the rest (6.5%) using paraffin, (4.4%) LPG, (68.8%) firewood, (18.6%) charcoal and (0.4%) others. Firewood is thus the most used cooking fuel and this point toward some deprivation.

Regarding the type of toilet used for those respondents who had a toilet at home, only 1.4% (n=5) had relative poverty because they never had a pit latrine or a flush toilet. This finding slightly disagrees with the findings by KNBS (2013) showing a huge (49.2%) proportion of the residents in Githunguri Sub-county having unimproved sanitation. KNBS (2013) report indicates that in terms of human waste disposal in Githunguri Sub-county, (0.62%) use main sewer, (1.5%) septic tank, (0.07%) Cess pool, (5.19%) VIP latrine, (43.41%) Pit latrine, (50.8%) improved sanitation, (48.94%) pit latrine uncovered, (0.15%) bucket, (0.06%) bush, (0.05%) other, (49.2%) unimproved sanitation.

From the interview with the persons with alcohol used disorder, it was also found out that 13.84% (53) had gone hungry due to lack of food. This could be linked to the fact that some of the respondents in Githunguri Sub-county live below a dollar a day. Such a little amount of money may not be enough to meet all the basic needs and can render people to go without food as they struggle to meet other basic needs. Cheya and Auya (2014) indicates that hunger does not necessarily drive people to alcoholism, but the indulgence in alcohol can render some people to go for even a whole day without food. The authors further indicate that alcohol abuse tends to affect families significantly because some drinks are quite expensive and hence the uncontrolled use may cause financial constraints.

In summary, the study results resonate with those reported on the global, national and county scale. In a WHO (2007) study involving 12 countries, there was an observable correlation between poverty and alcohol abuse. The organization noted that in Mozambique, Sweden and Brazil, the majority of the injured persons with alcohol use

disorder were of very low or low socio economic status. Gongera et al., (2013) also highlights that alcohol abuse is usually confined to the poorest areas that are mostly characterized by unstable and low income families. Nationally, Kuruga (2016) indicates that liquor still remains the most commonly abused substance and continues to harm Kenyans as highlighted by a myriad of catastrophes linked with abuse and adulteration of alcohol. Among the brews produced, traditional brews remain the most accessible for many persons, followed by spirits and wines and eventually chang'aa. About 13.3% Kenyans consume liquor, with a good number being dependent on alcohol. Most of the consumption is in rural areas, even though the consumption in urban areas is also alarming.

In Central Kenya, poverty is actually, cited as one of the main causes of alcohol abuse (Morris, 2009). When people abuse alcohol, they in turn become more prone to alcohol-related physical injuries because alcohol destabilizes their gait and balance. According to Morris (2009), poverty drives many people in Central Kenya to second-generation alcohol that does not have the government's control, is made under insanitary circumstances and is of high potency. Gradually, those who take such alcohol develop dependency as they try to drink many bottles to become drunk. Musungu and Kosgei (2015) indicates that if the government is to curb alcohol abuse in Central Kenya, it requires coming up with a strategic approach of addressing poverty, which causes the production, as well as consumption of cheap low-quality liquor.

The results derived from Githunguri Sub-county indicate that psychological distress could be one of the factors that have led many people in Githunguri Sub-county to

abuse alcohol. It is possible to attribute it to the harsh prevailing economic conditions in the country. The results agree with those of UNODC (2014) also indicates that stressful situations in Kenya such as unemployment have exacerbated alcohol abuse and in turn alcohol-related physical injuries in Kenya.

Breaking the analysis further, among the psychological distress indicators, sadness was the most commonly reported indicator of psychological distress by the persons with alcohol use disorder because it was reported by around 46.7% participants. The second common indicator was loneliness (27.5%) followed by anxiety (25.85%), suicidal ideation (16.7%) and lack of close friends (1.8%) respectively. This analysis of the indicators would inform on the necessary interventions for the injured persons who are distressed. The interventions should for instance be customized to focus on the main issues identified to define distress among persons with alcohol use disorder such as sadness and loneliness, without necessarily neglecting the minor reported indicators of distress. Loneliness could for instance have contributed to the participants' indulgence in alcohol abuse in the search for socialization groups in the drinking joints. If the rate of alcohol-related physical injuries has to come down in Githunguri, the policy makers would need to address the socialization psycho-social groups among peer alcohol drinkers.

It is also important to consider the fact that the livelihood sources of some of the respondents especially the unemployed ones might at times not be sufficient for meeting the family needs. Such is a common reason as to why stress might set in. Birech et al., (2013) similarly indicate that whenever a parent is unable to pay his/her children's school fees, stress is bound to set in. Following the stress and frustrations,

the affected person might resort to the abuse of alcohol as a way of drowning life problems.

As a psycho-social characteristic of the persons with alcohol use disorder, socialization was the most cited reason by more than a half (59.5%) of the participants. This means that if the persons with alcohol use disorder would choose to meet with their colleagues in other places other than in the bar, it would be possible to eliminate excessive drinking and abuse of alcohol. The findings from Githunguri Sub-county are consistent with those of Singh et al., (2000), who equally reported in a study to determine alcohol prevalence in urban and rural areas in India that 75% drunk alcohol in order to fit in the social group of friends.

Similarly, Gururai et al., (2011) also indicated that 62% of persons with alcohol use disorder in his study consumed alcohol for social reasons. The need for socialization among the persons with alcohol use disorder in alcoholic joints cuts across all ages and gender. In many countries, people gather together to enjoy alcohol on various occasions. However, alcohol dependence rarely begins during festive events, but mainly occurs among those who frequent bars or indulge in local brew or second generation alcohol from the comfort of their homes.

The study findings also indicated that almost half (46.7%) of the respondents drunk to alleviate fatigue. The findings were consistent with those of Gururai et al., (2011) who found that 24% of the respondents in their study drunk to overcome fatigue. The findings were also consistent with those of Obot and Room (2005) in a study to

examine the drinking habits of persons in Bangalore city. Specifically, women in the low-income category fatigue as well as spousal violence as their key drivers to alcohol abuse. This was compared with women in the high-income category who cited lack of work and boredom as drivers to alcohol abuse.

Obot and Room (2005) highlight that there are many causes of fatigue among those who have alcohol use disorders. For instance, close correlation between fatigue and earning low income has been established (Ibid.). In Githunguri Sub-county, it would be useful to further explore the linkage between fatigue and alcohol-related physical injury by doing a deeper root cause analysis.

From the study, more than a third (37.9%) of the respondents drunk for relaxation purposes. Although the percentage of those drinking for relaxation is higher than the 8% reported by Meena et al., (2002), the findings echo the fact that the need for relaxation is a key contributor of alcohol abuse. In the study by Meena et al., (2002), the respondents indicated that would leave work in the evening, then hop into a bar to drink a few bottles for relaxation purposes.

With continued visits to the bar, the respondents would turn to become persons with alcohol use disorder (Meena et al., 2002). Consequently, their alcohol abuse would predispose them to adverse ramifications such as alcohol-related physical injuries. In the same perspective, the respondents in Githunguri Sub-county who reported to drink for relaxation had gradually converted into addicts. The more a person indulged in alcohol, the more the associated negative consequences occurred. Perhaps, it would be good for the Sub-county to brainstorm on ways in which can relax in a healthy way instead of resorting to alcohol abuse.

The study also showed that a fifth (23.5%) of the respondents drunk out of curiosity in order to discover and taste new beers in the market. Gradually, the curiosity would make someone to become a person with alcohol use disorder. Some of the alcohol brands were toxic, but addictive because they would make the drinkers drunk faster. Getting drunk faster was a preference for many persons because it would enable them to avoid overspending their little cash on alcohol. The worrisome thing about such toxic brands is that they would highly predispose a person to alcohol-related physical injuries among other adverse consequences. The findings were consistent with those of Gururai et al., (2011) who found that 6% of the respondents in their study, drunk out of curiosity. With the increasing number of brewing industries and alcohol brands in the country, it is possible to find Kenyans trying out different forms of beer.

Similarly, NACADA (2011) indicates that one of the common beers that the respondents drank was Mzizi, which is considerably new, cheaper and affordable. The beer comes in different packaging and is even measurable in milliliters. Many of the persons with alcohol use disorder and especially the youthful persons with alcohol use disorder remarked that the curiosity to taste this new beer led them to trying it and due to its affordability; they found themselves addicted to the alcohol. The easy availability and access to inexpensive beer might have driven many people to indulge in alcoholism, without forgetting that some of the local brews that are common in the area do not have approval from the liquor licensing boards and NACADA.

### **5.1.2 Types of Alcohol-related Physical Injuries and Parts of the Body Injured**

The respondents reported to have sustained various types of alcohol-related physical injuries. The alcohol-related physical injuries touched on different body parts for different participants as further explained. The subsequent section depicts the types of injuries sustained and the parts of the body injured, while at the same time showcasing the bivariate analysis of various indicators.

#### **5.1.2.1 Types of Alcohol-related Physical Injuries**

Among all the alcohol-related physical injuries sustained by the study participants, incisions (30.2%) were the most common followed by abrasions (24.4%), lacerations (24.4%), strains (16.9%), sprains (16.4%), contusions (16.4%), punctures (14.2%) and avulsions (14.2%) respectively. In the analysis of the type of alcohol-related physical injury by gender, incisions, avulsions and contusions were more common among males than females, while the abrasions, strains, punctures, and lacerations were more common among females than males. Males had mainly sustained incisions, while females had mainly sustained lacerations. However, the direction of this finding could not be established. The implication of the findings is that the alcohol-related physical injuries are not specific to males and females, but occur in both genders indiscriminately. This finding contradicts UNODC (2014) report that although alcohol abuse and its adverse consequences cuts across race, nationality and gender, the males are more affected than females. In the study, in as much as male respondents were more than females, this does not make the females immune to the alcohol-related physical injuries because they were actually leading in some types of alcohol-related physical injuries.

After asking the participants who had sustained alcohol-related physical injuries about the way they occurred, more than a half (66.7%) of them said that they had fallen down ending up hurting themselves. There was also about a half (44.7%) of those who were hit by a blunt object, another (40.4%) had been cut and (11.6%) were bitten during violence. There was also (9.3%) that sustained alcohol-related physical injuries from road traffic accidents, 9.3% were burned and 9.3% stabbed. In summary, the greatest percentage (50.7%) of the affected persons had hurt themselves accidentally, with the number of those who had been hurt on purpose by other persons (36%) coming second. In addition, a lesser number (11.5%) sustained alcohol-related physical injuries after being hurt by other persons accidentally, while the least percentage (1.8%) had hurt their bodies on purpose. Therefore, in as much as there were externally inflicted injuries, good proportions of the injuries were self-inflicted and could not be blamed on other parties. These results slightly differ from those of a study done by W.H.O on the alcohol-related injuries at the emergency departments in 12 countries (South Africa, Argentina, Belarus, Brazil, China, Canada, Czech Republic, Mexico, India, Mozambique, Sweden and New Zealand). W.H.O found all alcohol-related injuries as being externally inflicted by other persons. Across all the study countries, the persons with alcohol use disorder were injured by other persons who were deliberately seeking to hurt them. Apart from in Asia, the perpetrator in the other countries was an acquaintance/friend who was also a person with alcohol use disorder (WHO, 2007).

However, the results in Githunguri Sub-county echo those of Peltzer and Pengpid (2012), which indicate that there are different ways in which the drunken persons experience injuries, including hurting themselves accidentally, hurting themselves on

purpose, someone else hurting them accidentally or someone else hurting them on purpose. Irrespective of the cause, the injuries reported in the study can have a severe impact on the population affected. In explaining the impact of the intentional and unintentional alcohol-related injuries reported by the respondents, Cherpitel et al., (2013) found out that among the alcohol-related injuries experienced by Americans, intentional injuries caused 57.9% of AAM and 57.5% of DALYs, while unintentional injuries accounted for 17.2% of AAM and 16.4% of DALYs. Similarly, different proportions were reported in India by Gururaj et al., (2011) which they indicated that alcohol consumption contributed to around 20-25% of the completed suicides, as well as 30-35% of the attempted suicide, with nearly 33% of domestic violence in India occurring after alcohol abuse.

In establishing the correlation between the violence emanating from alcohol abuse and occurrence of alcohol-related physical injuries, the study found that alcohol is a source of conflict and violence in Githunguri Sub-county, especially considering the fact that more than a third (34.4%) of the male respondents and close to a quarter (24.5%) of the female respondents sustained injuries secondary to violence either in the drinking place, along the way home or at home. It is also notable that (52.4%) of the alcohol-related physical injuries were self-inflicted, with several (16.7%) respondents reporting thoughts of or real attempted suicides in the past. The results echo the findings of Cheya and Auya (2014) who indicate that alcohol abuse tends to lower an individual's capability of resisting self-harm whenever problems set in, while at the same time lowering their inhibitions against harming others.

Alliston (2012) indicates that there is a causal relationship between alcohol abuse and violence from individual as well as population-level studies. Indirectly, the person with alcohol use disorder may injure another person (and perhaps themselves too). The role of alcohol in violence is quite complex, with the victim's consumption and that of other influencing the specific risk of alcohol-related physical injury. The drinking pattern also tends to determine the occurrence of the injury whereby those who consume too much alcohol in one occasion being more predisposed to injury (Ibid.). Alcohol abuse is also associated with the increased risk of suicide. Future research may investigate the exact association between alcohol abuse and suicide.

#### **5.1.2.2 Parts of the Body Injured**

The most (28.9%) injured body part was the head followed by the upper extremities (27%), the trunk (19.6%), the lower extremities (19.6%) and the neck (4.97%) respectively. It was very worrying to learn that even after sustaining alcohol-related physical injuries in a delicate part such as the head, some of the affected persons ignored seeking medical care. This may explain the poor health-seeking behavior of Githunguri Sub-county residents. In terms of the body part injured by each type of injury the head as the most affected body part, mainly sustained incisions, the upper extremities abrasions, the lower extremities sprains, the trunk abrasions and the neck incisions.

#### **5.1.3 Injury Management**

The study found out that less than a half (35.5%) of the respondents had sought medical care for the physical injuries they had suffered. It was also found out that more than a quarter (29.8%) of the respondents managed the injuries from their homes with the rest proportion (34.7%) ignoring them. The risk of managing the injuries

from home is that the constituents of the home remedies such as herbal medicine could not be established. For those who managed the injuries with warm water and salt, methylated spirit or Dettol, the problem was that the injury management was not monitored medically.

The low health-seeking behavior found among the injured persons with AUD in Githunguri Sub-county thus goes against the recommended medical practice guidelines for the management of alcohol-related physical injuries. In the medical practice, it is highly advisable for the injured to manage the alcohol-related physical injuries immediately in order to avoid any complications and to facilitate medical monitoring. Broadly, the management of the injuries should primarily involve the assessment of the patient's airway, breathing as well as circulation. The airway should remain patent to facilitate adequate ventilations. The injury site should also be exposed in order to clear the wounds of the foreign bodies that can cause further contamination (PAM, 2010). After the cleaning, bleeding should be controlled through compressors like bandages and consideration for elevating the affected region made.

For instance, for the management of cuts, lacerations and incisions, it is advisable to start by stopping the bleeding through compression. Subsequently, the wound requires cleaning through NaCl irrigation or betadine wipes (Meyer, 2010). To avoid contamination and facilitate healing, the wound should be closed or dressed with a sterile bandage. However, if the injury is moderate, it can be sutured before the bandaging.

In order to reduce the bleeding at the injured site for the physical injuries, it is important to apply the R.I.C.E.D approach and avoid the H.A.R.M factors. To start with, the R.I.C.E.D approach has five main themes as per each letter.

**R.I.C.E.D approach:**

**Rest:** Helps in minimizing any further damage, allows for detailed injury assessment and reduces the blood flow (Meyer, 2010).

**Ice:** Assists in reducing spasms and pain while at the same time minimizing swelling. It does so by constricting the surrounding blood vessels and reducing fluid leakage and blood flow. Ice comes in form of gel packs or frozen peas and can be applied for 20 minutes with a break of 2 hours off the ice (Oxford University Hospitals, 2014). Before application, it is recommended that ice should be wrapped in a soft damp towel instead of placing it directly onto the bare skin.

**Compression:** The main aim of compressing the area is to reduce swelling and bleeding (Meyer, 2010). The compressors can be inform of a cohesive bandage, elastic bandage or strapping. Pressure aids in reducing blood flow to the surrounding blood vessels, supporting the affected area and immobilizing it. However, the bandaging should not be too tight because tightening can cut off the circulation of blood.

**Elevation:** Best practice recommendations is to elevate the area above the heart level in order to decrease blood supply by making blood flow to go up hill (Oxford University Hospitals, 2014). Similarly, gravity makes the swelling to spread towards the lymph nodes. It can be done on a medical kit or on a chair.

Diagnosis: In order to classify the injury and treat it accordingly, it is important to consult a clinician, especially if the swelling or pain worsens. During the diagnosis, the clinician should seek to understand the mechanism of the physical injury, underlying internal physical injuries, external bleeding, and risk of infection/contamination. It is also necessary to consider high risk injuries and underlying medical conditions because all these factors will inform the diagnosis and subsequent treatment (UWH, 2013). Broadly, minor injuries would require a simple intervention such as cleaning and compression. The cleaning can be through irrigation with normal saline, Conversely, moderate injuries would require minor surgery such as suturing or even the fixing of splints (bone immobilizers) to the affected part (AHRQ, 2008). However, if the injury is major, it would require major surgery, casting (plaster) or advanced medical examination (AHRQ, 2008).

**H.A.R.M factors:**

Within 24-72 hours of the physical injury, it is good to avoid the H.A.R.M-full factors.

Heat: Normally, heat increases bleeding and swelling within the affected area. The injured person should thus avoid hot baths, liniments, saunas, heat packs, showers and hot water cans.

Alcohol: It is wrong to consume alcohol when injured because it thins blood hence increasing the swelling and bleeding. Moreover, it adds to the toxins in the injured part thus worsening the injury (Meyer, 2010). Alcohol also masks the pain hence interfering with the assessment of the severity of the injury. Unfortunately, by increasing swelling and bleeding, alcohol lengthens the recovery time because tissue

regeneration and injury rehabilitation only commences after the disappearance of the swelling.

**Running:** Avoiding running is necessary after sustaining an injury because running tends to increase tissue damage and overloads other areas in a compensatory mechanism. The injured person should thus avoid running or excessive movement within the 72 hours of injury.

**Massage:** Because of its effect in enhancement of blood circulation, massage is prohibited within the first hours of sustaining the injury. Unfortunately, people tend to erroneously do rub downs, mobilizations or massage on the affected area.

However, it is necessary to tailor first aid for the client based on the resources available because the injuries occur at different locations. There were different landmarks where the persons with alcohol use disorder sustained the alcohol-related physical injuries, ranging from the drinking joint, on the way home and at home. For instance, the results in Githunguri Sub-county showed that most (54.2%) of these injuries occurred as the persons with alcohol use disorder were heading home. The other proportion (24.9%) of alcohol-related physical injuries occurred at the drinking joint while the least proportion (20.9%) of alcohol-related physical injuries occurred at home. These results are consistent with those published in a WHO (2007) report of a study on similar injuries done in 12 countries. The report indicates that the injuries mainly happened in the public places except in Czech Republic and Canada where most injuries occurred in the injured persons' homes. There was a moderate likelihood for the injured persons to sustain the injuries from the last location where they were drinking from. In order to curb the injuries, it would be important to put up

preventive measures in the three landmarks while empowering people on how to manage the injuries in different set ups.

## **5.2 Conclusion**

The study sought to determine the alcohol-related physical injuries among Githunguri Sub-county residents. The focus was thus on the psycho-social characteristics of persons with alcohol use disorder, types/nature of the alcohol-related physical injuries they sustain and the way the affected persons with alcohol use disorder managed the injuries. The study thus concluded that:-

1. Most persons with alcohol use disorder are males, those who have attained secondary level of education and below, the married persons, casual laborers and those between 18-30 years of age, with many drinking for socialization.
2. Incisions and abrasions are the most common types of alcohol-related physical injuries, while the part of the body most injured is the head, followed by the upper extremities.
3. The injured persons with alcohol use disorder in Githunguri Sub-county do not adhere to the recommended medical guidelines in managing their alcohol-related physical injuries.

## **5.3 Recommendations**

### **5.3.1 Recommendations from the Study**

Based on the study findings the following recommendations are made:

1. Government interventions to reduce alcohol-related physical injuries should target to address psycho-social factors linked with alcohol abuse such as unemployment, early alcohol drinking debut, school drop-outs and loneliness.

2. To facilitate the identification, classification and diagnosis of the types of injuries among persons with alcohol use disorder, the government of Githunguri Sub-county should avail a medical guideline for injury management to all facilities and encourage the injured persons to seek health care upon sustaining the injury.
3. The County government of Kiambu should ensure the availability of many centers with equipped professionals and commodities to manage the injuries of persons with alcohol use disorder and encourage people to seek medical attention in management of their injuries.

### **5.3.2 Recommendations for Further Research**

1. Further research is necessary on the factors that are associated with the high alcohol abuse rates in Githunguri Sub-county in more county wards. The information gathered will help in comparing the factors among the county wards.
2. A comprehensive longitudinal study on the effects of alcohol-related physical injuries on Githunguri society as a whole Sub-county is necessary.
3. Future research on the association between alcohol abuse and suicide may be necessary

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## **APPENDICES**

### **Appendix 1: Informed Consent**

My name is Antony Kimata Mukui, a Kenyatta University (KU) student pursuing a Master's of Public Health degree in Monitoring and Evaluation. I am undertaking a research to assess the types and management of alcohol-related physical injuries among persons with alcohol use disorder in Githunguri Sub County, Kiambu County, Kenya. The information gathered will aid in highlighting the alcohol-related physical injuries in GithunguriSub-county in order to quantify the burden of the injuries and in turn intervene appropriately.

### **Procedures**

Participation in the research will require me to ask you several questions. I will record all the information I will be asking in the questionnaire. Participation is voluntary and you will not be forced to participate. Lack of participation will not affect your current or future relations with Kenyatta University. You can inquire anything about the study as we interact. You may decline participation or terminate the interview if you feel uncomfortable to continue answering questions.

### **Discomfort/risks**

Some questions asked might sound personal and hence create discomfort. You are free not to answer any question you find uncomfortable or you may stop the interview. The interview might also take 30 minutes of your time and perhaps inconvenience you. It is my assurance that there are no risks for participating in the study.

**Benefits**

Your voluntary participation will help me in highlighting the alcohol-related physical injuries in Githunguri in order to quantify the burden of the injuries. The information will help in creating awareness about the negative consequences of alcohol abuse in Githunguri. You will also benefit from my advice on how to stop or reduce alcohol consumption.

**Reward**

You will not have direct benefits in terms of monetary compensation for participation.

**Confidentiality**

The interview will take place in a secluded setting in your home. I will not record on the AUDIT or questionnaire. The completed tools will be locked in a safe cabinet at Kenyatta University and everything will be held confidentially.

**Contacts**

In case you want any clarification, contact me on 0712302988, my supervisors Dr. Warutere on 0721993833 and Dr. Osero on 0724869330, or KU ethical review committee on [chairman.kuerc@ku.ac.ke](mailto:chairman.kuerc@ku.ac.ke)

**Participant's Statement**

I have been fully informed about the nature of the study and understood it entirely. I have had an opportunity to ask questions and they were answered satisfactorily. I know the benefits and discomforts and I understand that there are no risks involved. I

know my participation is voluntary and the information gathered will remain confidential. I hereby give my consent to any information, which is required of me.

Signature of respondent.....Date.....

**Investigator's Statement**

I, the undersigned, have taken time to explain to the participant in a language s/he comprehends, particularly on the risks, benefits, and research procedure.

Interviewer' Name..... Interviewer's signature.....

Date.....

**Appendix 2: Idhini**

Naitwa Mukui Antony Kimata na ninafanya shahada ya uzamili kwenye chuo kikuu cha Kenyatta. Kwa dakika chache, ningependa kukuzungumzia kuhusu utafiti ninaofanya juu ya majeraha wanayopata watu ambao wanakunywa pombe. Nakuuliza unisaidie kwa utafiti huu lakini uamuzi ni wako na sio lazima ushiriki.

**Jinsi ya kufanya utafiti**

Ningependa kuelewa ni majeraha gani wanywaji wa pombe hupata baada ya kunywa pombe. Nitakuuliza maswali kadhaa ili nielewe kama unakunywa pombe na kama umewahi pata jeraha lolote baada ya kunywa pombe katika muda wa mwaka mmoja uliopita kutoka sasa. La kuhimiza ni kwamba si lazima ukubali kushiriki na pia sio lazima uyajibu maswali yote.

**Mambo ya utata/adhari**

Baadhi ya maswali nitakayokuuliza inaweza kuwa ya kibinafsi lakini si lazima uyajibu kama hutajiskia huru. Ni vyema ukijua pia nitachukua kadri ya nusu saa nikikuuliza maswali lakini kama huna muda unaweza kataa ushirikiano. La muhimu pia ni kwamba utafiti huu hautakudhuru au uharibu uhusiano wako na chuo kikuu cha Kenyatta.

**Manufaa ya utafiti**

Iwapo utashiriki kwa utafiti, matokeo yatasaidia kuonyesha madhara ya kunywa pombe haswa kuhusiana na majeraha yanayompata mnywaji. Wewe mwenyewe pia utanufaika kwa maagizo yangu ya kupunguza unywaji pombe au kuacha kabisa.

**Malipo**

Sitakulipa ili unisaidie na pia hutahitajika kutoa ada yoyote kushiriki kwa utafiti.

**Kuhifadhi siri ya majadiliano**

Nitafanya majadiliano na wewe kwenye sehemu iliyotengwa ili kuhakikisha siri ya mazungumzo yetu. Nakuhakikishia kwamba habari hii itasalia na mimi na chuo kikuu cha Kenyatta ila sitaruhusu watu wengine wasiokuwa ndani ya utafiti kuipata. Sitatumia jina lako popote lakini nitakupatia kodi ya hojaji ili usitambulike kama mshiriki.

**Njia za mawasiliano na wasimamizi**

Iwapo una swali lolote, uko huru kuwasiliana na wasimamizi wangu, Dkt. Peterson Warutere kwa 0721993833 na Dkt Justus Osero kwa 0724869330. Unaweza pia wasiliana na kamati ya maadili kwa barua pepe [chairman.kuerc@ku.ac.ke](mailto:chairman.kuerc@ku.ac.ke)

**Uamuzi wa mshiriki**

Nimejulishwa yote kuhusu utafiti huu na nikapewa nafasi ya kuuliza swali lolote na nikapata majibu kikamilifu. Najitolea kushiriki kwa utafiti na nina uhakika habari nitakayopeana itawekwa kisiri. Najua pia nina uhuru wa kutojibu maswali kadhaa au yote.

Sahihi.....

Tarehe.....

**Hakikisho la Mhojaji**

Mimi, nitakavyotia sahihi hapa chini, nimeeleza mshiriki yote yanayohusu utafiti unaoendelea. Nimemwambia kwa mfano, kuhusu manufaa, jinsi utafiti utakavyoendelea na mambo yanayoweza leta utata.

Jina la mhojaji.....

Sahihi..... Tarehe.....



## How to score and interpret the AUDIT

The World Health Organization's Alcohol Use Disorders Identification Test (AUDIT) is a very reliable and simple screening tool which is sensitive to early detection of risky and high risk (or hazardous and harmful) drinking. It has three questions on alcohol consumption (1 to 3), three questions on drinking behaviour and dependence (4 to 6) and four questions on the consequences or problems related to drinking (7 to 10).

The **Supplementary Questions** do not belong to the AUDIT and are **not** scored. They provide useful clinical information associated with the client's perception of whether they have an alcohol problem and their confidence that change is possible in the short-term. They act as an indication of the degree of intervention required and provide a link to counselling or brief intervention following feedback of the AUDIT score to the client.

### Scoring the AUDIT

- The columns in the AUDIT are scored from left to right.
- **Questions 1 to 8** are scored on a five-point scale from **0, 1, 2, 3, and 4**.
- **Questions 9 & 10** are scored on a three-point scale from **0, 2 and 4**.
- Record the score for each question in the **"score"** column on the right, including a zero for questions **2 to 8** if 'skipped'.
- Record a total score in the **"TOTAL"** box at the bottom of the column. The maximum score is 40.

### Consumption score

Add up **questions 1 to 3** and place this sub-score in the adjacent single box in the far right column (maximum score possible = 12). A score of 6 or 7 may indicate a risk of alcohol-related harm, even if this is also the total score for the AUDIT (e.g. consumption could be over the recommended weekly intake of 28 for men and 14 for females in the absence of scoring on any other questions). Drinking may also take place in dangerous situations (e.g. driving, fishing/boating). Scores of 6 to 7 may also indicate potential harm for those groups more susceptible to the effects of alcohol, such as young people, women, the elderly, people with mental health problems and people on medication. Further inquiry may reveal the necessity for harm reduction advice.

### Dependence score

Add up **questions 4 to 6** and place this sub-score in the adjacent single box in the far right column (maximum score possible = 12). In addition to the total AUDIT score, a secondary 'dependence' score of 4 or more as a subtotal of questions 4 to 6, suggests the possibility of alcohol dependence (and therefore the need for more intensive intervention if further assessment confirms dependence).

### Alcohol-related problems score

Any scoring on **questions 7 to 10** warrants further investigation to determine whether the problem is of current concern and requires intervention.

<i>AUDIT Total score</i>	<i>Dependence score</i>	<i>Risk level</i>	<i>Possible Interventions</i>
0 - 7	below 4	<b>Low-risk</b>	<ul style="list-style-type: none"> <li>• Use 'Right Mix' materials to reinforce low-risk drinking, particularly for those who previously had alcohol problems or whose circumstances may change.</li> <li>• Harm reduction advice may be appropriate for those in susceptible groups (see 'Consumption Score' above).</li> </ul>
8 - 15	below 4	<b>Risky or hazardous level.</b> Moderate risk of harm. May include some clients currently experiencing harm (especially those who have minimised their reported intake and problems).	<ul style="list-style-type: none"> <li>• Brief Intervention               <ul style="list-style-type: none"> <li>- feedback of AUDIT and harm reduction advice may be sufficient</li> <li>Ideally also:                   <ul style="list-style-type: none"> <li>- setting goals and limits</li> <li>- a motivational interview</li> <li>- self-monitoring of drinking</li> <li>- use of 'The Right Mix' self-help guide</li> </ul> </li> </ul> </li> <li>• Counselling may be required.</li> </ul>
	4 or more	Assess for dependency	
16 - 19	below 4	<b>High-risk or harmful level.</b> Drinking that will eventually result in harm, if not already doing so. May be dependent.	<ul style="list-style-type: none"> <li>• Brief Intervention (all components) is a minimum requirement.</li> <li>• Assessment for more intensive intervention.</li> <li>• Counselling using CBT principles and motivational interviewing in individual sessions and/or in groups.</li> <li>• Follow-up and referral where necessary.</li> </ul>
	4 or more	Assess for dependence	
20 or more	below 4	<b>High-risk</b> Definite harm, also likely to be alcohol dependent. Assess for dependence.	<ul style="list-style-type: none"> <li>• Further assessment preferably including family and significant others.</li> <li>• More intensive counselling and/or group program.</li> <li>• Consider referral to medical or specialist services for withdrawal management.</li> <li>• Pharmacotherapy to manage cravings.</li> <li>• Relapse prevention, longer-term follow-up and support.</li> </ul>
	4 or more	<b>Almost certainly dependent.</b> Assess for dependency.	

**Appendix 4: Questionnaire:** Alcohol-Related Physical Injuries among Persons with alcohol use disorder in Githunguri Sub-county, Kiambu County, Kenya.

Tick [X] for any closed-ended question's answer as appropriate

1. Are you drunk today to the extent that you are unable to give reliable answers?
  - a. Yes
  - b. No

If Yes, terminate the interview, if No, proceed to question 2 (observe)

2. What is your gender?
  - a. Male
  - b. Female
3. In what month and year were you born? Month.....Year.....
4. How old were you at your last birthday? .....
5. What is your place of residence?  
.....
6. What is your level of education? a) Uneducated b) Primary c) secondary d) college e) university
7. What is your current marital status? a) Single b) married c) separated d) divorced e) widowed
8. What is your current employment status a) employed b) employed for wages c) unemployed d) self-employed d) housewife e) retired
9. How much money do you spend on all your needs per day?
  - a. Less than 100 Kenyan shillings
  - b. More than 100 Kenyan shillings
10. Do you use electricity in your house? a. Yes b. No
11. What kind of cooking fuel do you use? [Tick all that apply]

- a. Electricity   b. Gas   c. Charcoal   d. Wood   e. Paraffin   f. other.....

12. Do you have a toilet in your home? Yes b. No

13. If Yes in no.11, what kind of toilet do you use?

- a. Pit latrine   b. Flush toilet   c. Communal toilet   d. any other.....

14. In the last 30 days, how often have you gone hungry due to lack of or insufficient food?

- 1...Never   2...Daily   3...Weekly   3...Monthly   4....Always

15. Psychological distress:(Unpleasant emotions or feelings, which impact one's functioning).

Fill in the following measures of psychological distress

- a. **Loneliness:**(A feeling of hollowness or emptiness inside someone in which one feels isolated from the world or few people he/she would love to contact).

During the last 12 months, how often have you been lonely?

- 1...Never   2...Rarely   3...Sometimes   4...Most of the times   5...Always

Coded High=always/most of the times,      Low=sometimes/rarely,

Absent=never.

- b. **Suicidal Ideation:**(Thoughts about or abnormal preoccupation with suicide)

During the last 12 months, have you contemplated on attempting suicide?

- 1...Yes      2...No

Coded 1=1, 2=0

- c. **No Close friends:**

What is the number of your close friends?

.....

1=0 to 2=1, 3=2, 4=3 or more ; Coded 1=1, 2-4=0

d. **Anxiety:**(Unpleasant feeling of worry, fear and unease)

In the last 12 months, how frequent have you had insomnia (sleeplessness/trouble sleeping) due to anxiety, worries or fear?

1...Never      2...Rarely      3...Sometimes      4...Most of the times  
5...Always                      ; Coded High=always/most of the times,  
Low=sometimes/rarely absent=never.

e. **Sadness :**( Emotional pain characterized by sentiments of loss, despair, disadvantage, sorrow and helplessness).

In the last 12 months, have you felt hopeless or sad almost daily after two weeks or continuously?

1...Yes                      2...No      ; Coded, 1=1, 2=0

16. Which of the following reasons make you drink alcohol? [Tick where appropriate]

- a. Socialization
- b. Curiosity
- c. Fatigue alleviation
- d. Relaxation
- e. None of the above

17. In the last 12 months, have you experienced any of the following injuries/events after alcohol intake? [Tick for Yes or No where applicable]

	Falls	RTA	Fracture	Burn	Poisoning	Blunt injury	Stab	Bit	Cut	Suicidal ideations	Violence
Yes											
No											

18. If yes to the above question, would you attribute the injury to the fact that you were drunk?

- c. Yes
- d. No

If yes to the above, proceed to question 19, if No, terminate the interview.

19. If you experienced an injury, what part/parts of your body was injured as a result of the alcohol-related physical injury?

- a. Head
- b. Face
- c. Neck
- d. Chest
- e. Abdomen
- f. Extremities
- g. Back

20. How can you define the nature of the injury? [Explain each type of injury, show photos, probe and observe where possible]

- a. Contusion
- b. A puncture
- c. A strain

- d. An abrasion
- e. A sprain
- f. Laceration
- g. Incision
- h. Avulsion

21. How would you rate the severity of the injury that you sustained?

- a. Minor injury: Required a simple intervention
- b. Moderate injury: Required sutures or even splints
- c. Major injury: Required major surgery, casting or advanced medical examination

22. In case you experienced any of the injuries, how did it happen? (Explain)

- a. I hurt myself accidentally
- b. I hurt myself on purpose
- c. Someone else hurt me accidentally
- d. Someone else hurt me on purpose
- e. Other reasons.....

23. Where did the injury occur?

- a. At the drinking joint b. Along the way home c. At home

24. How did you manage the injury?

- a. I managed it from home c. I ignored it
- b. I sought medical care d. Other.....

25. If you managed it from home, what remedy did you use?.....

**Appendix 5: Map of Githunguri Sub County, Kiambu County**



**Appendix 6: Budget**

<b>BUDGETTED SPENDING</b>		
<b>ACTIVITIES</b>	<b>ITEMS/PARTICIPANTS</b>	<b>AMOUNT (KShs)</b>
Designing and developing research proposal and instrument	Stationary, Typing, Printing and photocopying of research proposal and instrument	4000
Permission from the Githunguri administration	Research fee	6000
Pre-testing of research instrument	Pre-testing of the questionnaire by the researcher	6000
Community health workers and one medic	Training them and compensation for data collection	40,000
Finalizing of research instrument (typing and photocopy )	383 questionnaires	9000
Main field data collection	Travel and subsistence costs	30,000
Data processing and analysis using SPSS	1 statistician	20000
Report writing	Typing and printing	6000
<b>TOTAL</b>		<b>121,000</b>

**Appendix 7: Time Schedule**

	Sep 2014 – Feb 2015	March 2015	June 2015- October 2015	Nov 2015- Feb 2016	March 2016- November 2016
PROPOSAL					
PRETESTING					
DATA COLLECTION					
DATA ANALYSIS					
REPORT WRITING AND PRESENTATION					

**Appendix 8: Application Letter**

MUKUI ANTONY KIMATA,

KENYATTA UNIVERSITY,

DEPARTMENT OF COMMUNITY HEALTH,

P. O. BOX 2009-00900,

NAIROBI, KENYA.

Cell phone: 0712302988

Date:.....

DIRECTOR OF DISEASE PREVENTION AND HEALTH PROMOTION,

KIAMBU COUNTY,

Dear Madam,

**REF: APPLICATION FOR PERMISSION TO CONDUCT A RESEARCH  
STUDY ON TYPES AND MANAGEMENT OF ALCOHOL-RELATED  
PHYSICAL INJURIES AMONG PERSONS WITH ALCOHOL USE  
DISORDER IN GITHUNGURI SUB COUNTY, KIAMBU COUNTY, KENYA.**

I am a student pursuing Masters of Public Health in Monitoring and Evaluation in Kenyatta University. I am humbly requesting your permission to conduct my research in your County. The study topic is Alcohol-Related Physical Injuries among persons with alcohol use disorder in Githunguri Sub County, Kiambu County, Kenya. Findings of this study will indicate the types and management of alcohol-related physical injuries in Githunguri. Consequently, this will aid in formulation of recommendations to influence policies on the prevention of alcohol abuse in order to avoid its consequences for the benefit of Githunguri residents. I will ensure that all ethical considerations during and after the study are upheld and not compromised at any point. Thank you.

Yours sincerely,

Mukui Antony Kimata

Sign.....

Q57/CTY/PT/20592/2012



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Tel. 8710901 Ext. 57530

Our Ref: Q57/CTY/PT/20592/2012

DATE: 25<sup>th</sup> October 2014

The Principal Secretary,  
Higher Education, Science & Technology,  
P.O. Box 30040,  
**NAIROBI**

Dear Sir/Madam,

**RE: RESEARCH AUTHORIZATION MUKUI ANTONY KIMATA- REG. NO.  
Q57/CTY/PT/20592/2012**

I write to introduce Mr. Mukui Antony Kimata who is a Postgraduate Student of this University. He is registered for M.P.H degree programme in the Department of Community Health.

Mr. Mukui intends to conduct research for an M.P.H Proposal entitled, "Alcohol Related Physical Injuries among Alcohol Abusers in Githunguri sub County, Kiambu County, Kenya".

Any assistance given will be highly appreciated.

Yours faithfully,

**MRS. LUCY N. MBAABU  
FOR: DEAN, GRADUATE SCHOOL**



**KENYATTA UNIVERSITY  
GRADUATE SCHOOL**

E-mail: [dean-graduate@ku.ac.ke](mailto:dean-graduate@ku.ac.ke)

P.O. Box 43844, 00100  
NAIROBI, KENYA  
Tel. 810901 Ext. 57530

Website: [www.ku.ac.ke](http://www.ku.ac.ke)

**Internal Memo**

**FROM:** Dean, Graduate School

**DATE:** 25<sup>th</sup> October, 2014

**TO:** Mukui Antony Kimatta  
C/o Community Health.

**REF:** Q57/CTY/PT/20592/12

**SUBJECT:** APPROVAL OF RESEARCH PROPOSAL

=====

This is to inform you that Graduate School Board, at its meeting of 22<sup>nd</sup> October 2014, approved your Research Proposal for the M.P.H Degree. Entitled, Alcohol- Related Physical Injuries among Alcohol Abusers in Githunguri Sub-County, Kiambu County, Kenya<sup>o</sup>.

You may now proceed with data collection, subject to clearance with the Permanent Secretary, Ministry of Higher Education, Science and Technology.

As you embark on your data collection, please note that you will be required to submit to Graduate School completed Supervision Tracking forms per semester. The form has been developed to replace the progress report forms. The supervision Tracking Forms are available at the University's website under Graduate School webpage downloads.

Thank you.



**RUBEN MURIUKI**  
**FOR DEAN, GRADUATE SCHOOL**

c.c. Chairman, Department of Community Health

Supervisors:

1. Dr. Peterson Warutere  
C/o Department of Environmental Health  
Kenyatta University
2. Dr. Justus Osero  
C/o Department of Community Health  
Kenyatta University



KENYATTA UNIVERSITY  
ETHICS REVIEW COMMITTEE

Email: [chairman.kuerc@ku.ac.ke](mailto:chairman.kuerc@ku.ac.ke)  
[secretary.kuerc@ku.ac.ke](mailto:secretary.kuerc@ku.ac.ke)  
[rvku2006@gmail.com](mailto:rvku2006@gmail.com)  
 Website: [www.ku.ac.ke](http://www.ku.ac.ke)

P. O. Box 43844 - 00100 Nairobi  
 Tel: 8710901/12  
 Fax: 8711242/8711575

Our Ref: KU/R/COMM/51/406

Date: 23<sup>rd</sup> February, 2015

Mukui Antony Kimata  
 Kenyatta University  
 P.O Box 43844-00100, Nairobi.

Dear Kaimata,

APPLICATION NUMBER PKU/278/1254- "ALCOHOL-RELATED PHYSICAL INJURIES AMONG ALCOHOL ABUSERS IN GITHUNGURI SUB COUNTY, KIAMBU COUNTY, KENYA" – VERSION 2.

**1. IDENTIFICATION OF PROTOCOL**

The application before the committee is with a research topic, "Alcohol-Related Physical Injuries Among Alcohol Abusers In Githunguri Sub County, Kiambu County, Kenya" - version 2, discussed on 20<sup>th</sup> February, 2015.

**2. APPLICANT**

Mukui Antony Kimata

**3. SITE**

Githunguri Sub-County, Kiambu County, Kiambu.

**4. DECISION**

The committee has considered the research protocol in accordance with the Kenyatta University Research Policy (section 7.2.1.3) and the Kenyatta University Ethics Review Committee Guidelines AND APPROVED that the research may proceed for a period of ONE year from 23<sup>rd</sup> February, 2015.

**5. ADVICE/CONDITIONS**

- i. Progress reports are submitted to the KU-ERC every six months and a full report is submitted at the end of the study.
- ii. Serious and unexpected adverse events related to the conduct of the study are reported to this board immediately they occur.
- iii. Notify the Kenyatta University Ethics Committee of any amendments to the protocol.
- iv. Submit an electronic copy of the protocol to KUERC.

When replying, kindly quote the application number above.

If you accept the decision reached and advice and conditions given please sign in the space provided below and return to KU-ERC a copy of the letter.

PROF. NICHOLAS K. GIKONYO  
 CHAIRMAN ETHICS REVIEW COMMITTEE

I ... Mukui Antony Kimata ... accept the advice given and will fulfill the conditions therein.

Signature..... [Signature] ..... Dated this day of... 26/2/2015 ..... 2015.  
 cc. Vice-Chancellor





**NATIONAL COMMISSION FOR SCIENCE,  
TECHNOLOGY AND INNOVATION**

Telephone: +254-20-2213471,  
2241349, 310571, 2219420  
Fax: +254-20-318245, 318249  
Email: secretary@nacosti.go.ke  
Website: www.nacosti.go.ke  
When replying please quote

9<sup>th</sup> Floor, Utalii House  
Uhuru Highway  
P.O. Box 30623-00100  
NAIROBI-KENYA

Ref: No.

Date:

**13<sup>th</sup> April, 2015**

**NACOSTI/P/15/7563/5408**

Antony Kimata Mukui  
Kenyatta University  
P.O. Box 43844-00100  
**NAIROBI.**

**RE: RESEARCH AUTHORIZATION**

Following your application for authority to carry out research on "*Alcohol-related physical injuries among alcohol abusers in Githunguri Sub County, Kiambu County, Kenya*" I am pleased to inform you that you have been authorized to undertake research in **Kiambu County** for a period ending **25<sup>th</sup> February, 2016**.

You are advised to report to **the County Commissioner and the County Director of Education, Kiambu County** before embarking on the research project.

On completion of the research, you are required to submit **two hard copies and one soft copy in pdf** of the research report/thesis to our office.

  
**DR. S. K. LANGAT, OGW**  
**FOR: DIRECTOR GENERAL/CEO**

Copy to:

The County Commissioner  
Kiambu County.

The County Director of Education  
Kiambu County.

MINISTRY OF INTERIOR AND CO-ORDINATION OF NATIONAL GOVERNMENT  
COUNTY COMMISSIONER, KIAMBU



Telephone: 066-2022709  
Fax: 066-2022644  
E-mail: [countycommissionerkiambu@kenya.go.ke](mailto:countycommissionerkiambu@kenya.go.ke)  
When replying please quote

County Commissioner  
Kiambu County  
P.O. Box 32-00900  
**KIAMBU**

ED.12/1/VOL II/159

18<sup>th</sup> May 2015

Antony Kimata Mukui  
Kenyatta University  
P.O. Box 43844-00100  
**NAIROBI**

**RE: RESEARCH AUTHORIZATION**

Reference is made to National Commission for Science, Technology and Innovation letter Ref. No. NACOSTI/P/15/7563/5408 dated 13<sup>th</sup> April 2015.

You have been authorized to conduct research on "*Alcohol-related physical injuries among alcohol abusers in Githunguri Sub County, Kiambu County, Kenya*" for a period ending *25<sup>th</sup> February, 2016*.

You are requested to share your findings with County Director of Education upon completion of your research.

COUNTY COMMISSIONER  
KIAMBU

for ESTHER MAINA  
COUNTY COMMISSIONER  
**KIAMBU COUNTY**

**Copy to:** County Director of Education  
**KIAMBU COUNTY**

National Commission for Science, Technology and Innovation  
P.O. Box 30623-00100  
**NAIROBI**

**MINISTRY OF EDUCATION SCIENCE & TECHNOLOGY**  
**State Department of Education**

Telephone: Kiambu (office) 020-2044686  
 FAX NO. 020-2090948  
 Email: [directoreducationkiambu@yahoo.com](mailto:directoreducationkiambu@yahoo.com)  
 When replying please quote



COUNTY DIRECTOR OF EDUCATION  
 KIAMBU COUNTY  
 P. O. Box 2300  
 KIAMBU

KBU/CDE/HR/4/1/ (96)

18<sup>th</sup> May, 2015

The Sub-County Director of Education  
GITHUNGURI SUB-COUNTY

**RE: RESEARCH AUTHORIZATION**

The above cited student has been authorized to carry out research on *"Alcohol-related physical injuries among alcohol abusers "* for a period ending 25<sup>th</sup> February 2016.

Please accord him the necessary assistance.

COUNTY DIRECTOR OF EDUCATION  
 KIAMBU COUNTY  
 P.O. BOX 2300 KIAMBU  
 TEL: 020-2044686  
 FAX: 020-2090948

***BONIFACE N. GITAU***  
 COUNTY DIRECTOR OF EDUCATION  
KIAMBU COUNTY

**ANTONY KIMATA MUKUI**  
 KENYATTA UNIVERSITY  
 P.O BOX 43844-00100  
NAIROBI