

**CORRELATES OF SUBSTANCE USE, RISKY SEXUAL  
BEHAVIOUR AND EFFECTIVENESS OF AWARENESS  
CAMPAIGNS AGAINST ALCOHOL AND DRUG ABUSE  
AMONG UNIVERSITY STUDENTS IN COASTAL  
REGION, KENYA.**

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**Correlates of Substance Use, Risky Sexual Behaviour and Effectiveness  
of Awareness Campaigns against Alcohol and Drug Abuse among  
University Students in Coastal Region, Kenya**

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**Thesis submitted in partial fulfilment for the degree of doctor of  
philosophy in public health in the Jomo Kenyatta University of  
Agriculture and Technology.**

**2016**

**DECLARATION**

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

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**JKUAT, Kenya**

## **DEDICATION**

To the apples of my eyes

My very much beloved daughters

Wangui and Njeri.

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## ABBREVIATIONS AND ACRONYMS

<b>DALYs</b>	Disability-adjusted life years.
<b>DAAD</b>	<i>Deutscher akademischer austausch dienst</i> (German academic exchange service).
<b>FGDs</b>	Focus group discussions.
<b>GBD</b>	Global burden of disease.
<b>HELB</b>	Higher education loans board.
<b>HIV/AIDS</b>	Human immunodeficiency virus / Acquired immune-deficiency syndrome
<b>IDUs</b>	Injecting drug users.
<b>KII's</b>	Key informant interviews
<b>NACADA</b>	National authority for the campaign against alcohol and drug abuse
<b>NCD</b>	Non communicable diseases
<b>STI</b>	Sexually transmitted infections
<b>TUM</b>	Technical University of Mombasa
<b>UNICEF</b>	United nation children's fund
<b>UNODC</b>	United Nations office on drugs and crime
<b>WHO</b>	World health organization
<b>YLL</b>	Net years of life lost
<b>YLD</b>	Years lived with disability

## OPERATIONAL DEFINITIONS

- Substance Abuse** In this study this refers to the incongruous use of intoxicating drugs to an extent that personal, academic, social and spiritual functioning is disrupted. Drug abuse and substance abuse has been used interchangeably.
- Licit drug use** In this study this refers to the use of substances which are permissible and not forbidden by the law. For example, tobacco and alcohol.
- Illicit Substances** Refers to substances which are unlawful and prohibited by the law. For example, cocaine, heroin and cannabis.
- Illicit drug use** This refers to the use of substances which are unlawful and prohibited by the law.
- Assessment criteria** Pattern of drugs use will be based on self-report of the students about lifetime use of drugs and current use of various substances.
- Ever users** This refers to lifetime use of substances or those who used or abused drugs at least once in their lifetime irrespective of time and frequency.
- Current users** This refers to those users who used drugs at least once during the last one month.
- Risky sexual behaviour** In this study this means having had the first sexual intercourse below the age of 15 years or having more than one sexual partner or



having unprotected sex or engaging in sex while under the influence of alcohol and other drugs.

**Consistent condom use** This refers to the use of condoms during each and every sexual intercourse.

**Effectiveness of awareness campaigns** Refers to the usefulness and ability of alcohol and drug abuse awareness campaigns to encourage university students to elude alcohol and other intoxicating substances.

## **ABSTRACT**

Substance abuse amongst university students is a major public health concern because it predicts health-related problems later in life. The campus environment favours risky behaviours such as substance use and risky sexual behaviour among students. Effective response to the challenge of drug abuse as well as risky sexual behaviour and mitigation of their negative effects among young people relies mainly on accurate information on the extent of substances abuse and risky sexual behaviour among this group of individuals. The aim of this study was to determine prevalence and factors associated with substance use and risky sexual behavior as well as determine the effectiveness of alcohol and drug use awareness campaigns on behaviour change among public university students in the coastal region of Kenya. Mixed method design was used to carry out the study. A qualitative study was done through key informant interviews and focus group discussions while the quantitative study was a quasi-experimental study with both baseline and end-line surveys. The study revealed a high prevalence of substance use with alcohol being the most commonly used substance in both baseline and end-line surveys. Similarly, although the respondents were relatively young, they had significant risky sexual behavior exhibited by early sexual debut, multiple sexual partners, inconsistent condom use and tendency to engage in sex under the influence of drugs. Some of the factors associated with a history of having used alcohol were the male gender, the age of the student, not attending church/ mosque regularly, having schooled in a high school located in the urban area or residing in the urban area during high school life, religion, and the monthly allowance. The female gender, living in the parents/ relatives house as opposed to the university hostel, attending church/mosque regularly were protective factors against being sexually active. There was a positive relationship between substance use and risky sexual behavior among students. Students who engaged in alcohol abuse were more likely to have more than one sexual partner,

have unprotected sex, get pregnant or impregnate others accidentally and engage in sex under the influence of drugs. Awareness campaigns against alcohol and drug abuse were not effective in dissuading first-year undergraduate students not to engage in substance use. Despite the intervention being in Technical University of Mombasa only, the prevalence of drug use increased notably in both universities. The prevalence increased from 38.9% to 48.9% in Pwani University and from 31.3% to 55.2% in the Technical University of Mombasa. There is a high prevalence of substance use and risky sexual behavior among first-year undergraduate students in the coastal region. Information awareness campaigns against alcohol and substance abuse alone are not effective in reducing uptake of substance use among university students. Therefore, there is a need to devise more effective strategies to prevent substance use among university students under control. Programs to prevent risky sexual behaviour should also be implemented.

## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.1 Background information**

Alcohol and drug abuse is a major public health problem worldwide. In Kenya, alcohol consumption has become a public health concern due to overconsumption, intoxication and dangerous behaviour upon consumption. It has contributed immensely to the high prevalence of Human immunodeficiency virus / Acquired immune-deficiency syndrome (HIV/AIDS) and many premature deaths in Kenya (NACADA, 2009). Alcohol and substance abuse is an increasing problem in the country and in particular the use of illicit killer brews which have led to many deaths in different parts of the country, with the government recently calling for a crackdown on illicit brews and all second generation drinks in the country. The coastal region is a major transit hub that has easy access to illicit drugs and is known to have a large-scale sex trade often aimed at raising funds to sustain the drug habits (Weldon, 2013).

Globally, research has shown that all forms of drug dependence and drug associated disorders are highest at the age group of 20–29 years (Degenhardt *et al.*, 2013). The authors noted that drug use disorders were affect young adults at a crucial time in their lives and this adversely impacts on their future. The majority of the university students fall in this age category. Other studies have also shown that consumption of licit and illicit substances among the young people has increased all over the world and the age of initiation of substance use is progressively falling (Bate *et al.*, 2009). Few studies on substance abuse have been done in low income countries, and most of them focus on primary and secondary school students (Atwoli *et al.*, 2011).

Studies have shown that the university setting favours the onset and consolidation of certain risky behaviours, especially those related to substance abuse and risky sex

practices (Mwangi *et al.*, 2014; Oye-Adeniran *et al.*, 2014). Several studies also show that risky sexual behaviour is common among university students (Magu *et al.*, 2012; Mwangi *et al.*, 2014; Mulu *et al.*, 2014; Heeren *et al.*, 2014; Choudhry *et al.*, 2014; Liu *et al.*, 2014; Othieno *et al.*, 2015) exposing themselves to the risk of sexually transmitted infections (STI) including HIV infection.

There are no documented studies on the magnitude of substance abuse and risky sexual behaviour and how the two behaviours change as student's progress with their studies in public universities in the Coastal Region of Kenya. The lack of reliable statistics to reveal the magnitude and factors associated with drug abuse and risky sexual behaviour among students in public universities in the Coastal Region and the effectiveness of alcohol and drugs awareness campaigns on behaviour change need to be addressed.

## **1.2 Statement of the problem**

University students are at young age that is characterized by experimentation and risk-taking, including alcohol and drug abuse as well as risky sexual behaviour. Research has shown that drug use starts during adolescent or in early adulthood (UNODC, 2012) and that drug use leading to addiction usually start in teenage (Swendsen *et al.*, 2009). Substance abuse among college students is therefore a problem of public health importance since it predisposes one to drug dependence in adult life (Jennison, 2004; Kandel *et al.*, 1986; Nelson *et al.*, 2015). Research has shown that experimenting with illegal drugs is common among students who appear to overlook the negative consequences drug and alcohol use may have (Larimer *et al.*, 2005). Evidence also show that first-year undergraduate students are more vulnerable to excessive alcohol consumption due to their limited experience with alcohol and the freedom from the parental restraint for the first time (Osberg *et al.*, 2011).

Alcohol and drug abuse has been shown to be a contributing factor to sexual risk-taking as it is thought to interfere with judgment and decision-making (Testa and Livingston, 2009; Lawyer *et al.*, 2010; Palmer *et al.*, 2010; Ross *et al.*, 2011; Muturi, 2014).

The universities in the Coastal Region are located in major towns where alcohol and other drugs are easily accessible to the students. Similarly Mombasa, a coastal city which hosts the two public universities under study is known to have a large-scale sex trade (Weldon, 2013) and therefore may predispose students to risky sexual behaviour.

### **1.3 Justification of the study**

Alcoholism and drug abuse is a major problem among the young people in Kenya. However there are no documented studies on the pattern of drug abuse and risky sexual behaviour among university students in the Coastal Region. The effect of alcohol and drug abuse awareness campaigns on behaviour change among university students has also not been explored.

The link between substance abuse and sexual behaviour in Kenyan universities particularly in the coastal region has not been studied. The paucity of data on pattern of substance use and sexual behaviour among university students in the coastal region of Kenya and effectiveness of existing interventions has serious implications on the success of any interventions aimed at reducing this problem. The importance of studying patterns of alcohol and substance use and the effect of alcohol and drug abuse awareness campaigns on behaviour changes as students' progress with their studies in the Coastal Region cannot therefore be overstated.

## **1.4 Research questions**

- i. What proportion of university students in the coastal region of Kenya use alcohol and other drugs?
- ii. What proportion of university students engaged in risky sexual behaviour in the coastal region of Kenya?
- iii. What is the effect of alcohol and drug abuse awareness campaigns on prevalence of substance use among university students in the coastal region of Kenya?

## **1.5 Hypothesis**

Null hypothesis: Alcohol and drug abuse awareness campaigns do not influence behaviour change among university students.

## **1.6 Objectives**

### **1.6.1 Broad Objective**

To assess substance use and risky sexual behaviour among university students in the coastal region and determine whether awareness campaigns against alcohol and drug abuse are effective on behaviour change.

### **1.6.2 Specific objectives**

- i. To determine the prevalence of alcohol and drug use among university students in the coastal region of Kenya at baseline and end-line survey.
- ii. To determine the proportion of university students in the coastal region of Kenya engaged in risky sexual behaviour at baseline and end-line survey.
- iii. To determine the effectiveness of alcohol and drug abuse awareness campaigns on behaviour change among university students in the coastal region of Kenya.

## CHAPTER TWO

### LITERATURE REVIEW

#### 2.1 Global burden of alcohol and drug abuse

Substance abuse is an intricate health and societal issue affecting many people globally. In the year 2012, the United Nations Office on Drug and Crime (UNODC) estimated that globally, 243 million people corresponding to 5.2% of the world population aged 15-64 years had used an illicit drug at least once in their lifetime. These were mainly substances belonging to the cannabis, opioid, cocaine or amphetamine stimulant group (UNODC, 2013). In the same year, there were 27 million people classified as ‘problem drug users’ in the world. While the problem of drug use seems to have stabilized in the developed world, there is evidence of an increase in drug use in the developing countries (UNODC, 2012).

Illicit drug use contribution to the global burden of disease is higher than that of many mental disorders and higher than that of all maternal conditions lumped together (Murray *et al.*, 2013). According to the Global Burden of Disease Study 2010 (GBD 2010) mental and substance use disorders was the leading cause of years lived with disability (YLDs) worldwide (Whiteford *et al.*, 2013) and the 5th leading contributor to burden in 2010 as measured by disability-adjusted life years (DALYs) (Murray *et al.*, 2013). The burden was even termed as an underestimate since it was based on direct burden of mental and substance use and excluded burden resulting from the risk of suicide which was coded to the category of injuries under self-harm in the GBD 2010 list of diseases and injuries. Ferrari *et al.* (2014) tried to estimate the DALYs attributable to suicide as a result of mental and substance use disorders. According to Ferrari and colleagues, substance use and mental disorders were accountable for 22.5 million (14.8–29.8 million) of the 36.2 million (26.5– 44.3 million) DALYs allocated to



suicide in 2010 (Ferrari *et al.*, 2014). Similarly, a recent systematic analysis of the global burden of disease study 2013 showed that from 1990 to 2013, years lived with disability (YLD) for mental and substance use disorders had increased by 45% (Global Burden of Disease Study, 2015). This shows that drug abuse is a problem of public health importance at a global level. According to the Global Burden of Disease Study 2013, drug use disorder was categorised together with cirrhosis, diabetes, and chronic kidney disease as the diseases with increasing death rates globally. Due to their increasing contribution to the burden of disease globally, the analysis termed them as largely neglected diseases that are rising in importance and recommended greater efforts to reducing disease burden from these diseases (Naghavi *et al.*, 2015).

There are gender differences in the drug abuse practices. Empirical evidence shows that men are more likely than women to use both licit and illicit drugs (UNODC, 2013; Tesfaye *et al.*, 2014). However, when data on the misuse of pharmaceutical drugs are considered the gender gap becomes narrow. The use of illicit substances is more common among men than women, whereas the non-medical use of pharmaceutical drugs is nearly equivalent, if not higher among women (UNODC, 2013). Similarly, at a global level the problem of substance abuse has been shown to be worse among males with illicit drug dependence being the eighth largest contributor to disability in male individuals, up from tenth in 1990 (Vos *et al.*, 2013).

Substance use is associated with a wide range of adverse effects on health. Alcohol which is the most widely used and abused substance world over (Basangwa *et al.*, 2006; Kalichman *et al.*, 2007), affects most organs and systems, and its use is related to a large number of health problems. Alcohol use has been linked with the development of 60 diseases including high blood pressure, with alcohol consumption being the third highest contributor to the burden of disease after tobacco and hypertension in developed countries (Rehm *et al.*, 2009). Globally, alcohol consumption contributes 5% of net years of life lost (YLL), 2.4% of net disability-adjusted life years (DALYs) and 3.4% of

the non-communicable diseases (NCD) related burden of deaths , with the burden being mainly high for liver cirrhosis and cancer (Parry *et al.*, 2011). Alcohol consumption is the major risk factor contributing to disease, injury, disability and premature deaths in the developing countries with low mortality (Rehm *et al.*, 2009). The Lancet NCD action group (Beaglehole *et al.*, 2011) and the WHO (Alwan *et al.*, 2011) recognised alcohol consumption along with diet ,tobacco and lack of exercises as the four major risk factors for NCD. In addition to causing cancers, mental disorders, and cardiovascular diseases, alcohol intoxication is associated with violent behaviour and crime (Corrao *et al.*, 2000; Rehm *et al.*, 2003). Similarly, alcohol use has been linked to unsafe sexual practices, increasing the risk of spreading sexually transmitted diseases including HIV/AIDs (WHO, 2004). In South Africa 7% of the total disability-adjusted life years is attributed to alcohol while mortality due to alcohol use has been estimated to be 7.1% (95% confidence interval 6.6 - 7.5%), 10.5% for males and 3.1% for female (Schneider *et al.*, 2007).

Other than alcohol other drugs such as *Cannabis sativa* (bhang) have equally bad effects on health. Evidence show that cannabis use may induce or exacerbate a number of mental health problems. Studies have shown that there is a relationship between the use of cannabis and problems like depression, anxiety disorders, mania as well as psychosis (Richardson, 2010). A study involving more than fourteen thousand adults in the general population showed that diagnosed depression is more common among heavy cannabis users compared to the non-users (Cheung *et al.*, 2010). Further, other studies showed that frequent use of cannabis predicted increased risks of depressive disorders among the adolescent (Hayatbakhsh *et al.*, 2007) as well as the first incidence of mood and anxiety disorders among the adult population (Van Laar *et al.*, 2007). Similarly, evidence show that cannabis is mostly abused in patients with bipolar disorders (Leweke and Koethe, 2008) and its use has effect on the symptomatology of bipolar patients with increased duration and severity of manic phases (Henquet *et al.*, 2005; van Rossum *et al.*, 2009; Potvin and Lalonde, 2014). Empirical evidence also show that cannabis use may

decrease age at onset in both schizophrenia and bipolar disorder (Veen *et al.*, 2004; De Hert *et al.*, 2011).

Given the vast evidence that substance abuse contribute to ill health, there is a need to study the magnitude of the problem among university students and the effect of awareness campaigns in reducing the vice.

## **2.2 Alcohol and drug abuse in Kenya**

The negative impact of substance abuse cannot be overstated. In Kenya it has been noted that alcohol dependency in public institution is a national problem with far reaching effects in all sectors of the economy with major impact on productivity. Drugs and substance abuse creates socio-economic hardships, breeding misery which leads to increase in crime, violence and a drain on human material resources. In recent years there has been an upsurge in the consumption of adulterated illicit brew, cultivation, consumption and trafficking of illicit drugs in Kenya resulting in a myriad of negative consequences to many individuals. Alcohol and Drug Abuse (ADA) also poses danger to the public health system and the quality of life of the citizenry, with great implications in political, economic and social stability of Kenya (NACADA, 2011).

A study done by NACADA involving the general population in Kenya revealed that 14.2% of those aged 15-65 years are currently consuming alcohol, 5.5% miraa, 1% bhang, 0.2% cocaine and 0.1% heroin(NACADA, 2007). In another survey involving public officers, the prevalence was much higher with 33.3% of the employees in the public sector currently using alcohol, 8.5% tobacco, 3.8% miraa, 1.1% bhang and 0.4% narcotics (mandrax, heroin, cocaine). Alcohol was the most abused substance within the public officers ranks, with a prevalence of 33% (NACADA, 2011).

### **2.2.1 Alcohol policy in Kenya**

Alcohol and drug abuse is associated with serious crimes such as murder, rape, and robbery with violence among others hence the need for legal intervention. Although drug abuse may not be a direct cause of some of the crimes, it certainly increases the likelihood of committing crime. It is also a threat to young democracies and leads to anarchy, terrorism and social disintegration (NACADA, 2011). International and local legal frameworks have been designed to prevent and mitigate the effects of ADA. To address the growing alcohol problem in Kenya, Parliament enacted the Alcoholic Drinks Control Act in 2010 (Republic of Kenya, 2010). The act aims at controlling and regulating the manufacture, production, sale, promotion, distribution and consumption of alcoholic drinks. The act provide guidelines on labelling and promotion of alcoholic drinks in order to protect consumers from misleading and deceptive inducements. Alcohol production is an integral part of the Kenyan economy and has made it an important player in the global alcohol market. The law of Kenya requires that anyone intending to manufacture, sell, import or export alcoholic drinks must apply for a license under the Alcoholic Drinks Control Act 2010. The act provides age limit for purchasing alcoholic beverages to be 18 years and prohibits sale of alcoholic drinks in sachets or in a container less than 250 ml. Advertising of alcoholic beverages on national television, radio, print or billboards is permitted, but advertisements may not be aimed at children and must not create false impressions. However, there is no restriction on sponsorship of sporting and youth events, no requirement for warning in advertisements nor restriction of alcoholic beverage consumption in public domains. Sale of alcohol drinks is only permitted between 11am-11pm. Despite these measures, illicit and homebrewed alcohol continues to occur and unregulated alcohol use has been reported even among the underage. In the recent past, Kenyan national media houses have continuously reported many deaths arising from what they term as the “killer brew” in different parts of the country. These are drinks that constitutes traditional and illegal beverages that contains methanol and adulterants such as car battery acid, formalin among other impurities

(NACADA, 2010). These drinks are poorly monitored for quality and strength and are made under unhygienic circumstances but are widely consumed due to their affordability and accessibility (Muturi, 2014).

This implies that more concerted efforts are needed to ensure that the implementation of the laws governing manufacturing, production and sale of alcoholic drinks in the country in order to protect the youths from the negative effects of alcohol.

### **2.3 Alcohol and drug use among university students**

University education is a major vehicle for development because it improves the well-being of people by enabling them to lead productive lives, increases an individual's productivity which is an asset for effective management and better utilization of resources, and it is key to wealth creation (Psacharopoulos and Woodhall, 1993). However, these benefit cannot be achieved without drug free universities. According to NACADA alcohol and drug abuse is one of the deterrent to education development and by extension the national growth. Alcohol and drug abuse has been associated with disciplinary problems such as failing to attend class, failing to carry out assignments and destructive strikes in schools with consequences such as poor performance, discontinuation from studies, damage to school property and even death (Chebukaka, 2014; NACADA, 2012). Similarly, alcohol abuser are more likely to have alcohol-induced cognitive impairment and engage in risky sexual activities that may lead to sexually transmitted diseases including HIV and AIDS (Abbey *et al.*, 2007).

Use of tobacco, alcohol, and other substances is a worldwide problem and affects many youths and thus, Ostrander and Marinho (1998) rightfully argued that the problem is universal. Evidence show that alcohol abuse among university students is not unique to particular regions or to particular types of institutions of higher education rather it affects all (Ostrander and Marinho, 1998). The commonly used substances such as

alcohol, tobacco and marijuana have been described as “gateway drugs” that youths pass through before engaging in other illicit substances use and finally to serious drug dependence (Nkyi, 2015).

Advertising equates alcohol with pleasure and relief, fun, fashion, friendship, and happiness. This makes alcohol use seem like an adult initiation rite therefore pleasing to students joining universities and colleges. Substance use tends to peak between the ages of 18 and 25 years of age (Karam *et al.*, 2007) with university students being at a higher risk for alcohol abuse when compared to non-college peers (Kypri *et al.*, 2005; White *et al.*, 2005) making this an issue of public health concern given the negative social and health consequences of drug abuse and the link with other unhealthy behaviours.

In their analysis of global burden of disease attributed to illicit drug use and dependence, Degenhardt and colleagues (2013) observed that all forms of drug dependence and disease burden were highest at the age group of 20–29 years globally. The authors noted that drug use disorders were affecting young adults at a crucial time in their lives and this adversely impacted on their future. Other studies have also revealed that consumption of licit and illicit substances among the young people has increased all over the world, and the age of initiation of substance abuse is progressively falling (Bate *et al.*, 2009). It is estimated that 9% of the global population aged 12 and above are classified with dependence on psychoactive substances such as alcohol (Volkow and Li, 2005). Due to the easy access of alcohol at the university campuses, it is one of the most frequently used drugs among students (Bodenlos *et al.*, 2013). Research has shown that in all parts of the world university students have higher levels of alcohol consumption compared to their non-university peers (Royal College of Psychiatrists, 2003).

The problem of substance use among university students in Kenya is significant. Among the few studies on alcohol and drug abuse done among college students in Kenya, lifetime prevalence rate of alcohol was reported to be 51.7% and 42.8% for tobacco use

among students in tertiary institutions in Eldoret, Kenya (Atwoli *et al.*, 2011). Similarly in another study, 30.5% lifetime use and 17.1% current use of tobacco was reported among students in public universities in Kenya (Magu *et al.*, 2013). In another study involving students in a private university in Kenya, Odek-Ogunde *et al.* (1999) found a life time prevalence of 84% for alcohol use and 54.7% for tobacco use.

Different motivations lead university students to engage in drug abuse and there is a need to understand the social setting that lead university students to substance abuse. Social setting denotes the immediate situational, temporal, and motivational factors that influence an individual's behaviour (Beck *et al.*, 1995; Thombs *et al.*, 1997). The social contexts of drinking alcohol and using cannabis among college students include peer acceptance, social facilitation, emotional pain, sex-seeking as well as drinking during family celebrations or rituals (Beck *et al.*, 1995; Beck *et al.*, 2008; Beck *et al.*, 2009).

Peer pressure is the major risk factor leading students to drugs abuse (Chesang, 2013). In the process of seeking approval for their behaviour from their peers, drug users usually convince their friends to join their habit as a way of seeking acceptance, and in the process the friends get hooked into the same problem (UNODC, 2014). Thus there is a significant relationship between the individual's substance-using behaviour and the involvement of their friends in substance abuse (Chesang, 2013).

Studies have shown that substance use among students is associated with a range of problems which include academic, psychiatric, and even social problems (Chesang, 2013). Buckner, 2010 found that marijuana use among undergraduate students was associated with academic difficulties and greater psychiatric impairment in both weekly and less frequent users (Buckner *et al.*, 2010). Similarly a number of studies have documented cannabis-related problems among college students (Hammersley and Leon, 2006; Caldeira *et al.*, 2008).





## **2.4 Risky sexual behaviour among university students**

Risky sexual behaviour of young people has been recognised as an important issue of both social and health concern in the developing countries (Mulu *et al.*, 2014). Risky sexual behaviour acquired during early life is likely to influence sexual behaviour in adult life thus leading to cumulative risks of acquiring and transmitting HIV and other STIs (Berhan and Berhan, 2015). In Kenya, like many other parts of the world, HIV transmission is mainly through heterosexual sex and therefore preventive strategies have mainly focused on reproductive health by advocating for safe sex practices, voluntary testing and counselling (Othieno *et al.*, 2015) and more recently voluntary male circumcision (Centers for Disease Control and Prevention, 2013). However, recent report on HIV estimates in Kenya revealed that young women in the age group 15–24 years account for 21% of all the new HIV infections in Kenya (National AIDS and STI Control Programme, 2014). These high rates of HIV infection among the young people could be linked to risky sexual behaviour (Othieno *et al.*, 2012).

Previously evidence from the developing countries has shown that 50% of HIV transmission occurs among youth aged 15–24 years (Ross *et al.*, 2010) mainly due to lack of adequate life skills to protect themselves against risky sex (Upreti *et al.*, 2009; Berhan and Berhan, 2015). Majority of the university students are in this age group and are at risk of getting unintended pregnancies, and acquiring HIV/AIDS and other sexually transmitted diseases (Tura *et al.*, 2012). Their age, peer pressure, lack of immediate parental supervision and apparent freedom to try new experiences such as sex, alcohol consumption and other drugs are some of the factors contributing to their being an at risk group (Tura *et al.*, 2012). Elsewhere studies have shown that acute effects of substance abuse cause one to take sexual risks that otherwise would not have been taken (Berhan *et al.*, 2013).

Research has shown that risky sexual behaviours such as sex at an early age, having more than one sexual partner, inconsistent condom use, and engaging in sex with commercial sex workers are common among university students (Magu *et al.*, 2012; Mwangi *et al.*, 2014; Mulu *et al.*, 2014; Heeren *et al.*, 2014; Choudhry *et al.*, 2014; Liu *et al.*, 2014; Othieno *et al.*, 2015). This exposes the students to myriad health risks including HIV infection. Universities bring together a large number of youths at their peak years of sexual activity and experimentation deprived of any systematic supervision from parents and teachers. This makes campuses a potentially fertile breeding ground for HIV and AIDS (Mwangi *et al.*, 2014).

A study involving students from six main public universities in Kenya showed that students are increasingly engaging in risky sexual behaviour such as multiple sexual partners and unprotected sex exposing themselves to the risks of contracting HIV infection /Aids (Magu *et al.*, 2012).

Early age at first sex has been documented as a risk sexual behaviour that is associated to an array of negative consequences which may be psychological, physical, social and economic in nature (Ambaw *et al.*, 2010). Early onset of sexual intercourse is associated with increased lifetime prevalence of multiple sexual partners, risk of engaging in unprotected sexual intercourse and thus exposure to sexually transmitted infections including HIV infection /AIDS as well as unintended pregnancies (Fatusi and Blum, 2008; Pettifor *et al.*, 2009; Kaestle *et al.*, 2005; Coker *et al.*, 1994; Patton *et al.*, 2009). Despite this, research has shown that 30% of youths aged between 15-19 years in many developing countries had their first sexual intercourse before the age of 15 years (Dixon-Mueller, 2009). However, a systematic review examining reproductive behaviour of adolescents aged between 15-19 years in sub-Saharan Africa showed that reported sex before the age of 15 had decreased over time in the majority of the countries (Doyle *et al.*, 2012).

University students are relatively an elite group who are likely to be aware of the risks involved in engaging in risky sexual behaviour. However, findings from literature on the relationship between education level and risky sexual behaviour have been reported as inconsistent (Berhan and Berhan, 2015). Before HIV mode of transmission became well understood, highly educated people were thought to engage in risky sex therefore exposing themselves to the disease (Gregson *et al.*, 2001). However, with the realization of the impact of HIV/ AIDs, well educated people were thought to practice safe sex better than those with no education (de Walque *et al.*, 2005; Hargreaves *et al.*, 2008b). However, other studies have found that risky sexual behaviour is more common among people with high level of education (Kirunga and Ntozi, 1997; Eaton *et al.*, 2006) and that individuals with higher education are at a greater risk of HIV infection (Hargreaves and Glynn, 2002; Hargreaves *et al.*, 2008a). Similarly a recent meta-analysis of risky sexual behaviour among male youth in developing countries found that youths with higher social economic status and high level of education were more likely to engage in risky sexual behaviour irrespective of the geographical location (Berhan and Berhan, 2015).

In the Kenyan context, the environment where universities and colleges are situated makes the situation even riskier for students. Universities in the coastal region are located in the city and big towns where the sex industry is “vibrant” and the prevalence of HIV infection /AIDS is high (National AIDS and STI Control Programme, 2014). However there no documented studies of the risky sexual behaviour among university students in the coastal region of Kenya.

## **2.5 Relationship between alcohol, substance abuse and sexual behaviour**

A number of studies have been undertaken in both developed and developing countries to determine the relationship between drug abuse and risky sexual behaviours. According to Cooper, (2006) the relationship between alcohol use and risky sexual

behaviour is a complex one and cannot be explained by a single mechanism or cause. The relationship is as result of multiple underlying /causal and non-causal processes (Cooper, 2006). Cooper, (2006) found that more than 600 studies have been conducted investigating the link between drinking and risky sexual behaviours, and, consistent with popular belief, and that the vast majority of these studies had found a relationship between the two behaviours. Yet, despite finding a connection between the two, these studies have failed to produce evidence of a causal relationship between the two. According to Cooper (2006), avoidance coping and impulsivity are important factors that account for the link between drinking and risky sexual behaviour among the youths while thrill seeking is an important factor in the association between drinking and risky sex among high-risk groups such as heavy drinkers, gay or bisexual men. He further noted that characteristics of one's environment and the lifestyle of those around the young people predict both behaviours.

According to alcohol myopia theory (Steele and Josephs, 1990) alcohol disinhibits behaviour by affecting information processing. When under the influence of alcohol, highly salient, instigating cues such as arousal continue to be processed, while more distal and complex cues that would ordinarily inhibit behaviour (for instance concerns about STIs or pregnancy) are no longer adequately processed. Although use of alcohol and other drugs before sexual encounter with a partner could be incidental, deliberate use to achieve sexual objectives has been reported. Alcohol is mostly used to facilitate a sexual encounter while cocaine and cannabis help enhance sensations and arousal (Bellis *et al.*, 2008).

Studies shows that alcohol use is a major contributing factor to sexual assault in the institutions of higher learning (Abbey, 2002; Testa and Livingston, 2009; Lawyer *et al.*, 2010; Palmer *et al.*, 2010; Ross *et al.*, 2011). Observations from one of the study indicated that approximately 50% of the non-consensual sexual experiences among college students involves alcohol consumption by the victim, perpetrator, or both

(Abbey, 2002). Excessive alcohol use puts students at increased risk of being hospitalized or dying as a result of acute alcohol intoxication and also increases the odds that students will be victims or perpetrators of student sexual assault (Avci and Fendrich, 2010). The association of alcohol use with unsafe sexual practices makes it a significant risk factor for sexually transmitted infections (STIs) including HIV infection (World Health Organization, 2004; Cook and Clark, 2005; Weiser *et al.*, 2006; Baliunas *et al.*, 2010; Muturi, 2014). A cross-sectional study of students at a large, urban university in South Florida Trepka *et al.* (2008) found that 14 % of the respondents had engaged in risky sexual behaviour. In multi variable analysis, past-month alcohol use had the strongest independent association with risky sexual behaviour (Trepka *et al.*, 2008). In Ethiopia, a study on khat and alcohol use among university students showed that there was a significant association between substance use and risky sexual behaviour (Berhan *et al.*, 2013). In Zambia, adolescents who had been drunk 1 or 2 times, and who had been drunk 3 or more times in a life time were 14% and 13% more likely to have had sexual intercourse compared to those who had never been drunk in their lifetime (Siziya *et al.*, 2008).

A number of studies have examined use of marijuana in relation to condom use, and demonstrated that marijuana use is associated with decreased likelihood of using condoms (Hendershot *et al.*, 2010; Bryan *et al.*, 2012; Walsh *et al.*, 2014). This implies that individuals who take marijuana, have a higher chance of engaging in risky sexual behaviour. This may predispose the individuals to HIV/AIDs and other sexually transmitted infections. In addition to the increased risk of acquiring HIV, problem drug and alcohol users also are at greater risk of transmitting HIV to the general population. In an operational research done in Kenya among clients attending VCT centres, it was found that 60% of individuals who drank alcohol had multiple sexual partners (Mackenzie and Kiragu, 2007). Injection drug use is also a significant mode of spread of HIV infection internationally. A study in Kenya revealed that 49.5% of injecting drug users (IDUs) tested HIV positive (Ndeti *et al.*, 2006).

## **2.6 Alcohol and drug abuse awareness campaigns and behaviour change**

Awareness campaigns through the media such as television, radios, billboards, posters, leaflets and print media, such as magazines and newspapers have been widely used in an attempt to change various health behaviours in mass populations (Wakefield *et al.*, 2010). Public health campaigns have markedly focused on tobacco use and heart-disease prevention, safe sex practices in relation to HIV infection as well as alcohol and illicit drug use, among many other health-related issues. This is because they have potential to modify the knowledge, attitude and behaviour of a large proportion of the population (Brinn *et al.*, 2012). Evidence show that mass media campaigns have had an impact on smoking behaviour, diet and exercise in relation to lifestyle diseases (Wakefield *et al.*, 2010). However, other studies have demonstrated that the effect of awareness campaigns on behaviour change are minimal since information seems to have more impact on knowledge and beliefs than on actual behaviour (Robertson, 2008). Little research is available on the effects of mass media campaigns in changing behaviours related to drug use and much of the evidence has been generated from studies in the developed countries (Wakefield *et al.*, 2010). Research has shown that adequate exposure to media campaigns is effective in reducing population tobacco use (Davis *et al.*, 2008; Wakefield *et al.*, 2010; Wakefield *et al.*, 2011; Bala *et al.*, 2013). However, apart from mass media campaigns aimed at reducing drink driving, campaigns to lessen alcohol intake mostly targeting young people have had little success (Babor *et al.*, 2003; Wakefield *et al.*, 2010). The potential effects of the campaigns are often overshadowed by the unrestricted availability of alcohol and peer influence. For awareness campaigns to impact on students behaviour, comprehensive prevention approaches that combine traditional education programs with strategies aimed at changing the physical, social, legal, and economic environments on campuses and in surrounding communities are recommended (Education Development Ctr, 2002; Howat *et al.*, 2007). This approaches recognizes that student behaviour is influenced at multiple levels that include personal, peer, institutional, community, and public policy levels.

Awareness campaigns against alcohol and substance abuse are meant to impact drug education to targeted population with the hope of helping to modifying the attitude and behaviour. According to (Abraham *et al.* 1998) the key cognitive construct of individual motivation and behaviour include attitude, self-representation, social influence and interventions. Intervention is seen as an important construct because it facilitates the effects of the other variables of cognitive construct of individual behaviour (Abraham *et al.*, 1998).

Behaviour change programmes seek to promote safer individual conduct as well as changes in social norms that generate healthy behaviour such as avoiding substance abuse and adopting safe sex practices. Awareness campaigns are based on the communication-behaviour change concept that aims to move a target population from initial awareness of interest in a problem to the adoption and maintenance of advocated attitudes or behaviours (Johnson *et al.*, 1988). However behaviour change is complex since it involves knowledge, motivations and choices, which are influenced by sociocultural norms, as well as risk assessment in relation to immediate benefits and future consequences. It involves both rational decision making and impulsive and automatic behaviour (Marteau *et al.*, 2012). Those opposed to the effectiveness of awareness campaigns argue that the potential for information based interventions is limited, given that campaigns are based on a view of human behaviour as driven by deliberate actions. This is contrary to psychological and neuro-scientific evidence which shows that much human behaviour is not actually driven by deliberation upon the consequences of actions, but is automatic, prompted by stimuli in the environment, resulting in actions unaccompanied by cognisant reflection (Neal, 2006).

Most approaches to changing behaviours across populations have focused largely on using information campaigns to persuade people of the risks they face and the potential benefits of healthy behaviour (Marteau *et al.*, 2012). However according to Marteau *et al.* (2012) success of such campaigns is questionable given that more often individuals

act without self-reflection. The authors suggest that interventions targeting the automatic process of behaviour would be more effective. This include altering the environment to constrain behaviour for instance reducing the accessibility of alcohol and other drugs would be more effective in reducing the number of young people engaging in substance use. Reducing the accessibility of alcohol and tobacco through reducing the proximity and density of retail outlets, age restrictions and raising the minimum age has been correlated with lower rates of use and a lower incidence of related problems (Johnson *et al.*, 1988; Reitzel *et al.*, 2011).

Palmgreen *et al.* (1993) alluded to important principles in designing media awareness campaigns against drug abuse. According to them for a campaign to be effective it is important to design one that will achieve extensive, frequent, and prolonged exposure to a message. One should also ensure audience segmentation strategies to target messages to at-risk audiences (Palmgreen *et al.*, 1993). For this reason the drug awareness campaign in this study were designed to last for one academic year and were targeting first year undergraduate students, one of the most at risk group to initiation into drug use.

## **2.7 The theoretical and conceptual framework relating to the study**

The study was guided by the problem behaviour theory and the health belief model.

### **2.7.1 Problem behaviour theory**

This study was based on Jessor's "Problem Behaviour Theory". This is a systematic, multivariate, social-psychological conceptual framework derived initially from the basic concepts of value and expectation in Rotter's (Rotter, 1982; Rotter, 1954) social learning theory and from Merton's (1957) concept of anomie (Costa, 2008) .



According to the social learning theory, learning occurs through modelling. Thus, substance use behaviours may occur through peer influence, where peer model substance use or make substances more readily available or exert mutual influence to use substances as well as peer norms that encourage and perpetuate substance use. Due to this social learning, peers who use substance are more likely to have substance using friends who act as reinforcing agents. The social environment also plays a role; for example in the case of university students who have ready access to alcohol and other drugs in their campuses, those students coming from families or neighbourhood where alcohol is brewed, those within the students social circle using alcohol and drugs are all likely to be influenced to abuse drugs. The social environment here will provide an opportunity to learn the new behaviour of alcohol and drug use.

Problem behaviour is behaviour that is “ socially defined as a problem, as a source of concern, or as undesirable by the social and/or legal norms of conventional society and its institutions of authority; it is behaviour that usually elicits some form of social control response” (Jessor, 2001). Problem-behaviour theory was developed in the early 1960s, to guide a comprehensive study on alcohol abuse and other problem behaviours in a small tri ethnic community in southwestern Colorado (Jessor *et al.*, 1968). The theory has been revised and extended during the course of studies by Richard Jessor and colleagues mainly on problem behaviour among adolescent and youths (Jessor and Jessor, 1977; Donovan *et al.*, 1991). The theory provides a useful conceptual framework for understanding risk behaviour that occurs among youths. Visser describes risk behaviour as “... behaviour that is either physically or emotionally dangerous or contribute to developmental problems for young people involved” (Visser and Van der Westhuizen, 2006). The problem behaviour theory is therefore applicable to guide the study on alcohol and drug abuse and risky sexual behaviour among young adults.

As originally formulated, the theoretical framework include three major systems that determine behaviour. These include personality system, perceived-environment system

and the behaviour system (Costa, 2008). Each system is composed of variables that serve either as risk factors for engaging in problem behaviour or protective factors against involvement in problem behaviour. It is the balance between the risk factors and the protective factors that determines the degree of proneness for problem behaviour within each system (Costa, 2008). According to the author the overall level of proneness for problem behaviour, across all three systems, reflects the degree of psychosocial conventionality or unconventionality characterizing each young adult.

In this study perceived-environment variables will include among other factors peer pressure, the freedom enjoyed by students in public universities, easy accessibility of drugs in the campus environment, being away from parents and former social peers. These are factors likely to contribute to new behaviours by the students. Good parental support and well laid institutional rule and regulations are remote in the causal chain and therefore require theoretical linkage to behaviour. Problem behaviour proneness in the perceived environment system includes low parental disapproval of problem behaviour, high peer approval of problem behaviour, high peer models for problem behaviour, low parental controls and support, low peer controls, low compatibility between parent and peer expectations, and low parent (relative to peer) influence.

The concepts that constitute the personality system include socio cognitive variable such as values, expectations, beliefs, attitudes, and orientations toward self and society—that reflect social learning and developmental experience. According to Costa, 2008 problem behaviour proneness in the personality system is predicted by factors such as social criticism, low value on academic achievement, high value on independence, higher alienation, low self-esteem, greater attitudinal tolerance of deviance, and lack of or low religiosity.

The behaviour system include both problem behaviours and conventional behaviours. Problem behaviour include alcohol and drug use, risky sexual intercourse, and any other

norm violating deeds. According to Costa involvement in any one problem behaviour increases the likelihood of involvement in other problem behaviours. This is mainly due to their linkages in the social ecology of youth that present opportunities to learn and to practice the behaviours together as well as similarity in the psychological meaning and functions the behaviour may have (Costa, 2008). Conventional behaviours are behaviours that are socially acceptable and engrained as appropriate for young adults. They include hard work in academic course work, achievements and involvement in religious activity. The church and institutions of learning have been referred to as institutions of conventional socialization, that enable the youth to acquire conventional socially acceptable norms of the bigger society (Costa, 2008).

Problem behaviour proneness in the behaviour system includes high involvement in other problem behaviours and low involvement in conventional behaviours. The likelihood of students engaging in alcohol and substance abuse and risky sexual behaviour depends on how well they are able to balance the instigations and controls that determine likelihood of involvement in the problem behaviour. Student social demographic characteristics including their gender, level of income, religiosity, and place of residence while in the university will be associated with student's likelihood to engage in alcohol and drug abuse as well as risky sexual behaviour.

### **2.7.2 The Health belief model**

The intervention in the study was guided by the health belief model (HBM). The health belief model is based on the concept that the perceived susceptibility to and the severity of the disease and the perceived benefits of action to avoid disease are the key factors in motivating a positive health action (Janz and Becker, 1984; Glanz *et al.*, 2002). Recently, other constructs have been added to the HBM, which include cues to action, motivating factors and self-efficacy (Rosenstock *et al.*, 1988). The HBM assumes that health behaviour change is predicted by the existence of the main perceptions either

individually or in combination. This include perceived susceptibility, referring to one's subjective perception of the risk of contracting a condition or disease; perceived severity, associated with feelings about the seriousness of acquiring an illness in terms of medical and social consequences; perceived benefits based on beliefs regarding the effectiveness of the particular actions available in reducing the threat of disease/illness and perceived barriers , referring to the cost-benefit analysis which it is believed people undertake to weigh up a beneficial action and its opposing limitations such as costs, side-effects, time and inconvenience (Janz and Becker, 1984; Glanz *et al.*, 2002).

The other construct in the HBM that determine behaviour change is cues to action, which refers to the precipitating forces that make a person feel the need to take action. The cues may be internal or external such as interpersonal interactions and media communication. The final construct is self-efficacy which is described as the confidence that a person has in his or her ability to pursue the prescribed behaviour in this case ability to resist drug use.

The information awareness campaigns in the intervention of this study was based on the elements of the model. The provision of factual information about the negative effects and dangers of substance abuse was meant to change the student's perceptions about drug use and deter use or prevent substance abuse by creating negative attitudes towards drug use.

## **CHAPTER THREE**

### **MATERIALS AND METHODS**

#### **3.1 Study area**

This study was carried out at Pwani University and the Technical University of Mombasa.

#### **3.2 Study design**

Mixed method study design was used to carry out the study with both qualitative and quantitative studies with baseline and end-line cross-sectional surveys. The qualitative study was done through key informant interviews (KIIs) and focus group discussion (FGDs) while the quantitative study was a quasi-experimental study with both baseline and end-line surveys.

#### **3.3 Study population**

The study population was composed of undergraduate university students at the Pwani University and Technical University of Mombasa.

##### **3.3.1 Inclusion criteria**

- Undergraduate students in the selected campuses willing to participate in the study.
- Students who gave informed consent

### 3.3.2 Exclusion criteria

- Students in degree programs not included in the study.
- Postgraduate students.
- Undergraduate students who are not direct entrants from high school.

### 3.4 Sample size and sample size determination.

The formula for estimating difference in two proportions was used to calculate the sample size. Substance use prevalence rate of 52 % (based on alcohol use prevalence rate from the study by Atwoli *et al.*, 2011) in the non-intervention group and prevalence rate of 37 % in the intervention group (assuming that the intervention would lead to a 15 % decrease) will be assumed for the purposes of calculating the sample size. With significance level of 0.05 and  $\beta$ -level of 0.20 (power of the test at 80 percent) the minimum required sample was calculate as follows as follows;

$$N = \frac{(r + 1) \bar{P} (1 - \bar{P}) (Z_{\beta} + Z_{\alpha/2})^2}{r (P_1 - P_2)^2}$$
$$n = \frac{(1 + 1) (0.445) (1 - 0.445) (0.84 + 1.96)^2}{1 (0.52 - 0.37)^2}$$
$$= 172 \text{ for each group.}$$

#### Assumptions

Power = 80 %

$Z_{\beta} = 0.84$ .

Significance level = 0.05

$Z_{\alpha} = 1.96$

r= 1 (equal number of cases as control)

$$\bar{P} = (52+37) / 2 = 44.5$$

The proportion in the control group = 52%

The proportion in the exposed group = 37%

### **3.5 Sampling technique**

There are two public universities in the coastal region and both were included in the study with intervention in the Technical University of Mombasa. The university to have the intervention was picked randomly by tossing of a coin. The qualitative study involved KII's with the deans of students and counsellors from both universities. The deans of students and counsellors were purposively included in the study because they were likely to have information on the magnitude of the drug abuse and risky sexual behaviour in the universities as they are the ones who deal with disciplinary cases. In each university two FGDs comprising of 10 students each were carried out and were grouped by gender. Purposive sampling was used to select participants for the study.

For the baseline and end line surveys in the quasi experimental study, multi stage sampling was used to select academic programs to be included in the study. Multi stage sampling was used to select four schools in each university. One degree program from each school was then selected randomly making a total of four programs from each university. Purposive sampling was used to administer questionnaires to students in the selected degree programs.

## **3.6 Data collection**

### **3.6.1 Key Informant Interviews**

Four KIIs with the deans of students and counsellors from the two universities were conducted, two interviews in each university. An interview guide (Appendix 1) was used during the interviews. The interviews were used to assess the magnitude of drug use and risky sexual behaviour and the commonly abused drugs among students in the university. The number of KIIs was guided by data saturation. By the time the third and fourth interviews were conducted the interviewer noticed that there was repetition of issues that had already been raised and decision was made not to conduct further interviews.

### **3.6.2 Focus Group Discussions**

Four focus group discussions (FGDs) with students from both universities were carried out. In each university two focus group discussions comprising 10 students grouped by gender were conducted. The number of FGD was guided by data saturation. By the time we conducted the third and fourth FGD we noticed that issues already identified earlier were being repeated and there was no need for further discussions. The FGDs were used to understand the magnitude of substance use and risky sexual behaviour as well as the commonly abused substance so as to guide in the designing of the intervention and also supplement the data from the survey.

Participants willing to take part in the FGDs were recruited through method of snowballing—an acceptable method in the qualitative paradigm. Dean of students and departmental secretaries were used as gatekeepers for creating initial contacts with students. The class representatives were introduced, and after explaining the nature of the study they were willing to participate. They were able to refer students to the research team who in turn came with other volunteers. Since the students were informed



that all the team required was their views and opinions on the magnitude of substance abuse and risky sexual behaviour in the university and not necessarily their personal behaviour, finding students willing to participate was not difficult.

A total 40 (20 Females and 20 Males) students took part in FGDs conducted in the two universities. During recruitment, we ensured that both genders were equally represented and those referring participants were encouraged to bring friends drawn from all the four years of study and from different programs to allow better representativeness.

During the FGD, the principal researcher was the moderator while my research assistant kept time and took short notes of the discussions. A FGD guide with a list of questions (Appendix 1) was used to guide the discussions. With the informed consent of the participants the FGDs were also tape recorded. Participants being university students who understand and spoke English, the FGDs were held in the English language. Each FGD lasted between 40- 50 minutes. The taped discussions were transcribed in readiness for analysis.

### **3.6.3 Survey**

Baseline and end line surveys were done using self-administered questionnaire (Appendix 2) to determine the proportion and patterns of alcohol and drug abuse among university students. Data collected included social demographic characteristics, information on the use of various drugs including alcohol, tobacco, stimulants, marijuana, cocaine and heroin, among others, and sexual behaviour of the students.

### **3.6.4 Study procedure**

A qualitative study was carried out first so as to inform the design of the intervention for the study. This was done through four KIIs with the deans of students and counsellors from the two universities and four FGDs with students from both universities. The

purpose of the qualitative study was to understand the participant's perception on the burden of alcohol and drug abuse among university students and also identify areas to be focused during the awareness campaigns as well as supplement the quantitative data.

After the qualitative study, a baseline survey was carried out to determine the proportion of first year students involved in substance use and risky sexual behaviour. Participants who took part in the qualitative study were not allowed to take part in the survey. The pre-tested questionnaire was administered to students willing to participate in the study by trained research assistants after semi-mandatory activities such as examination or at the end of a class. The students were allowed to complete the questionnaire and return it to the research assistants immediately to reduce the non-response rate.

After the baseline survey the two institutions were allocated to either intervention or control. Where Pwani University was the control University and Technical University of Mombasa was the experimental University. The intervention in form of awareness campaigns against alcohol and drug abuse was carried out in Technical University of Mombasa. The awareness campaigns were carried out between September 2014 and May 2015. This was a period of 2 semesters after which the end-line survey was carried out.

The awareness campaigns were done in conjunction with NACADA. The awareness campaigns were done using print media and educational talks and was intended to reach the first year undergraduate students. The purpose of the intervention was to increase awareness on the negative effects of drug abuse and thereby reduce the uptake alcohol use and other commonly abused substances. The campaign was also meant to stress on harm reduction, moderations skills and correct misperceptions regarding commonly abused substances. Posters and pamphlets (Appendix 3) with information on various commonly abused drugs were distributed among the first year undergraduate students at the beginning of each semester. The materials contained information of adverse effects

of commonly abused drugs such as alcohol, tobacco, bhang, miraa as well as hard drugs such as cocaine and heroin. Two talks on effects of substances abuse involving the first year undergraduate students were also conducted. At the end of the academic year, end line survey was done to evaluate the effectiveness of the campaigns on behaviour change by comparing prevalence of drug use in the intervention and the control university.

### **3.7 Pretesting of data collection instruments**

A pilot study was done in Moi University College of health sciences. The purpose of the pilot study was to pre-test the questionnaires and the interview guides so as to ensure that the questions were able to capture the information required to answer the research questions. The data collection instruments were revised accordingly before the main study.

### **3.8 Data management and analysis**

During data collection, data was entered daily into the data base which was created at the beginning of the study. The data base was password protected and was only accessible to the principal investigator and the research assistants. The Audiotaped discussions and hard copies of the questionnaires were kept under lock and key.

Analysis for quantitative data was done using Stata software version 13 while qualitative data was done manually.

Thematic analysis for qualitative data was carried out by identifying, coding, and categorizing patterns or themes found in the data. To enhance credibility, a social scientist coded the transcript independently and this was compared and no major coding differences were found and major themes were agreed upon. Data was presented in form of texts and where possible verbatim quotes used to amplify the voices of the informants.

For the quantitative data, univariate categorical variables were analysed in frequency and percentages and presented in tables. The univariate continuous variables were analysed using measures of central tendency and dispersion. Bivariate categorical variables were analysed using chi-square test. Proportions of students using various drugs were reported and compared using confidence intervals. Multivariate analysis was carried out using logistic regression to establish relationship between different social demographic factors and substance use as well as risky sexual behaviour.

### **3.9 Ethical considerations**

The research proposal was approved by Moi University School of medicine / Moi Teaching and Referral Hospital Institutional Research and Ethics Committee (IREC), formal Approval Number: IREC 000955 (Appendix 4, 5 & 6). Permission to carry out research was also sought from the National Commission of Science and Technology, permit Number: NACOSTI/P/14/0572/2041 (Appendix 7) and the university administration of both universities (Appendix 8&9). Students were assured of confidentiality and anonymity for any information they gave. Participation in the study was voluntary, and written informed consent (Appendix 10) was obtained from each participant.

### **3.10 Study limitations**

This study has a number of limitations. First, the study relied on students self-report about substance use and sexual practices by use of anonymous questionnaires. Even in anonymous survey questionnaires where confidentiality is stressed, data collected about sexual matters through surveys suffer from social desirability bias. Instead of reporting on their actual sexual conduct, subjects generally tend to give responses that are “morally acceptable” (Catania, 1999). Similarly data on substance abuse relied on self-report, with no confirmation by any objective measures. However considerable

evidence exists, that self-report questions on substance abuse result in largely reliable and valid data (Cooper *et al.*, 1981; Babor *et al.*, 2000; Del Boca and Darkes, 2003; Lintonen *et al.*, 2004). Other researchers have shown there is a likelihood of underreporting information on alcohol and drug abuse by respondents who want to appear to conform socially with the rest of the society (O'malley *et al.*, 1983; Tourangeau and Yan, 2007). Conversely, other research show that studies that have explored this issue of underreporting information on drug abuse, have not presented convincing supportive evidence of this tendency (Wemm *et al.*, 2013). Further, research has shown there is agreement between self-report and assay results used in studying alcohol and drug use (Harrison, 1997).

Secondly, the data for evaluating the effect of awareness campaigns were derived from repeated cross sections of first year undergraduate and did not follow the same students over time (i.e., we did not have panel data). This was due to the challenge of having to maintain anonymity during the data collection. Therefore, the study did not directly observe how the outcomes changed among a fixed group of individuals when exposed to campus environment with or without awareness campaigns. However the samples were drawn from the cohort of first years who had relatively similar social demographic characteristics as seen in the baseline and the end line survey.

## CHAPTER FOUR

### RESULTS

#### 4.1 Qualitative study

Five major themes were derived from the content of the focus group discussions and key informant interviews. These were; burden of alcohol and drug abuse, factors predisposing students to alcohol and drug abuse, effects of alcohol and drug abuse among students, relationship between drug abuse and risky sexual behaviour, and measures required to curb substance abuse.

##### 4.1.1 Burden of alcohol and drug abuse

Participants agreed that alcohol and drug abuse was a major problem affecting a good number of university students in the coastal region of Kenya. Alcohol was the most abused substance while other commonly abused substances were identified to be *miraa* (Khat), tobacco and marijuana. The local brew commonly known as *Mnazi* in the local language was widely consumed by students since it was cheap and locally available. Some of the participants had this to say:

*“The problem is quite substantial if you are to put in percentage I would say roughly 25 – 30 % of the students abuse drugs.... The most common abused drugs being alcohol in this case mnazi. Mnazi I would say 70-80% of our students take mnazi because it is cheap and available locally. It provide excitement. Many of them come from upcountry and when they get here they want to taste mnazi”.*  
(KIII).

*“One it is alcohol. Few cases of bhang but the major one is alcohol. For cigarettes, not very many cases. The cases that we have had, mostly are alcohol.”(KII3)*

*“I have one of my classmates who is now in rehab because last semester he took a lot of weed.”(FGD2)*

According to the participants, other illicit substances such as cocaine and heroin were also abused but their use is highly secretive and determining the magnitude of their use is difficult. The participants noted that in order to reduce the burden of illicit drug use it calls for different stakeholders to take action. They blamed the government for not reinforcing the set laws and regulations. According to the participants the burden could be reduced if the government played its role in dealing with those responsible for the importation of illicit substances into the country.

#### **4.1.2 Factors predisposing students to engage in alcohol and drug abuse**

The key informants from both universities agreed that the environment in which the universities in the coastal region are located was conducive for students to engage in alcohol and drug abuse. Accessibility of alcohol and other drugs was a major contributing factor to alcohol and drug abuse. The universities are located next to slums where there are many illegal dens selling the local brew as well as other drugs. The participants noted that the easy accessibility of drugs was major impediment to the fight against alcohol and drug abuse. This is what the key informants had to say:

*“students take mnazi because it is cheap and available locally ....(KII2)*

*“We are neighboured by several slums. In fact our institution is in the middle of slums. On one side is the ‘nduke’ slum ..... That is a slum where there are a lot of activities going on there one being the issue of drug and substance abuse.*

*They sell commonly chang'aa, mnazi and even bhang" ..... When you go this other side there is the 'kiziwi' slums. There is a lot of alcohol and busaa and bhang. The furthest end is 'chura' slums so you can imagine the environment. It has a lot and it's favourable for the consumption of those things. (KIII)*

*"Where we are, we are surrounded by dens or magwes where mnazi is sold even next to our gate there is a big, big magwe. You know what magwe is? It is a place where they sell mnazi. It is not only for our students but for the manambas and other people. So we are surrounded by areas that they can access mnazi. (KIII)*

*"As much as we are fighting drug and substance abuse but the commodity is readily available. I can get it when I want without any restriction. The fact that they say that it is for persons above the age of 18 years but who is checking that the person who is buying is above 18 years?".(KII3)*

The student's participants also confirmed that the easy access to alcohol and other drugs predisposes them to engage in substance abuse. According to them, pubs were readily accessible and those willing to buy the substance didn't have to incur any transport cost to access them. They also noted that local brew was readily available and quite affordable.

*"There are a lot of bars and pubs around the university. So the access is very quick when you go that way there are so many pubs around such that they don't even have to incur any costs to access because they are readily available". (FGD1)*

*"I think alcohol is the most abused drug in.... I think 9 out of 10 abuse alcohol. Reason being drug is easily available and cheap. A bottle goes for around 50bob so it's very cheap and also convenient". (FGD3)*



Participants identified other factors predisposing students to substance abuse to be; peer pressure, availability of funds, excess freedom, male gender, stress, not being active in religious activities, poor parenting and culture.

Both the FGDs and the KII's participants seemed to agree that peer pressure was a major contributing factor to alcohol and drug abuse. According to the participants, university students are usually swayed to alcohol and drug abuse just to conform to what their peers are doing. They had this to say:

*“The peers compel you to be into issues of alcohol and other substance abuse. Of course if you don't take you will be the odd one out but for you to fit in the group you need to do what the others do” (KII4).*

*“Peer influence, like when we came in this institution as freshas we didn't have such kind of behaviours but maybe if your first roommates were taking alcohol so they influence you and you start taking the alcohol and as you move you get incorporated in the system”(FGD2).*

The participants also noted that students have a lot of free time and freedom when they join Universities compared with their previous life in high school which predisposes them to engage in drugs. Similarly, the participants indicated that students who had access to “excess” funds tend to indulge in substance abuse. This included not only students from well up families but also those from poor families who were able to cater for school fees and once they receive funding from the Higher Education Loans Board (HELB) which acted as extra source funds to engage in substance abuse. Two participants had this to say;

*“It can also be idle mind. You don't have something to engage into so your brain is just idle and you want to do something to make you active in the mental process. You can go take alcohol or engage themselves in activities that can put*

*them at a risk of taking drugs. You find that some students while in high school they were so much contained and hence had no freedom and had no time to waste. So when they come here and find so much freedom they feel like they are in heaven”. (FGD1)*

*“You find that most of my friends that I know that are alcoholics they come from very well up families. You find that per week your parent is sending you Ksh.5000 and you are like what do I do with this money? They end up looking for how they can utilize the money and being careless. So with that they find themselves taking alcohol for pleasure and not for anything else. And also you find that others are not from very well up families but their parents are able to pay for them school fees yet they have applied for that HELB loan. So when the loan comes, you don’t know how to use the loan because your parents have paid the fees, your parents have paid for you the hostel, they are supporting you and still you have extra money like sh.21, 000 and you are like; “oh this money is too much for me, let me try to find a way to utilize it.” Through the finding ways and everything else and the process, they get into drugs. ” (FGD3)*

According to the participants the male gender was a predisposing factor to alcohol and drug abuse. They noted that more male students engage in substance abuse compared to the females mainly because they are risk takers.

*“As in when you compare the male students and the female students, more of those who abuse drugs are the male students. Reason being men take risks but the lady will protect herself at times.”(FGD4)*

Stress was also identified as a factor leading students to abuse drugs. The source of stress for students was identified to arise from the institution and the family back home.

Some of the issues stressing students include lack of school fees, failure in exams and relationships. One of the participants said;

*“Others abuse alcohol maybe to get rid of the stress they have like poor results, breakup of relationships and school fees”. (FGD1)*

Religiosity was identified as an important factor that determine whether students engaged in alcohol and drug abuse. According to the participants, students who are serious in their religious affiliation and attended church/mosque regularly were unlikely to abuse alcohol and other drugs. They noted that it was important to uphold the religious values be it Christian or Muslim. Some of the participants said;

*“You know somebody who has never stepped to a church or a mosque so is just thus predisposed to drug abuse”. (FGD1)*

*“may be if they can set a rule that every student should belong to a certain religious group it could reduce cases of drug use ”.(FGD2 )*

*“...the spiritual bit is also very important we uphold our faith be it Christians, Muslims coz there are some elements there that are closely related to drug and substance abuse”.(KII4)*

The role of parenting in influencing individual behaviour came up clearly from the discussions. According to the participants parents ought to be role models to their children and if the parent exposes their children to alcohol and other substances as they grow up, there is likelihood of the children to copy the habits of consuming the substances later in life. Participant had this to say;

*“Parents have a very big role to play coz all these things begin in the family. If the parent is a smoker and smokes in front of the kid, if the parent chews*

*Miraa in front of the kid or even sends the kid to go and buy for them cigarettes or something automatically you are telling them this is the way to go. So if it can start from the family it can go a long way” (KII3).*

*“For those whose parents are using drugs at home it is easy for them to interact with students using drugs in school hence they can get into drug abuse more easily as compared to those whose parents are against it”. (FGD2)*

Culture was also identified as factor influencing the youths to engage in alcohol and drug abuse. They noted that alcohol is well accepted in the African culture as a social drink and most customary events are incomplete without alcohol. This includes payment of dowry and rite of passage events such as circumcision and weddings. According to the participants this in itself send the wrong message to the youths, that alcohol is acceptable. One of the key informants had this to say:

*“ ..... the social aspect of alcohol is well accepted in our communities..... Like in my tribe, you can't get a wife unless you produce alcohol and it is not only my tribe I know several communities in Kenya. Our alcohol is 'mnazi' but in some regions they talk of 'chang'aa', they talk of 'busaa', some will even produce Miraa, beer... so it is culturally accepted to take alcohol. So while you are doing that what message are you sending to the youths? You are telling them it is acceptable to take alcohol and miraa or even busaa and chang'aa so that is the first factor that the society has accepted alcohol “(KII3).*

#### **4.1.3 Effects of drug abuse**

The problem of drug abuse has had negative effects on both students and staff in the institutions of higher learning and this has an impact on the students learning activities. The participants seemed to anonymously agree that drug abuse leads to poor class

attendance and poor performance that sometimes lead to discontinuation from the university. One participant had this to say;

*“The cases of alcohol abuse are many. In fact it is destabilizing even the student’s learning. It might even end up causing poor performance, poor attendance and sometimes dropout from class. And then for staffs of course alcohol leads to absenteeism, poor performance at work also. Generally it is disorienting to both students and staff”.* (KII3)

Substance abuse particularly use of marijuana (bhang) was also linked to mental health problems. The participants said they had witnessed students with mental disturbances which after follow-up was established to be as result of the use of bhang. The participants gave an example of a student who was rescued after attempted suicide as a result of the effects of bhang. Rape cases, sodomy and physical assaults were among other effects resulting from drug use.

#### **4.1.4 The relationship between alcohol and drug abuse and risky sexual behaviour**

The participants from both universities seemed to agree on the fact that alcohol and drug abuse was associated with risky sexual behaviour. The participants stated that students who abused drugs were likely to engage in risky sexual behaviour such as having sexual intercourse while under the influence of alcohol, unprotected sex and having multiple sexual partners. Cases of sexual molestation while under the influence of alcohol were reported by several participants. They noted that this was too risky for the individuals as it predisposes them to sexually transmitted infections and unintended pregnancies.

*“.... There were 2 cases of rape in the past two years and the victims were drunk at the time of the incident”.* (FGD1) ...” 2 students were sodomized along the bridge when drunk”. (FGD2)

*“People got drunk and ....., there was a lady who got drunk and the boyfriend lured her to come here.... It doesn't have a lot of security at night. So her boyfriend lured her to come here around 2am and she was raped but the case did not come out because it could have ruined the profile of the institution”. (FGD3)*

Participants alluded to the issue of university students engaging in relationship with the working class as a factor that led students to excessive overindulgence in alcohol use leading to risky sexual behaviour. This mostly affected the female students. One participant narrated the experience of her fellow student as follows;

*“.....She used to drink 24/7 because she used to date a ..... Manager. There is a certain time she got drunk and when I came to school the following day coz I was not staying here I was residing in ..... I was told that she was so drunk. Her name was on the notice board that every man who was within the institution was having sex with her and she didn't know because she was totally drunk and they made even fun posting on the notice board that if you haven't gone through her you are a woman and not a man. That is very dangerous because you can contract HIV or you get pregnant and at the end of day you won't know the father of the child.”(FGD3).*

The participants also reported that there was a relationship between substance abuse and HIV/AIDs. They noted that majority of the known HIV cases had been involved in alcoholism or drug abuse at certain point in their life. Further, they indicated that alcohol and other substances interfered with the individual's ability to make the right choices and were likely to engage in unprotected sex thus the possibility of contracting diseases. Similarly, they noted that injectable drug users are hardly cautious and easily share the needles exposing themselves to risk of contracting HIV infections.

*“It is easy at this point to draw a line linking issues of drug abuse and cases of HIV/AIDs. These cases, majority of the students who have come out of public to declare that they are HIV positive if you look at their history you will see they were cases of alcoholism or drug abuse...”.(KII3)*

*“I would say 40-45% of the cases of HIV/AIDs are linked to issue of alcohol and other drug use. Because when they are ‘high’ as they say they forget all these things we tell them about being careful when they engage in sexual and whatever. And of course when you go to this others drugs the injectable when they are doing it you don’t expect them to be cautious is like you are my friend I know you, we are high and it is safe”. (KII2)*

*“There is a correlation between HIV and drugs, there is a very strong relationship between them and we have heard cases that most of the people who put themselves at the risk of getting infected are usually under the influence of alcohol. So it brings about impaired judgment. Once you are drunk you might even have your protection on board but you find yourself unprotected.”(KII2)*

*“Some girls take wine with their boys so maybe they are actually not ready to have sex but they have sex because they are not in their senses ”.(FGD2).*

According to the participants, drugs enabled them to associate with the opposite sex. Alcohol to them, acted as a social lubricant and one was less intimidated and had courage to engage in sex.

#### **4.1.5 Measures required for curbing alcohol and drug abuse.**

Participants agreed that there was a need for concerted efforts from all stakeholders in order to deal with the issue of substance abuse among university students. They noted that the Government should be a key player in implementing the already existing drug

laws and regulations. According to the participants the universities also need to intensify awareness campaigns to sensitise university students against substance use. They noted that awareness campaigns among students should be heightened and educational programs on drug abuse should be incorporated into the syllabus at different levels of learning.

Similarly alcohol and drug abuse institutional policy should also be put in place at the institutions of higher learning and followed in dealing with those who are already having the problem of drug abuse. Participants had this to say:

*“Posters, campaigns and video shows on effects of drug should be used to sensitise students against drug abuse”. (FGD1)*

*“Counselling programs are irregularly conducted.....if they are regularly conducted counselling programs they will teach the students on the dangers of alcohol. (FGD2)*

*“Government because all these issues are about policy and the government is aware and it is the one that is directly responsible because me and you we will just do our part but dealing with supply of drugs it is the government’s part”. (KII3)*

*“If the government had done its part we should not be having drugs in our country of which if the government could curb the supply then that could be the best way to go coz if we don’t have the supply it means automatically the demand would go down”. (KII2)*

*“The policy is also very clear that if a staff member or a student is caught up in the drug issue there is a certain procedure that should be followed to rehabilitate or support the client .....”(KII3)*



## **4.2 Quantitative Study**

The baseline survey was done in Pwani and Technical University of Mombasa between August 2014 and October 2014. A total of 500 questionnaires were administered, 280 in Pwani University and 220 in Technical University of Mombasa. Only 473 questionnaire were complete for analysis. Similarly the end line survey was done in both universities between June 2015 and August 2015. A total of 410 questionnaires were administered, 205 in each university but only 387 were complete for analysis.

### **4.2.1 Social-Demographic characteristics of the respondents.**

The baseline survey involved 473 first year undergraduate students in their first one to two months in the university. The majority of the respondents 283 (58.9%) were male. The respondent's age ranged from 17-30 years with the majority 387 (82%) being in the age category 17- 20 years. Only seven (2%) of the respondents were above 26 years of age. The mean age was 19.6 (SD<sup>±</sup>1.79 years). Concerning religious affiliation, majority 433 (91.5%) of the students reported to be Christians with 298 (63%) being Protestants and 135 (28.5%) Catholics and only 36 (8%) were Muslims. Other characteristics of the respondents were as shown in Table 4.1.

The end-line survey involved 387 first year undergraduate students at the end of their first year of study. Just like in the baseline the majority 218 (56.3%) were male and the respondent's age ranged from 17-30 years with the majority 229 (59.2%) being in the age category 17- 20 years. Only 11 students which was nearly 3% of the respondents were aged 26 years and above. Concerning religious affiliation, majority of the students 320 (82.7%) were Christians while only about 56 (14%) were Muslims. Other characteristics of the respondents are as shown in Table 4.1.

**Table 4.1: Socio-demographic characteristics of first year students in Pwani and Technical University of Mombasa at baseline and end line survey.**

Variables	Baseline			End line		
	Control grp N=272 n(%)	Experimental grp N=201 n(%)	Total N=473 n(%)	Control grp N=272 n(%)	Experimental grp N=201 n(%)	Total N=387 n(%)
<b>Gender</b>						
Male	167(61.4)	116(57.7)	283(59.8)	103(55.4)	115(57.2)	218(56.3)
Female	105(38.6)	85(42.3)	190(40.2)	83(44.6)	86(42.8)	169(43.7)
<b>Age group</b>						
17- 20 years	213(78.3)	174(86.6)	387(81.8)	135(72.6)	94(46.8)	229(59.2)
21-25 years	55(20.2)	24(11.9)	79(16.7)	49(26.3)	98(48.7)	147(38.0)
26-30 years	4(1.5)	3(1.5)	7(1.5)	2(1.1)	9(4.5)	11(2.8)
<b>Religion</b>						
Protestants	167(61.4)	131(65.2)	298(63)	97(52.1)	91(45.3)	188(48.6)
Catholic	81(29.8)	54(26.9)	135(28.5)	66(35.5)	66(32.8)	132(34.1)
Muslim	20(7.3)	16(7.9)	36(7.6)	19(10.2)	37(18.4)	56(14.5)
No religion	4(1.5)	0(0)	4(0.9)	4(2.2)	7(3.5)	11(2.8)
<b>Frequency of church/mosque</b>						
Every Sunday/Saturday/Friday	188(69.1)	127(63.2)	315(66.6)	108(58.0)	108(53.7)	216(55.8)
Sometimes	34(12.5)	39(19.4)	73(15.4)	39(21)	31(15.4)	70(18.1)
Occasionally	25(9.2)	31(15.4)	56(11.8)	26(14)	38(18.9)	64(16.5)
Rarely	25(9.2)	4(2)	29(6.1)	13(7)	24(12)	37(9.6)
<b>Source of income</b>						
Sponsorship	9(3.3)	8(4)	17(3.6)	14(7.5)	15(7.5)	29(7.5)
Parents/well wishers	72(26.5)	60(29.8)	132(27.9)	52(28)	37(18.4)	89(23.0)
Higher Education Loan	186(68.4)	128(63.7)	314(66.4)	120(64.5)	144(71.6)	264(68.2)
Others	5(1.8)	5(2.5)	10(2.1)	0(0)	5(2.5)	5(1.3)
<b>Monthly allowance</b>						
1,000-5,000	210(77.2)	145(72.1)	355(75.1)	145(78)	116(57.7)	261(67.4)
6,000-10,000	50(18.4)	45(22.4)	95(20.1)	30(16)	35(17.4)	65(16.8)
Above 10,000	12(4.4)	11(5.5)	23(4.9)	11(6)	50(24.9)	61(15.8)
<b>Current residence</b>						
University hostels	178(65.4)	131(65.2)	309(65.3)	118(63.4)	76(37.8)	194(50.1)
Rented room	71(26.1)	54(26.9)	125(26.4)	58(31.2)	78(38.8)	136(35.1)
Parent/relative house	23(8.4)	16(7.9)	39(8.3)	10(5.4)	47(23.4)	57(14.8)
<b>Area of the county where High school was located</b>						
Urban	108(39.7)	66(32.8)	174(36.8)	90(48.4)	91(45.3)	179 (46.3)
Rural	164(60.3)	135(67.2)	299(63.2)	96(51.6)	110(54.7)	208(53.7)
<b>Area of county during high school</b>						
Urban	105(38.6)	86(42.8)	191(40.4)	85(45.7)	96(47.7)	181(46.8)
Rural	167(61.4)	115(57.2)	282(59.6)	101(54.3)	105(52.3)	206(53.2)

#### **4.2.2 Life time and current use of substances at baseline and end-line**

At baseline the lifetime and current use of different substances was investigated and it was observed that overall approximately 169 (35.7 %) at baseline and 202 (52.2%) at end line survey had used one of the substances at least once in their lifetime. The lifetime prevalence use of drugs was 63 (31.3%) and 111 (55.2%) in TUM at baseline and end line survey respectively. On the other hand, in Pwani University approximately 106 (38.9%), 91 (48.8%) had used drugs at baseline and end line survey respectively. The most commonly used substances were alcohol, cigarettes, khat (miraa) and Bhang. The prevalence of each substance use in each university was as shown in table 4.2.

At the end line survey the commonly used substances were similar to those in the baseline but the prevalence of consumption had increased. Approximately 87 (46.8%), 74 (36.8) respondents reported having used alcohol at TUM and Pwani respectively. Similarly 17 (9.1%), 20 (9.9%) respondents had used cigarettes at Pwani and TUM respectively. The lifetime and current prevalence use of other substances was as shown in table 4.2.

**Table 4.2: Lifetime and current use of commonly abused drugs among first year students in Pwani and Technical University of Mombasa at baseline and end line survey**

Substances	Lifetime use n (%)				Current use n (%)			
	Baseline		End line		Baseline		End line	
	Pwani N=272	TUM N=201	Pwani N=186	TUM N=201	Pwani N=272	TUM N=201	Pwani N=186	TUM N=201
Alcohol	94(34.6)	54(26.8)	87(46.8)	110(54.7)	59(21.7)	29(14.4)	87(46.8)	74(36.8)
Cigarettes	29(10.6)	14(7)	20((10.8)	20(9.9)	15(5.5)	10(5)	4(2.2)	15(7.5)
Khat (miraa)	14(5.1)	16(7.9)	12(6.4)	19(9.4)	12(4.4)	12(5.9)	9(4.8)	13(6.5)
Marijuana	12(4.4)	12(5.9)	10(5.4)	11(5.5)	10(3.7)	9(4.5)	5(2.7)	12(5.9)
Tranquilizer	6(2.2)	5(2.5)	6(3.2)	6(3)	5(1.8)	2(1)	2(1.1)	1(.5)
Cocaine	5(1.8)	2(1)	2(1.1)	2(1.1)	2(.7)	2(1)	1(.5)	2(1)
Heroin	6(2.2)	3(1.5)	2(1.1)	4(2)	6(2.2)	1(.5)	2(1.1)	2(1)
Other narcotics	4(1.8)	2(.5)	7(3.8)	5(2.5)	4(2.8)	2(.5)	6(3.2)	1(0.5)
Inhalants	6(2.2)	4(2.2)	4(2.2)	4(2)	5(1.8)	2(1)	2(1)	1(0.5)

### **4.2.3 Reasons for using drugs**

According to the respondents who were using alcohol and other substances, some of the factors that led them to use drugs in the baseline survey in decreasing frequency were peer pressure 125 (74%), idleness 67 (39.6%), influence from the media 57 (33.7.1%), and studies related stress 52 (30.8%). At end line survey, the frequency for idleness and study related stress had increased to 97 (47.1%) and 80 (38.8%) while that of peer pressure and influence from the media decreased to 114 (55%) and 62 (30.1%).

Respondents who reported using any of the substances (169 at baseline and 202 at end line) were asked to state some of the reasons why they used alcohol and other drugs. The reasons in order of decreasing frequency were to have fun 110 (65.1%), relax 86 (50.9%), be able to interact with others 86 (50.9%), cope with stress 71 (42%), kill time 71 (42%), think smart 64 (37.9%), feel important 61 (36.1%), make it easy to relate with opposite sex 52 (30.8%), and for health benefits such as relieve stomach problems 55 (32.5%). The reasons were relatively similar at both baseline and end line survey as shown in Figure 1.

**Figure 4. 1: Reasons for using different substances at baseline and end line survey**

**4.3 Substance use before and after awareness campaigns.**

There was a significant increase in the prevalence of alcohol use at end line survey compared to the base line survey in both universities. Similarly the proportion of students using other substances in both Universities, increased slightly at the end line survey compared to the baseline survey except for cocaine and inhalants as shown in Fig 2.

**Figure 4. 2: Prevalence of use of different substances among first year students in Pwani and Technical University of Mombasa at baseline and end line survey.**

The prevalence of drug use was determine to evaluate the effectiveness of the awareness campaigns among university students. Despite the intervention being in one university, the prevalence of drug use increased notably in both universities. The prevalence increased from 38.9% to 48.9% in Pwani University and 31.3 % to 55.2% in Technical University of Mombasa (Table 4.3).

**Table 4.3: Prevalence of drug use among first year students in Pwani and Technical University of Mombasa at baseline and end line survey**

University	<i>Base line survey</i>		<i>End line survey</i>	
	N	Used drugs n (%)	N	Used drugs n (%)
Pwani University ( control)	272	106(38.9)	186	91(48.9)
Technical University of Mombasa ( experimental)	201	63(31.3)	201	111(55.2)
Total	473	169(35.7)	387	202(52.2)

The difference in the prevalence at baseline and end line for both universities was determined using Stata test for difference in proportions. The test showed a true difference of 10.02% (95 % CI 0.007- 0.19; p=0.03) in the control University and 23.9% (95% CI 0.14-0.33; p= 0.000) in the intervention University.

The effect of the awareness campaigns (Intervention) were further tested using the odds ratio. The findings showed no significant difference as result of the intervention the 95% CI at baseline (OR = 0.71; 95% CI: 0.47-1.06; P= 0.08) was overlapping with that of the end line (OR = 1.29; 95% CI: 0.84-1.96; p=0.22) as shown below. This implies the intervention had no effect.



**Table 4.4 a: Cross tabulation of drug use and the universities at baseline**

University	Drug use		Total
	YES	NO	
TUM	63	138	201
PWANI	106	166	272
<b>Total</b>	169	304	473

OR = 0.71; 95% CI: 0.47-1.06; p= 0.08

**Table 4.4b: Cross tabulation of drug use and the universities at endline**

University	Drug use		Total
	YES	NO	
TUM (With intervention)	111	90	201
PWANI (No Intervention)	91	95	186
<b>Total</b>	202	185	387

OR = 1.29; 95% CI: 0.84-1.96; p=0.22

#### **4.4 Factors associated with drug use**

##### **4.4.1 Social demographic factors associated with drug use among first year students in Pwani University and Technical University of Mombasa at baseline.**

The findings of the study were that some of the factors associated with the history of having used alcohol included the male gender ( $\chi^2 = 6.36$ ;  $p = 0.012$ ), age of the student ( $\chi^2 = 13.82$ ;  $p = 0.001$ ), not attending church/ mosque regularly ( $\chi^2 = 21.78$ ;  $p \leq 0.001$ ),

having schooled in a high school located in urban area ( $\chi^2 = 3.65$ ;  $p = 0.05$ ), residing in urban area during high school life ( $\chi^2 = 7.23$ ;  $p = 0.007$ ), religion ( $\chi^2 = 16.73$ ;  $p \leq 0.001$ ), and the monthly allowance ( $\chi^2 = 6.94$ ;  $p \leq 0.03$ ). The place of residence in the university was not associated with the history of having used alcohol (Table 4.5).

**Table 4.5: Factors associated with drug use among first year students in Pwani and Technical University of Mombasa at baseline survey**

<b>Characteristics</b>	<b>Drug use</b>		$\chi^2$	<b>P-value</b>
	<b>Yes</b>	<b>No</b>		
<b>University</b>	<b>n=169(35.7)</b>	<b>n=304(64.3)</b>		
Pwani University	106(38.97)	166(61.03)		
Technical University of Mombasa	63(31.34)	138(68.66)	2.93	0.08
<b>Sex</b>				
Male	114(40.28)	169(59.72)		
Female	55(28.95)	135(71.05)	6.36	<b>0.012</b>
<b>Age</b>				
17-20 years	124(32.04)	263(67.96)		
21-25 years	40(50.63)	39(49.37)		
26-30 years	5(71.43)	2(28.57)	13.82	<b>0.001</b>
<b>Religion</b>				
Protestant	97(32.55)	201(67.45)		
Catholic	63(46.67)	72(53.33)		
Muslim	6(16.67)	30(83.33)		
No religion	3(75)	1(25)	16.73	<b>0.001</b>
<b>Frequency of going to church/Mosque</b>				
Every Sun/Sat/ Fri	97(30.79)	218(69.21)		
Sometimes	31(42.47)	42(57.53)		
Occasionally	20(35.71)	36(64.29)		
Rarely	21(72.41)	8(27.59)	21.77	<b>0.000</b>
<b>Monthly stipend</b>				
1000-5000	115(32.39)	240(67.61)		
6000-10,000	43(45.26)	52(54.74)		
Above 10,000	11(47.83)	12(57.17)	6.95	<b>0.031</b>
<b>Current residence</b>				
University Hostels	114(36.89)	195(63.11)		
Rented room	44(35.22)	81(64.8)		
Parent/relative's house	11(28.21)	28(71.79)	1.16	0.56
<b>Area High school located</b>				
Urban	70(40.23)	104(59.77)		
Rural	99(33.11)	200(66.89)	3.65	<b>0.05</b>
<b>Residence during high school</b>				
Urban	74(38.74)	117(61.26)		
Rural	74(26.24)	208(73.76)	8.28	<b>0.004</b>

After adjusting for possible confounding factors, male gender (AOR = 1.52; 95% CI: 0.98-2.37), age group 21-25 years (AOR = 2.33; 95% CI: 1.36-4.00), being a catholic by religion (AOR = 2.02; 95% CI: 1.29-3.17), monthly income of 6,000 -10,000 (AOR = 1.84; 95% CI: 1.11-3.3), and attending church/mosque rarely (AOR = 5.12 ; 95% CI: 2.10-12.8) were shown to be positively associated with history of having used drugs (Table 4.6).

**Table 4. 6: Multivariate logistic regression model of factors associated with alcohol use among first year students in Pwani and Technical University of Mombasa**

Covariates	Unadjusted			Adjusted		
	OR	95%CI	p-value	OR	95%CI	p-value
<b>University</b>						
Pwani University	<b>Ref</b>			<b>Ref</b>		
Technical University of Mombasa	0.71	0.49-1.05	0.09	0.76	0.49-1.16	0.203
<b>Sex</b>						
Female	Ref			Ref		
Male	1.66	1.12-2.45	<b>0.012</b>	1.52	0.98-2.37	<b>0.05</b>
<b>Age</b>						
17-20	Ref			Ref		
21-25	2.18	1.33-2.45	<b>0.002</b>	2.33	1.36-4.00	<b>0.002</b>
26-30	5.30	1.01-27.7	0.048	5.90	0.99-34.8	<b>0.05</b>
<b>Religion</b>						
Protestant	Ref			Ref		
Catholic	1.81	1.19-2.75	<b>0.005</b>	2.02	1.29-3.17	<b>0.002</b>
Muslim	0.4	0.16-1.03	0.05	0.49	0.18-1.31	0.159
No religion	7.6	0.64-60.1	0.11	1.95	0.07-11.8	0.96
<b>Frequency of going to church/Mosque</b>						
Every	Ref			Ref		
Sunday/Saturday/Friday	1.66	0.98-2.79	<b>0.05</b>	1.76	1.00-3.1	<b>0.049</b>
Sometimes	1.25	0.68-2.26	0.46	1.54	1.79-2.98	0.196
Occasionally	5.89	2.52-13.7	<b>&lt;0.0001</b>	5.12	2.04-12.8	<b>0.001</b>
Rarely						
<b>Monthly stipend</b>						
1,000- 5,000	Ref			Ref		
6,000- 10,000	1.73	1.09-2.74	<b>0.001</b>	1.84	1.11-3.3	<b>0.001</b>
Above 10,000	1.91	0.82-4.47	<b>0.013</b>	1.39	0.82-5.86	0.1
<b>Current residence</b>						
University Hostels	Ref			Ref		
Rented room	0.93	0.60-1.43	0.74	0.80	0.49-1.29	0.371
Parent/relative house	0.67	0.32-1.40	0.28	0.78	0.36-1.68	0.522
<b>High school located</b>						
Urban	Ref			Ref		
Rural	0.74	0.50-1.08	0.12	1.12	0.67-1.86	0.67
<b>Residence during High school</b>						
Urban	Ref			Ref		
Rural	0.59	0.40-0.87	0.007	0.54	0.33 -0.88	<b>0.014</b>

#### **4.4.2 Drug use and associated social demographic factors at end line survey**

Similar to the baseline survey alcohol was the most commonly abused drug in the end line survey with more than half 197 (50.9%) of the respondents reporting having used alcohol in their lifetime. Binge drinking which was defined as having more than five drinks in one sitting was reported among 65 (16.8%) of the respondents.

The findings of the study revealed that some of the factors associated with the history of having used alcohol included the gender ( $\chi^2 = 18.94$ ;  $p \leq 0.001$ ), age of the student ( $\chi^2 = 6.87$ ;  $p = 0.032$ ), not attending church/ mosque regularly ( $\chi^2 = 33.78$ ;  $p \leq 0.001$ ), area high school attended was located ( $\chi^2 = 7.61$ ;  $p = 0.006$ ), or area of residence during high school life ( $\chi^2 = 19.27$ ;  $p \leq 0.001$ ), and the monthly allowance ( $\chi^2 = 8.27$ ;  $p = 0.016$ ). The place of resident in the University was not associated with the history of having used alcohol (Table 4.7). The findings are similar to those observed in the baseline survey.

**Table 4. 7: Bivariate association of social demographic characteristics versus drug use among first year students in Pwani and Technical University of Mombasa at end line survey.**

Characteristics	Drug use		$\chi^2$	P-value
	Yes	No		
<b>University</b>	<b>n=202</b>	<b>n=185</b>		
Pwani University	91(48.8)	95(51.1)		
Technical University of Mombasa	111(55.2)	90(44.8)	1.54	0.215
<b>Sex</b>				
Male	135(61.09)	83(38.1)		
Female	67(39.6)	102(60.4)	18.94	<b>0.000</b>
<b>Age</b>				
17-20 years	107(46.7)	122(53.3)		
21-25 years	89(60.5)	58(39.4)		
26-30 years	6(54.5)	5(45.4)	6.87	<b>0.032</b>
<b>Religion</b>				
Protestant	99(52.7)	89(47.3)		
Catholic	68(51.5)	64(48.5)		
Muslim	27(48.2)	29(51.8)		
No religion	8(72.7)	3(27.3)	2.25	0.521
<b>Frequency of going to church/Mosque</b>				
Every Sun/Sat/ Fri	85(39.4)	131(60.6)		
Sometimes	50(71.4)	20(28.57)		
Occasionally	40(62.5)	24(37.5)		
Rarely	27(72.97)	10(27.03)	33.78	<b>0.000</b>
<b>Monthly stipend</b>				
1000-5000	123(47.1)	138(52.9)		
6000-10,000	41(63.1)	24(36.9)		
Above 10,000	38(62.3)	23(39.34)	8.27	<b>0.016</b>
<b>Current residence</b>				
University Hostels	100(51.5)	94(48.45)		
Rented room	79(58.09)	57(41.91)		
Parent/relative's house	23(40.35)	34(59.65)	5.13	0.077
<b>Area High school located</b>				
Urban	108(59.67)	73(40.33)		
Rural	94(45.63)	112(54.4)	7.61	<b>0.006</b>

**Residence during high school**

Urban	116(64.09)	65(35.9)		
Rural	86(41.75)	120(58.3)	19.27	<b>0.000</b>

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After adjusting for possible confounding factors, Male gender (AOR=2.61; 95% CI:1.63- 4.19), monthly allowance (AOR= 1.97 ; 95% CI: 1.04 - 3.75) and attending church/mosque rarely (AOR=4.56; 95% CI:- 1.27- 4.47) were shown to be associated with history of having used alcohol while having resided in the rural area during high school (AOR=0.33; 95% CI:0.18- 0.60) was protective against drug use (Table 4.8).



**Table 4. 8: Multivariate logistic regression model of factors associated with drug use among first year students in Pwani and Technical University of Mombasa.**

Covariates	Unadjusted			Adjusted		
	OR	95% CI	P-Value	OR	95% CI	P-Value
<b>University</b>						
Pwani University						
Technical University of Mombasa	1.29	0.86-1.92	0.215	1.15	0.69-1.91	0.589
<b>Sex</b>						
Female						
Male	2.47	1.64-3.74	<b>0.000</b>	2.61	1.63-4.19	<b>0.000</b>
<b>Age</b>						
17-20yrs						
21-25yrs	1.75	1.15-2.66	<b>0.009</b>	1.60	0.97-2.63	0.06
26-30yrs	1.37	0.41-4.61	0.613	1.88	0.49-7.15	0.357
<b>Religion</b>						
Protestant						
Catholic	0.96	0.61-1.49	0.84	1.08	0.65-1.80	0.757
Muslim	0.84	0.46-1.52	0.56	0.84	0.42-1.68	0.617
No religion	2.39	0.62-9.31	0.21	1.01	0.16-6.23	0.991
<b>Frequency of going to church/Mosque</b>						
Every Sunday/Saturday/Friday						
Sometimes	3.85	2.14-6.92	<b>0.000</b>	4.56	2.40-8.66	<b>0.000</b>
Occasionally	2.57	1.44-4.56	<b>0.001</b>	2.39	1.27-4.47	<b>0.015</b>
Rarely	4.16	1.92- 9.03	<b>0.000</b>	4.38	1.62-11.85	<b>0.004</b>
<b>Monthly stipend</b>						
1,000- 5,000						
6,000- 10,000	1.92	1.09-3.35	<b>0.023</b>	1.97	1.04-3.75	<b>0.039</b>
Above 10,000	1.85	1.04-3.25	<b>0.034</b>	1.67	0.86-3.25	0.129
<b>Current residence</b>						
University Hostels						
Rented room	1.30	0.84-2.03	0.24	1.00	0.60-1.66	0.993
Parent/relative house	0.64	0.35-1.16	0.14	0.54	0.26-1.14	0.107
<b>High school located</b>						
Urban						
Rural	0.57	0.38-0.85	<b>0.000</b>	1.07	0.59-1.90	0.823
<b>Residence during High school</b>						
Urban						
Rural	0.40	0.27-0.60	<b>0.000</b>	0.33	0.18-0.60	<b>0.000</b>

#### **4.4.3 Comparison of odds ratio for significant factors at baseline and end line survey.**

In order to determine whether the significant factors were effect modifier or confounding factors to the effect of the intervention the stratum-specific odds ratio were compared using the Breslow- day test of homogeneity test. The crude and adjusted odds ratio for the significant social demographic factors at baseline and end line survey were also compared using the 95 % confidence interval of the odds ratio.

From the Breslow day test of homogeneity, those who were catholic by religion showed a significant decrease in odds ratio in end line survey compared to the baseline survey. Catholic religion therefore seemed to be an effect modifier to the intervention. However from the results of the Breslow day test of homogeneity and 95% confidence interval of the odds ratios, all the other factors did not show any difference at 5% significance level. Some of the social demographic characteristics (monthly allowance, age group, and protestant by religion) showed tendency towards confounding considering that the crude odds ratio and adjusted odds ratio estimates had more than 10% difference (Boslaugh, 2013) though not statistically significant. The social demographic characteristics therefore had insignificant influence on the intervention.

The stratum-specific odds ratio for gender, age group, monthly allowance and place of residence during high school were higher at end lines survey compared to the baseline survey (Table 4.9).

**Table 4.9: Odds of significant factors versus drug use among first year students in Pwani and Technical University of Mombasa at baseline and end line survey.**

Variable	Strata specific OR(95% CI)	Crude & Adjusted OR(95% CI)	P value¶
<b>Gender</b>			
Male	1.68(1.12-2.54) † 2.35(1.56-3.55) ‡	1.88(1.41-2.49)* 1.99(1.48-2.65)**	0.264
Female	Ref		
<b>Church /mosque frequency</b>			
Every Sun/Sat/Fri	0.20(0.09-0.44) † 0.21(0.09-0.48) ‡	0.19(0.11-0.35)* 0.21(0.12-0.37)**	0.95
Sometimes	0.53(0.22-1.28) † 0.83(0.32-2.16) ‡	0.64(0.341-1.22)* 0.65(0.343-1.25)**	0.499
Occasionally	0.29(0.11-0.73) † 0.48(0.19-1.25)	0.39(0.21-0.76)* 0.38(0.19-0.74)**	0.442
Rarely	Ref		
<b>Religion</b>			
Protestant	1.54(0.68-3.48) † 0.96(0.52-1.59) ‡	0.85(0.56-1.31)* 1.09(0.69-1.72)**	0.297
Catholic	2.9(1.25-6.8) † 0.97(0.53-1.75) ‡	1.31(0.83-2.06)* 1.44(0.90-2.03)**	0.034
Muslim	Ref		
<b>Age</b>			
17-20 years	0.57(0.35-0.92) † 0.58(0.39-0.88) ‡	0.48(0.36-0.65)* 0.58(0.39-0.88)**	0.932
21-30 years	Ref		
<b>Monthly allowance</b>			
1000-5000	0.33(0.14-0.77) † 0.54(0.31-0.95) ‡	0.37(0.24-0.59)* 0.47(0.29-0.76)**	0.344
6000-10000	0.73(0.29-1.81) † 1.16(0.56-2.39) ‡	0.78(0.46-1.33)* 0.97(0.54-1.70)**	0.434
>10000	Ref		
<b>Part of county in high school</b>			
Urban	1.71(1.05-2.78) † 2.34(1.42-3.87) ‡	2.15(1.53-3.02)* 2.0(1.41-2.83)**	0.384
Rural	ref		

† Baseline stratum-specific odds ratio ‡ End line stratum-specific odd ratio

\* Crude odds ratio \*\* Mantel haenszel common odds ratio

¶ Breslow Day test of homogeneity of stratum-specific odds ratio.

#### **4.5 Sexual behaviour in the baseline and end line survey**

At baseline, more than half of the respondents 281 (59.4%), had involved themselves in sexual intercourse with someone before. Majority of the students, 195 (41.2%) had their first sexual intercourse within the age range of 15-19 years while a total of 67 (14%) had their sexual debut at the age of 7-14 years. Close to a third of the respondents 154 (32.2%), had more than one sexual partners in the previous one year while only 154 (32.5%) used condom consistently in the previous twelve months.

In the end line survey, a larger proportion of the respondents 277 (71.6%), were sexually active compared to the baseline. More than a third of the respondents 148 (38%), had more than one sexual partner in the previous one year while 108 (27.9%) respondents were currently having more than one sexual partner. Similar to the baseline majority of the students, 180 (46.51%) had their first sexual intercourse within the age range of 15-19 years while a total of 56 (14.5%) students had their sexual debut at the age of 7-14years. Despite the fact that the respondents had multiple sexual partners, a significant number of respondents reported having used condoms inconsistently. At baseline 35 (7%) respondents reported having gotten pregnant or had impregnated someone accidentally compared to 48 (12%) in the end line survey.

Respondents were asked whether their last sexual intercourse was under the influence of alcohol or other drugs. At baseline survey a smaller proportion 37 (8%) of the respondents reported having had their previous sexual intercourse under the influence of alcohol or drugs compared to 77 (20%) at end line survey (Table 4.10).

**Table 4.10: Sexual behaviour among first year students in Pwani and Technical University of Mombasa at baseline and end line survey.**

Variables	Base line N=473 Frequency (%)	End line N =387 Frequency (%)
Ever had sexual intercourse (N=473)		
Yes	281(59.4)	277 (71.6)
No	192(40.6)	110 (28.4)
Age at first intercourse (N=473)		
7-14 years	67(14.2)	56 (14.5)
15-19 years	195(41.2)	180(46.5)
20-24 years	19(4)	39(10.1)
Never	192(40.6)	112(28.9)
Sexual partners in the previous one year (N=473)		
None	198(41.8)	140(36.2)
1	123 (26)	99(25.6)
More than 1	154(32.2)	148(38.2)
Current Sexual partners (N=473)		
None	282(59.6)	131 (33.9)
One	105(22.2)	148 (38.2)
More than 1	86(18.2)	108(27.9)
Condom in the previous 12 months (N=473)		
Not applicable	190 (40.2)	110(28.4)
Always ( Consistently)	154(32.5)	230(59.5)
Inconsistently	129(27.3)	47 (12.1)
Condom use with regular partner(boy/girlfriend, husband/wife) (N=473)		
Never	190 (40.2)	112 (29.2)
Always ( Consistently)	140 (29.6)	225(58.1)
Inconsistently	140(29.6)	50(12.9)
Ever impregnated or got pregnant accidentally (N=473)		
Yes	35 (7.4)	48 (12.4)
No	438 (92.6)	339(92.6)
If the last sexual intercourse was under influence of alcohol (N=473)		
Yes	37 (7.8)	77 (19.9)
No	224 (47.4)	208(53.7)
Never	212(44.8)	102(26.4)

## **4.6 Factors associated with risky sexual behaviour**

### **4.6.1 Social demographic characteristics and risky sexual behaviour at base line**

Students were classified as having risky sexual behaviour if; they had their first intercourse below the age of 15 years, reported having more than one sexual partners currently or in the last one year, did not use condoms consistently, had sex under the influence of drugs or had caused unintended pregnancy. Majority of the respondents 277 (58.6%) had engaged in risky sexual behaviour.

At bivariate association the female gender ( $\chi^2 = 6.38$ ;  $p = 0.012$ ), attending church/mosque frequently ( $\chi^2 = 9.13$ ;  $p = 0.028$ ), monthly allowance ( $\chi^2 = 6.45$ ;  $p = 0.04$ ) and having schooled in the rural area ( $\chi^2 = 7.45$ ;  $p = 0.006$ ) were protective factors against risky sexual behaviour (Table 4.11).

After adjusting for confounding factors, not attending church/mosque frequently (AOR = 1.89; 95% CI: 1.08-3.32) monthly allowance above 10,000 (AOR = 3.09; 95% CI: 1.01-9.46) and having schooled in the rural area (AOR = 0.65; 95% CI: 0.43–0.97) had significant association with risky sexual behaviour.

**Table 4. 11: Social demographic characteristics and risky sexual behaviour among first year students in Pwani and Technical University of Mombasa**

Characteristics	Risky sexual behaviour		$\chi^2$	p- value
	Yes	No		
<b>University</b>	<b>n=277</b>	<b>n=196</b>		
Pwani University	168(61.8)	104(38.2)		
Tech University of Mombasa	109(54.2)	92(45.8)	2.71	0.10
<b>Sex</b>				
Male	179(63.3)	104(36.8)		
Female	98(51.6)	92(48.42)	6.38	0.012
<b>Age</b>				
17-20 years	221(57.11)	166(42.89)		
21-25 years	50(63.3)	29(36.7)		
26-30 years	6(85.71)	1 (14.29)	3.19	0.203
<b>Religion</b>				
Protestant	168(56.4)	130(42.6)		
Catholic	87(64.4)	48(35.6)		
Muslim	19(52.8)	17(47.2)		
No religion	3(75)	1(25)	3.45	0.327
<b>Frequency of going to church/Mosque</b>				
Every Sun/Sat/ Fri	174(55.2)	141(44.8)		
Sometimes	52(71.2)	21(28.8)		
Occasionally	30(53.6)	26(46.4)		
Rarely	21(72.4)	8(27.6)	9.13	<b>0.028</b>
<b>Monthly allowance</b>				
1000-5000	200(56.3)	155(43.7)		
6000-10,000	58(61.1)	37(38.9)		
Above 10,000	19(82.6)	4(17.4)	6.45	<b>0.040</b>
<b>Current residence</b>				
University Hostels	179(57.9)	130(42.1)		
Rented room	77(61.6)	48(38.4)		
Parent/relative's house	21(53.9)	18(46.5)	0.88	0.643
<b>Area High school located</b>				
Urban	116(66.7)	58(33.3)		
Rural	161(53.9)	138(46.2)	7.45	<b>0.006</b>
<b>Residence during high school</b>				
Urban	118(61.8)	73(38.2)		
Rural	159(56.4)	123(43.6)	1.37	0.242

#### **4.6.2 Social demographic characteristics associated with risky sexual behaviour at end line survey.**

The bivariate association of social demographic factors and risky sexual behaviour showed that the gender ( $\chi^2 = 32.8$ ;  $p \leq 0.001$ ) and age of student ( $\chi^2 = 10.92$ ;  $p = 0.004$ ), frequency of going to church ( $\chi^2 = 21.17$ ;  $P \leq 0.001$ ), current residence ( $\chi^2 = 6.83$ ;  $p = 0.033$ ) and location of high school attended ( $\chi^2 = 3.83$ ;  $P = 0.05$ ) was associated with risky sexual behaviour among students (Table 4.12).

The factors with significance at bivariate level were fitted in the multivariate logistic regression model. The findings showed that female gender (AOR=0.3; 95% CI= 0.17-0.44;  $P \leq 0.0001$ ), older age group (AOR=6.2; 95% CI= 1.17-32.8;  $P = 0.03$ ), not attending church/mosque regularly (AOR=3.8; 95% CI= 1.26-4.77;  $p \leq 0.001$ ) and higher monthly allowance (AOR=2.45; CI=1.26-4.77;  $P = 0.008$ ) had significant association with risky sexual behaviour.



**Table 4.12: Bivariate association of social demographic characteristics and risky sexual behaviour among first year students in Pwani and Technical University of Mombasa at end line**

Characteristics	Risky sexual behaviour		$\chi^2$	P-value
	Yes	No		
<b>University</b>	<b>n=230</b>	<b>n=157</b>		
Pwani University	105(56.5)	81(43.6)		
Technical University of Mombasa	125(62.2)	76(37.8)	1.32	0.251
<b>Sex</b>				
Male	157(72.0)	61(28.0)		
Female	73(43.2)	96(56.8)	32.80	<b>0.000</b>
<b>Age</b>				
17-20 years	121(52.8)	108(47.2)		
21-25 years	100(68.0)	47(32.0)		
26-30 years	9(81.8)	2(18.2)	10.92	<b>0.004</b>
<b>Religion</b>				
Protestant	109(58.8)	79(42.0)		
Catholic	81(61.4)	51(38.6)		
Muslim	33(58.9)	23(41.1)		
No religion	6(64.6)	4(36.4)	0.46	0.929
<b>Frequency of going to church/Mosque</b>				
Every Sun/Sat/ Fri	110(50.9)	106(49.1)		
Sometimes	54(77.1)	16(22.9)		
Occasionally	37(57.8)	27(42.2)		
Rarely	29(78.4)	8(21.6)	21.17	<b>0.000</b>
<b>Monthly stipend</b>				
1000-5000	141(54.0)	120(46.0)		
6000-10,000	46(70.8)	19(29.2)		
Above 10,000	43(70.5)	18(29.5)	9.73	<b>0.008</b>
<b>Current residence</b>				
University Hostels	112(57.7)	82(42.3)		
Rented room	91(66.9)	45(33.1)		
Parent/relative's house	27(47.4)	30(52.6)	6.83	<b>0.033</b>
<b>Area High school located</b>				
Urban	117(64.6)	64(35.4)		
Rural	113(54.9)	98(44.1)	3.83	<b>0.05</b>
<b>Residence during high school</b>				

Urban	118(65.2)	63(34.8)		
Rural	112(54.4)	94(45.6)	4.68	<b>0.030</b>

**4.6.3 Relationship between drug use and sexual behaviour at baseline**

Cross tabulation was done to establish whether there was a relationship between drug use and risky sexual behaviour at the baseline survey. The results indicated that respondents who had a history of having used drugs were more likely to be sexually active ( $\chi^2 = 32.14$ ;  $p \leq 0.0001$ ), and have more than one sexual partner ( $\chi^2 = 23.9$ ;  $p \leq 0.0001$ ). Similarly, they were more likely to engage in sex under the influence of drugs ( $\chi^2 = 33.3$ ;  $p \leq 0.0001$ ) and have sex without condoms ( $\chi^2 = 33.6$ ;  $p \leq 0.000$ ) (Table 4.13).

**Table 4.13: Bivariate association of drug use and sexual behaviour among first year students in Pwani and Technical University of Mombasa at baseline survey**

<b>Sexual behaviour</b>	<b>Drug use</b>		$\chi^2$	<b>P-value</b>
	<b>YES</b>	<b>NO</b>		
<b>Ever had sex</b>	<b>n=169</b>	<b>n=304</b>		
Yes	129(45.9)	152(54.1)		
No	40(20.8)	152(79.2)	32.14	<b>0.000</b>
<b>Sexual partners in the last 12 months</b>				
None	53(27.2)	142(72.8)		
One	42(34.2)	81(65.9)		
More than one	74(47.7)	81(52.1)	16.1	<b>0.000</b>
<b>Current Sexual partners</b>				
None	76(26.95)	206(73.1)		
One	49(46.7)	56(53.3)		
More than one	44(51.2)	42(48.8)	23.9	<b>0.000</b>
<b>Use of condoms in the last 12 months</b>				
Not applicable	39(20.6)	150(79.4)		
Always (consistently)	62(41.6)	87(58.4)		
Never/Sometimes( inconsistently)	68(50.4)	67(49.6)	33.6	<b>0.000</b>
<b>Last sexual intercourse under influence of alcohol</b>				
Not applicable	49(23.1)	163(76.9)		
No	96(42.9)	128(57.1)		
Yes	24(64.9)	13(35.1)	33.33	<b>0.000</b>
<b>Got pregnant or impregnated someone accidentally</b>				
Yes	26(74.3)	9(25.7)		
No	143(32.7)	297(67.4)	24.47	<b>0.000</b>

#### **4.6.4 Relationship between drug abuse and risky sexual behaviour at end line survey**

Cross tabulation of alcohol use and different sexual behaviours showed a significant relationship between the two behaviours. The finding showed that respondents who had a history of having used alcohol were more likely to be sexually active ( $\chi^2 = 32.88$ ;  $p \leq 0.0001$ ), have more than one sexual partner ( $\chi^2 = 16.23$ ;  $p \leq 0.0001$ ). Similarly they were more likely to engage in sex under the influence of drugs ( $\chi^2 = 46.36$ ;  $p \leq 0.000$ ), have sex without condoms ( $\chi^2 = 35.92$ ;  $p \leq 0.000$ ) and get pregnant or impregnate someone without prior intention ( $\chi^2 = 11.42$ ;  $p \leq 0.001$ ) (Table 4.14).

**Table 4.14: Bivariate association of drug use and sexual behaviour among first year students in Pwani and Technical University of Mombasa at end line survey**

Sexual behaviour	Drug use		$\chi^2$	P-value
	YES	NO		
<b>Ever had sex</b>	<b>n=202</b>	<b>n=185</b>		
Yes	170(61.4)	107(38.6)		
No	32(29.1)	78(70.9)	32.88	<b>0.000</b>
<b>Sexual partners in the last 12 months</b>				
None	58(39.29)	82(58.3)		
One	45(45.45)	54(54.6)		
More than one	99(66.9)	49(33.11)	21.12	<b>0.000</b>
<b>Current Sexual partners</b>				
None	52(39.7)	79(60.3)		
One	79(53.4)	69(46.6)		
More than one	71(65.7)	37(34.3)	16.23	<b>0.000</b>
<b>Use of condoms in the last 12 months</b>				
Not applicable	31(28.18)	79(71.8)		
Always (consistently)	140(60.9)	90(40.43)		
Never/Sometimes( inconsistently)	31(65.96)	16(34.04)	35.92	<b>0.000</b>
<b>Last sexual intercourse under influence of alcohol</b>				
Not applicable	29(29.0)	71(71.0)		
No	111(52.9)	99(47.1)		
Yes	62(80.5)	15(19.5)	46.36	<b>0.000</b>
<b>Ever impregnated or got pregnant accidentally</b>				
Yes	36(75.0)	12(25.0)		
No	166(48.97)	173(51.03)	11.42	<b>0.001</b>

## **CHAPTER FIVE**

### **DISCUSSION, CONCLUSION AND RECOMMENDATIONS**

#### **5.1 Discussion**

##### **5.1.1 Substance abuse**

###### **5.1.1.1 The commonly used substances**

In both the qualitative and quantitative data this study showed that the commonly used substances among students were alcohol, tobacco, khat (miraa) and marijuana. This was in agreement with a recent study among Ethiopian University students that showed that alcohol, tobacco, cannabis and khat were the most commonly abused substances (Kumesa *et al.*, 2015).

###### **5.1.1.2 Lifetime and current use of commonly abused substance**

At baseline, it was observed that almost a third of the first year undergraduate students had used alcohol in their lifetime. The lifetime prevalence of illicit drug use such as cocaine, heroin and other narcotics low at 2%. It is apparent from this finding that relatively few students had tried illicit drugs compared to other substances. This might be due to the fact that students did not get these illicit drugs easily or due to the legal implications of being in possession of such substances. It could also be attributed to under-reporting by the respondents. Changes in the prevalence of illicit drug use among this group was an aspect of interest in the study given the kind of environment the students in the coastal towns are exposed to. However, the end line survey showed minimal increment in the prevalence of illicit drug use.

At end line survey the prevalence of alcohol use was 51 % compared to 31 % at the baseline survey and same trend was seen in other commonly abused substances. The

findings of the end line survey were in agreement with other studies done among university students (Odek-Ogunde and Pande-Leak, 1999; Atwoli *et al.*, 2011; Magu *et al.*, 2013; Tesfaye *et al.*, 2014) apart from rate of tobacco use which was relatively low at 8.9 % in the baseline and 9.6% in the end line survey. Atwoli *et al.* (2011) reported a lifetime prevalence of 51.9% for alcohol use 42.8 % for cigarettes smoking among college students in Western Kenya, while Odek-Ogunde *et al.* (1999) who reported 84% for alcohol use and 54.7% for tobacco use among students at a Kenyan private university in Nairobi. Similarly a lifetime prevalence of tobacco use of 30.5% was reported among students in public universities in Kenya (Magu *et al.*, 2013). A study done among university students in Haramaya University in Ethiopia reported almost similar rates for commonly used substances with alcohol use at 50.2%, khat 41% and cigarettes 22% (Tesfaye *et al.*, 2014).

At baseline, relatively lower proportion of students engaged in substance use compared to the proportion at the end line survey and those observed in other studies done in other institutions of higher learning in Kenya and Ethiopia as described above. This difference may be explained by the fact that at baseline the respondents were first year students whose behaviour has not yet been influenced by the campus environment. The findings therefore imply that as students progress with their studies in the university a good number get initiated to the behaviour of substance use.

### **5.1.1.3 Risk factors and reasons for substance use**

Different factors predispose university students to the use drugs. Findings from both qualitative and quantitative data showed peer pressure and idleness as some of the most common factors predisposing students to use drugs. In this study, the major reasons why the students used drugs was to have fun, relax themselves, relieve stress and to be able to interact with others easily. These findings were consistent with a study done among college students in Western Kenya in 2011, in which most common reason given for the

substance use were to relax (62.2%) and relieve stress (60.8%) (Atwoli *et al.*, 2011). The findings are also in agreement with a recent study conducted in Rift Valley University College, Bishoftu campus in Ethiopia that showed 53.8% of the students used social drugs for relaxation with friends, while 46.2% and 35.9% used social drug due to peer pressure and for relieve from stress (Kumesa *et al.*, 2015). Similarly a study done in Debre Markos in Ethiopia, showed that 51.8% of the students chewed khat to relieve academic stress, 34.1% for relaxation and 21.5% for socialization (Aklog *et al.*, 2013). There is a need to implement interventions that will help university students utilise their time more productively so as to reduce the tendency of resorting to drugs in order to relax and socialise.

#### **5.1.1.4 Social demographic factors associated with substance use**

The findings from the quantitative data and those of the qualitative data were in agreement on the association between social demographic factors and alcohol use among university students. There was significant association between history of having used alcohol and the male gender, not attending church/ mosque regularly, having resided in urban area during high school life and the monthly allowance of more than 6000 Kenyan shillings. The qualitative study had almost similar findings since both the FGD and KII participants agreed that the male gender, not being active in religious activities, availability of funds, easy accessibility of drugs due to campuses being too close to pubs and slums, peer pressure, excess freedom, and stress, poor parenting and culture predisposed students to use drugs.

The study showed that female students were less likely to have used alcohol as compared to their male counter parts. The gender differences in the drug abuse practices is in agreement with other drug use surveys which indicate that men are more likely than women to abuse drugs (Onya *et al.*, 2012; UNODC, 2013; Kumar, 2014; Tesfaye *et al.*, 2014; Zaman *et al.*, 2015). However, the gender gap becomes narrow when we



consider misuse of pharmaceuticals drugs. The use of illicit substances is more common among men than women, whereas the non-medical use of pharmaceutical drugs is nearly equivalent, if not higher among women (UNODC, 2013). Similarly, at global level the problem of substance abuse has been shown to be worse in male with illicit drug dependence being 8<sup>th</sup> largest contributor to disability in males, up from 10<sup>th</sup> in 1990 (Vos *et al.*, 2013) .

This study revealed that the current residence of the students was not a predictor variable of one having used alcohol. This is contrary to other studies that shows that students residing in the university campus are less likely to use drugs (Ward and Gryczynski, 2009). This is probably because these were first year students who had not resided long enough in their current residence for it to have an influence on their drug use behaviour. However, their residence during high school life was important in this case. As a result the study sought to find out the part of the County the respondent attended high school and the place they lived during high school life. The location of the high school and the area of residence, whether rural or urban, were shown to be an important predictor of one having used alcohol or not. Students who schooled or lived in the urban area were more likely to have consumed alcohol compared to those who schooled and lived in the rural areas. This could be associated with availability of cheap liquor and influence from peers who are exposed to alcoholic drinks as well as being away from parents/guardians.

Frequency of attending church/ mosque was used to measure the religiosity of the students. The type of religion the student was affiliated to and the frequency of church/mosque attendance was shown to be important predictors of one having used alcohol or not. Those who attended church/ mosque regularly were less likely to have used alcohol. The findings are similar to other recent research on adolescent and young adult substance use done in Lebanon that showed an inverse relationship between various religious beliefs, affiliations, attitudes, practices and substance use (Ghandour *et al.*, 2014). Similarly, a study among university students in Ethiopia indicated that, being

a protestant or being a Muslim was protective against drug abuse (Tesfaye *et al.*, 2014). Oye-Adeniran *et al.* (2014) also showed that substance use was significantly associated with religious affiliation of the students, with prevalence of substance use being least among Muslim students and highest among those who professed traditional religion. However, Onya *et al.* (2012) documented contrary findings. Their study showed that students who did attend religious services had 2.2 times greater odds of using alcohol compared to students who never attended religious services.

### **5.1.2 Risky Sexual behaviour**

The end line survey showed that, majority of the respondents (72%) were sexually active by the time they were completing their first year of study, despite being relatively young (17 – 20 years). This was a higher proportion compared to studies conducted in different African countries such as Ethiopia (34%) (Mulu *et al.*, 2014), Nigeria (52%) (Imaledo *et al.*, 2013), Uganda (59%) (Agardh *et al.*, 2010) and South Africa (65.6 %) (Heeren *et al.*, 2014). Imaledo *et al.* (2013) argued that, the high proportion of sexually active youths is due to the big gap between the age of puberty and age of marriage created by the long schooling period in many parts of the world. This forces many students to engage in premarital sex.

The fact that majority of the students are sexually active has programmatic implications when designing and monitoring intervention programs to control the spread of HIV/AIDS and other sexually transmitted diseases in a university set up. It implies that HIV/AIDS interventions focusing on abstinence promotion by restricting sexual practice may not be effective among university students. Instead, programs should focus on promoting safe sex practices as well as behaviour modification.

This study also indicates that majority of the respondents (58.6%) had engaged in risky sexual behaviour. Research has shown that youth below 20 years are more prone to risky

sex than their older counterparts. A recent study on risky sexual behaviour among males in 26 developing countries, showed that male youths below the age of 20 years were 8 times more likely to engage in risky sex compared to male youth aged 20–24 years. The study showed that majority (90%) of male youth aged 15–19 years, engaged in risky sex in most of the countries studied (Berhan and Berhan, 2015).

Students exhibit various risky sexual practices that are likely to expose them to myriad negative reproductive health outcomes. Some of the risky behaviours examined in this study were; early onset of sexual intercourse, having multiple sexual partners, engaging in unprotected sex, and engaging in sex while under the influence of drugs.

#### **5.1.2.1 Early sexual debut**

Respondent's age at first sexual intercourse revealed that, 14 % of the respondents had their first sexual intercourse within the age range of 7-14 years. The findings are in agreement with a study involving 24 countries that sought to determine the reproductive behaviour of adolescents in sub-Saharan Africa. The study found that up to 25% of the youths aged 15 -19-years had sex before age 15 with a large variation in the proportion with values ranging between countries from 2% to 27% for males and 5% to 26% for females. The study showed that 22% of the males and 12% of the female in Kenya had sex before age 15 (Doyle *et al.*, 2012).

There is need to relook in to the reasons underlying early sexual debut among the young people. In a recent study involving adolescents in the informal settlements of Nairobi, Cleland *et al.* (2013) documented that 15% of females reported force as the dominant reason for first sexual intercourse. Similarly a study done in Uganda indicated that 14% of young women had been coerced into their first sexual experience (Koenig *et al.*, 2004). This is a worrying trend since these under-aged might have been tricked into the act without their consent, a problem that may affect the victim's psychological, social

and health consequences in the present and in the future. In addition, early sexual debut exposes the young people to innumerable negative sexual and reproductive health outcomes (Cleland *et al.*, 2013).

#### **5.1.2.2 Multiple sexual partners**

In this study, having multiple sexual partners was one of the risky sexual practices noticeable among the first year undergraduate students of both sexes. Slightly more than a third of the respondents had more than one sexual partners in both baseline and end line survey. The findings were similar to those of a recent study involving students from the University of Nairobi where 30% of the students had 2 or more sexual partners in the previous 12 months before the study (Othieno *et al.*, 2015). The findings are also in agreement with other studies from the region. A study involving university students in Uganda found that 33% of the students had two or more sexual partners in the previous 12 months before the study (Choudhry *et al.*, 2014) while Agarth *et al.* (2010) had previously reported a prevalence of having multiple partners of 39% among Ugandan University students. A study done in South Africa indicated higher rates where 44.1% of the sexually active respondents had multiple sexual partners (Heeren *et al.*, 2014). Similarly a study in Ethiopia documented that 42.7% of the sexually active students had multiple sexual partners (Mulu *et al.*, 2014). This indicates the behaviour is common among university students. This is mainly as a result of peer pressures coming from students of both sexes and partly due to expectations students themselves bring in. University students regard institutions of higher learning as places for enjoying life. As a result students are reported generally to rush to start opposite sex relations no sooner than they join colleges. The freedom they enjoy resulting from their being separated from their families and their previous peers is also thought to facilitate things for them to lead a sexual life with a sense of independence unsupervised by adults. This in turn exposes them to health risks such as HIV infection and other sexually transmitted diseases. Having multiple sexual partners also increases the risk of human papilloma

virus (HPV) infection among females due to cervical immaturity, and thus the risk of cervical cancer (Ludicke *et al.*, 2001).

### **5.1.2.3 Condom use**

Despite the fact that a third of the respondents had more than one sexual partner in the last one year before the study, only 32.5% reported having used condoms consistently, while 13.1 % sexually active individuals reported that they had never used a condom. The findings compares to those of a recent study at the University of Nairobi that showed only 27% of the students had consistent condom use (Othieno *et al.*, 2015). Low rates of condom use among youths have also been reported in other studies (Abbey *et al.*, 2007; Urassa *et al.*, 2008; Berhan and Berhan, 2015). This implies several health risks for this group of students. Unprotected sexual activity exposes the student to HIV infection as well as other sexually transmitted infections. Despite the fact that unprotected sex is one of the greatest risk factor for HIV transmission , studies have confirmed that less than half of sexually active young people use condoms (The World Bank, 2010). Condom use is one of the most efficient technologies available to reduce the sexual transmission of HIV when used correctly and consistently (UNAIDS, 2013) and therefore if embraced by youths can reduce the incidence of HIV infections.

### **5.1.2.4 Sex under the influence of drugs**

A large proportion (20%) of the respondents in the end line survey had their last sexual intercourse under the influence of drugs. The findings are similar to those of a recent study involving students from the University of Nairobi (Othieno *et al.*, 2015). According to Othieno *et al.* (2015), a fifth of the students had drunk alcohol prior to engaging in sexual intercourse in the last three months prior to the study. The findings also compares with those of a study involving university students in Uganda where 27%

of the students had consumed alcohol during their last sexual intercourse (Choudhry *et al.*, 2014).

#### **5.1.2.5 Factors predisposing students to risky sexual behaviour.**

This study indicates that gender and age of student, frequency of going to church, current residence, substance use and whether one attended high school in the rural or urban area had significant association with risky sexual behaviour. Tura *et al.* (2012) documented almost similar findings among university students in Ethiopia. Their qualitative data showed that drug use, personal freedom from the parental control, the campus environment, prior expectation about the university, being in the youth age group, the current residence, peer influence, and low income level were predisposing factors for risky sexual behaviour among university students. Similarly, the findings were in agreement with Mulu *et al.* (2014) who documented that university students who had frequent church/ mosque attendant had lower rates of risky sexual practices.

This study revealed that student's level of income had a positive association with risky sexual behaviour where students who earned a monthly allowance of more than 10,000 shillings had greater odds of engaging in risky sexual behaviour compared to those whose monthly allowance was between 1,000- 5,000 Kenyan shillings. These findings are contrary to Tura *et al.* (2012) who reported that low level of income was a predisposing factor to risky sexual behaviour among university students in Ethiopia.

In this study current residence was associated with risky sexual behaviour at end line survey but not at baseline survey. This could be due to the fact that at baseline survey the students had just joined the university and current residence may not have had an influence on their behaviour. At the end line survey a larger proportion of students, 67%, staying in rented rooms engaged in risky sexual behaviour compared to 57% among those residing in the university hostels. The findings are in agreement with those of

Ambaw *et al.* (2010) who reported that students who resided outside the campus had greater odds of practicing sexual intercourse without condoms compared to those who resided in the campus.

#### **5.1.2.6 Gender and sexual behaviour**

In the current study more males than females, reported having had sex, initiated sex below age 15 and had multiple sexual partners. These findings are similar to those of a study done in Swaziland by Buseh (Buseh, 2004), where more males were sexually active, had their first intercourse under the age of 13 years and had multiple sexual partners compared with their female counterparts. While the gender variations are common across various studies, this must be interpreted with caution. This is because young women have a reputation of underreporting their sexual practices, unlike their male counterparts who over report sexual practices (Slaymaker, 2004; Beguy *et al.*, 2009; Plummer and Wight, 2011; Kelly *et al.*, 2013). According to Beguy *et al.* (2009) the gender differences in reporting sexual behaviour may be explained by the way many societies view sexual practices among the different genders. Sexual activity among men is seen as an act of masculinity and admiration, whereas among women sexual activity is unacceptable and often viewed as an act of weakness and societal nonconformity (Beguy *et al.*, 2009). This serves as an encouragement to boys to engage in sexual activity. This was shown to be the case in a study examining Nigerian male youths' views on abstinence (Izugbara, 2008). Participants noted that it was frustrating to abstain from sex while living among sexually active friends. One participant in that study had this to say “All my friends were having sex and telling me about their experiences ... I often felt very frustrated and unhappy” (Izugbara, 2008). Nonetheless, globally (excluding China), UNICEF estimated that, 11% of adolescent girls are sexually active before the age 15. The main result of the early sexual activity being 16 million births by adolescent girls occurring every year (UNICEF, 2011).

### **5.1.2.7 Relationship between alcohol use and risky sexual behaviour**

This study showed a significant relationship between alcohol use and risky sexual behaviour. The findings of the qualitative study also supported the quantitative findings. Majority of the key informants and FGD participants had similar opinion that alcohol and drug abuse was associated with risky sexual behaviour. Similarly the quantitative data showed that respondents who had a history of having used alcohol were more likely to be sexually active, have more than one sexual partner. Further, they were more likely to engage in sex under the influence of drugs, have sex without condoms and get unintended pregnancies. Similar findings were documented in other studies involving university students in Ethiopia. One of the study showed that 42% of substance users had multiple sexual partners, were having sex with commercial sex workers, had unprotected sex and acquired sexually transmitted infections (Berhan *et al.*, 2013). The second study examined risky sexual behaviour and the predisposing factors among students and found that current substance users had greater odds of having had sexual intercourse compared to non-users (Tura *et al.*, 2012). Further a study involving Ugandan university students (N=1179) showed that students who consumed alcohol often, had a higher risk for inconsistent use of condoms with a new a partner and were at higher risk of having had more than one partner compared to students who did not use alcohol (Choudhry *et al.*, 2014). Similar findings were also documented in Nigeria where a study done among undergraduate students showed a positive association between alcohol use and sexual activity (Oye-Adeniran *et al.*, 2014). However the same study documented contrary findings regarding substance abuse and condom use. Their study showed that substance use was not associated with unprotected sex. Slightly lower proportion of substance users engaged in unprotected sex in their last encounter compared to non-users (Oye-Adeniran *et al.*, 2014).



Nonetheless evidence show there is a link between substance use and risky sex practices and therefore Atwoli *et al.* (2011) rightfully argued that unless the issue of substance use among young adults is well addressed, interventions on HIV infection are unlikely to achieve optimal results.

### **5.1.3 Effectiveness of alcohol and drug use awareness campaigns**

Awareness campaigns to prevent drug abuse are a widespread intervention that has been used world over. The aim of the campaigns is usually to reduce use and raise awareness of the problem of drug abuse (Ferri *et al.*, 2013). However concerning drug use, our study showed contrary findings. There were increased rates of drug use in both control and experimental universities. However the findings are in agreement with other studies done in other parts of the world. A study done in the USA examining relationship between adolescent exposure to antidrug advertisement and drug use showed similar findings. The study found no association between the antidrug advertisements and rates of past-month alcohol use (Carpenter and Pechmann, 2011). Similarly, a meta-analysis of 5 randomized control trials (RCTs) that evaluated the effectiveness of mass media campaigns against drugs (Slater *et al.*, 2006; Fang *et al.*, 2010; Lee *et al.*, 2010; Newton *et al.*, 2010; Schwinn *et al.*, 2010) showed no effect of the intervention. Ferri and colleagues found that pooled results of the five RCTs (N = 5470) showed no effect of media campaign intervention (standardized mean difference -0.02) (Ferri *et al.*, 2013). Other observational studies, generally cohort studies that have evaluated the effectiveness of multimedia campaigns intervention against substance use show contrasting results, from weakly effective to clearly harmful where the results favour the control group (Hornik, 2006; Hornik and Jacobsohn, 2008). In their study Hornik and Jacobsohn (2006) found that exposure to awareness campaigns was associated with less intention to avoid marijuana use. The study found that there was a positive relationship between awareness campaigns and the intent to use cannabis with an increase in

marijuana use of 20% among those more exposed to the campaign compared to those less exposed (Hornik, 2006).

Studies have shown that though awareness campaigns may result in improved knowledge on the effects of the substances, this may not always translate to reduced substance use among the youths. Scheier, (2010) evaluated the effect of a national youth anti-drug media campaign among adolescent aged between 12-18 years. He found that though the participants in the experimental arm had improved awareness and recalled increasingly more campaign messages, there was no significant decrease in their reported levels of marijuana use (Scheier and Grenard, 2010).

Similar findings have been observed in studies on awareness campaigns and risky sexual behaviour. Several studies in different set ups have shown that being informed about the consequences of risky sexual behaviour and its consequences such as HIV infection does not necessarily result in behaviour change (Moore and Davidson Sr, 2006; Upreti *et al.*, 2009; Doyle *et al.*, 2010). A systematic review on evaluations of school based sexual health interventions revealed that though there was improvement in knowledge, attitude, and intentions, lasting behavioural changes were few (Paul-Ebhohimhen *et al.*, 2008).

Therefore, information awareness campaigns therefore are not the best interventions against alcohol and drug abuse among the young people. Approaches that attempt to bring about change in substance use behaviour through information alone are likely to have limited or no success (Howat *et al.*, 2007; Robertson, 2008). Studies show that effective intervention programs are those with multiple approaches. Interventions with behavioural, environmental, policy and organizational changes in addition to information on substance use are likely to be more effective (Howat *et al.*, 2007). A good prevention program should not only provide youths with necessary knowledge base and skills with which to resist risky behaviour but also skills necessary to engage in safe health social behaviours. For an intervention to be effective it should target risk

factors and promote protective factors simultaneously (Bukoski, 2006; Clauss-Ehlers *et al.*, 2012). According to Riggs intervention that seek to strengthen academic requirements, restrict alcohol promotions and advertising on campus, providing a wide range of alcohol-free social and recreational activities would be more effective in tackling substance abuse among students (Riggs, 2003). Bukoski, (2006) recommends prevention programs with integrative methods that involve students with activities such as peer discussion groups as opposed to didactic teaching techniques. According to him, for a program to be effective it should integrate skills which enable students resist drugs when offered, strengthen personal commitment against drug use and increase social competency of assertiveness and self-efficacy (Bukoski, 2006). Similarly a meta-analysis of peer involvement in addressing the challenge of reducing alcohol, tobacco, and other drug use among the youth revealed that, interactive peer led prevention programs are more effective than non-interactive deductive programs led by a teacher or researchers (Black *et al.*, 1998).

## **5.2 Conclusion**

- There was a high prevalence of substance use among university students in the coastal region of Kenya with the most commonly used substances being alcohol cigarettes, miraa and marijuana. The prevalence was higher in the endline survey compared to the baseline survey.
- Majority of the university students in public universities in the coastal region are sexually active and engage in risky sexual behaviour that is evidenced by the existence of multiple sexual partners and inconsistent use of condoms, engaging in sex while under the influence of drugs and unintended pregnancies. The proportion of students with risky sexual behaviour was higher at endline survey compared to baseline survey.
- Social demographic characteristics such as sex of the student, religiosity, level of income, area one attended high school whether rural or urban were important in

predicting alcohol use among students while peer pressure and idleness were major risk factors predisposing students to drug use.

- Awareness campaigns alone were not effective in reducing the prevalence of substance use among university students. Information on the negative effects of drugs is not enough to dissuade students not to use drugs.

### **5.3 Recommendations**

- More innovative approaches are needed to reduce the tendency by university students to use drugs by reducing the accessibility of drugs to students. There is need to implement programmes that aim to address the modifiable risk factors associated with drug abuse such need to relax, relieve stress and idleness among others.
- There is need to implement programs that focus on promoting safe sex practices as well as behaviour modification among University students.
- There is need to devise more effective intervention strategies against substance abuse. Interactive peer led drug prevention programs among university students are recommended. Programme that integrate skills which enable students to resist drugs when offered, strengthen personal commitment against drug use and increase social competency of assertiveness and self-efficacy should be supported.

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## **APPENDICES**

### **APPENDIX 1: FOCUS GROUP DISCUSSION AND KEY INFORMANT INTERVIEW GUIDE**

#### **A. Interview guide for focus group discussion**

How rampant is the issue of drug abuse among students in this institution?

What are the commonly abused drugs/substances among students in this institution?

Why do students engage in drug abuse?

What type of student commonly abuse drugs?

Where do students get the commonly abused substances from?

What are the effects of drug abuse among students in the University?

How rampant is the issue of risky sexual behaviour in the University?

Is there a relationship between drug abuse and risky sexual behaviour?

What measures do you think can curb drug abuse in the University?

#### **B. Interview guide for Key Informant Interview**

How rampant is the problem of substance use in this institution?



a. Every Sunday (Friday) b. Sometimes c. Occasionally d. Rarely

6. What is your main source of finances?

a. Sponsorship b. HELB loan (Government higher education loan) c. Parents and well-wishers d. Others .....

7. What is your approximate monthly allowance in Kshs .....

8. Current place of residence a. University hostels b. Rented room c. Parents/relatives house d. others .....

9. Which county did you attend high school .....

10. Which part of the county was your high school located

a. Urban b. Rural

11. Which county did you reside during your high school.....

12. Which part of the county did you reside during your high school

a. Urban b. Rural

**SECTION 2: ALCOHOL AND SUBSTANCE USE.**

*You may consider the following questions to be sensitive, and you may feel that some of them are not applicable to you. We have to ask everybody the same questions though, so we would appreciate it if you answer the questions as they apply to your life.*

13. Have you ever used alcohol? a. YES b. NO



14. At what age did you start taking alcohol .....

15. Have you ever used any other substance other than alcohol?

- a. YES                      b. NO

16. If yes in 15 above specify the substance(s)

.....  
.....

17. At what age did you start taking the substance (s) named above?

.....

18. Have you drank alcohol in the last 30 days?    a. YES            b. NO

19. What type of alcohol did you use?

- a. Wine and spirits b. beer c. Chang'aa d. Busaa e. Mnazi

20. In the past month have you had more than 5 drinks at one sitting?

- a. YES    b. NO

21. There are various risk factors that can make one start using alcohol and other substance. Thinking about your life today what makes you use alcohol/ other drugs?

	YES	NO
a. Peer pressure		

b. Idleness		
c. Influence from the media		
d. Studies related stress		

22. There are various reasons that people give to explain why they use alcohol/ other substances. Does the following reason apply to you?

Reason	YES	NO
a. Makes me have fun		
b. Makes me interact associate with others		
c. Helps kill time		
d. Makes me relax		
e. Helps me cope with stress		
f. Makes me feel important		
g. Helps me relate with opposite sex more Freely		
h. Has health benefits like helping stomach problems		
g. Makes me study and think smart		

23. Do you use the following substances in the period indicated? Tick appropriately

Substance	At least once in your life.	In the last 30 days.	In the last 12 months.	Never.
a. Smoke cigarettes				
b. Smoke marijuana (cannabis, bhang)				
c. Chew Khat (miraa)				
d. Take tranquilizers(Valium				
e. Take cocaine				
f. Take heroin				

g. Take other narcotics (methadone, mandrax, opium, codeine, etc.)				
h. Use inhalants (sniff glue, aerosols, laughing)				
j. Others specify.....				

**SECTION 3: SEXUAL BEHAVIOR**

24. How old were you when you had your first penetrative sexual intercourse? .....

25. How many sexual partners have you had over the last 12 months? .....

26. How many sexual partners do you currently have? .....

27. The last time you had sexual intercourse had you drank alcohol or used drugs before

the intercourse

a. YES

b. NO

28. In the last 12 months, how often have you insisted that you and your partner(s) use a

Condom to prevent getting HIV or AIDS?

Always 1

Sometimes 2

Never 3

29. How often do you use condoms when having sex?

Always 1

Sometimes 2

Never 3

30. Have you ever had an unwanted pregnancy (impregnated your girlfriend without intention) a. YES b. No

### **APPENDIX 3: AWARENESS CAMPAIGN PAMPHLET**

**Do you Knows the risks involved?**

***Keep off booze. Cool guys don't drink The PATH of addiction starts with one stick!***

*Cocaine customers never live Long      Heroin will put you on the path to self-  
destruction.*



**APPENDIX 4 : FORMAL ETHICAL APPROVAL**



MOI TEACHING AND REFERRAL HOSPITAL  
P.O. BOX 3  
ELDORET  
Tel: 33471023



MOI UNIVERSITY  
SCHOOL OF MEDICINE  
P.O. BOX 4506  
ELDORET  
Tel: 33471123  
14<sup>th</sup> March, 2013

**INSTITUTIONAL RESEARCH AND ETHICS COMMITTEE (IREC)**

Reference: IREC/2013/07  
Approval Number: 000955

Grace Mbutia & Team,  
Moi University,  
School of Nursing,  
P.O. Box 4606-30100,  
**ELDORET-KENYA.**

Dear Ms. Mbutia & Team,

**RE: FORMAL APPROVAL**

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

*"Alcohol and Substance Abuse and Risky Sexual Behavior among University Students in Kenya."*

Your proposal has been granted a Formal Approval Number: **FAN: IREC 000955** on 14<sup>th</sup> March, 2013. You are therefore permitted to begin your investigations.

Note that this approval is for 1 year; it will thus expire on 13<sup>th</sup> March, 2014. If it is necessary to continue with this research beyond the expiry date, a request for continuation should be made in writing to IREC Secretariat two months prior to the expiry date.

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

Sincerely,

*Prof. E. Were*  
**PROF. E. WERE**  
CHAIRMAN  
**INSTITUTIONAL RESEARCH AND ETHICS COMMITTEE**

cc: Director - MTRH  
Principal - CHS  
Dean - SOM  
Dean - SPH  
Dean - SOD  
Dean - SDN



## APPENDIX 5: CONTINUING APPROVAL



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

### INSTITUTIONAL RESEARCH AND ETHICS COMMITTEE (IREC)



MOI UNIVERSITY  
SCHOOL OF MEDICINE  
P.O. BOX 4508  
ELDORET  
Tel: 33471/2/3  
14<sup>th</sup> March, 2014

Reference: IREC/2013/07  
**Approval Number: 000955**

Grace Mbutia & Team,  
Moi University,  
School of Nursing,  
P.O. Box 4606-30100,  
**ELDORET-KENYA.**

Dear Ms. Mbutia & Team,

#### **RE: CONTINUING APPROVAL**

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

***"Alcohol and Substance Abuse and Risky Sexual Behavior among University Students in Kenya."***

Your proposal has been granted a Continuing Approval with effect from 14<sup>th</sup> March, 2014. You are therefore permitted to continue with your study.

Note that this approval is for 1 year, it will thus expire on 13<sup>th</sup> March, 2015. If it is necessary to continue with this research beyond the expiry date, a request for continuation should be made in writing to IREC Secretariat two months prior to the expiry date.

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

Sincerely,

**PROF. E. WERE**  
**CHAIRMAN**  
**INSTITUTIONAL RESEARCH AND ETHICS COMMITTEE**

cc: Director - MTRH  
Principal - CHS  
Dean - SCM  
Dean - SPH  
Dean - SOD  
Dean - SON





**APPENDIX 6: PROPOSAL AMENDMENTS ETHICAL APPROVAL**



MOI TEACHING AND REFERRAL HOSPITAL  
P.O. BOX 3  
ELDORET  
Tel: 33471123



MOI UNIVERSITY  
SCHOOL OF MEDICINE  
P.O. BOX 4608  
ELDORET  
Tel: 33471123  
17<sup>th</sup> February, 2014

**INSTITUTIONAL RESEARCH AND ETHICS COMMITTEE (IREC)**

Reference: IREC/2013/07  
**Approval Number: 000955**

Grace Mbutia & Team,  
Moi University,  
School of Nursing,  
P.O. Box 4606-30100,  
**ELDORET-KENYA.**



Dear Ms. Mbutia & Team,

**RE: APPROVAL OF AMENDMENT**

The Institutional Research and Ethics Committee has reviewed the amendment made to your proposal titled:-

***"Alcohol and Substance Abuse and Risky Sexual Behavior among University Students in Kenya"***.

We note that you are seeking to make amendments as follows:-

1. To extend your study area to include students in Public University, in the Coastal region.
2. We also note that you are including an additional objective to determine the effectiveness of awareness campaigns in prevention of alcohol and drug abuse among university students.

The amendments have been approved on 17<sup>th</sup> February, 2014 according to SOP's of IREC. You are therefore permitted to continue with your research.

Note that this amendment approval will expire on the date of expiry of your Formal Approval. If it is necessary to continue with this research beyond the expiry date, a request for continuation should be made in writing to IREC Secretariat two months prior to the expiry date.

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

Sincerely,

*W. Aruasa*  
**DR. W. ARUASA**  
**DEPUTY-CHAIRMAN**  
**INSTITUTIONAL RESEARCH AND ETHICS COMMITTEE**

cc: Director - MTRH, Dean - SPH, Dean - SOM  
Principal - CHS, Dean - SQD, Dean - SON

**APPENDIX 7: APPROVAL FROM NATIONAL COMMISSION FOR SCIENCE  
TECHNOLOGY AND INNOVATION**



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

Telephone: +254-20-2273471,  
2241249, 370571, 2278420  
Fax: +254-20-318245, 318249  
Email: secretary@nacosti.go.ke  
Website: www.nacosti.go.ke  
When replying please quote

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

Ref No.

Date:  
**16<sup>th</sup> July, 2014**

**NACOSTI/P/14/0572/2041**

Grace Wambura Mbutia  
Moi University  
P.O.Box 3900-30100  
**ELDORET.**

**RE: RESEARCH AUTHORIZATION**

Following your application for authority to carry out research on "*Substance abuse and risky sexual behaviour among universities students in coastal region, Kenya*," I am pleased to inform you that you have been authorized to undertake research in **Kilifi and Mombasa Counties** for a period ending **31<sup>st</sup> May, 2017**.

You are advised to report to the **Vice Chancellors of selected Universities, the County Commissioners and the County Directors of Education, Kilifi and Mombasa Counties** before embarking on the research project.

On completion of the research, you are expected 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: SECRETARY/CEO**

Copy to


The Vice Chancellors  
Selected Universities.

The County Commissioner  
The County Director of Education  
Kilifi County.



**APPENDIX 8: PERMISSION FROM PWANI UNIVERSITY**

(36)

  
**Pwani UNIVERSITY**

Office of the Deputy Vice-Chancellor (Research & Extension)

---

Our Ref: PUDVCRE/RCD/ 006  
Your Ref:  
Web site: [www.pwaniuniversity.ac.ke](http://www.pwaniuniversity.ac.ke)

P.O.BOX 195 – 80108  
Kilifi, Kenya  
Telephone: 041-7525102/3/4/6  
Fax: 041 7522128/7522292  
Email [info@pwaniuniversity.ac.ke](mailto:info@pwaniuniversity.ac.ke)

DATE: 13<sup>th</sup> May 2013

Grace Mbutia  
Moi University  
School of Nursing  
P.O.BOX 4603- 30100  
ELDORET - KENYA

Dear Sir,

---

**RE: REQUEST FOR PERMISSION TO CARRY OUT ACADEMIC RESEARCH AT PWANI UNIVERSITY**

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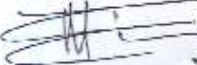
Reference is made to your letter dated 28<sup>th</sup> April 2013 which you requested for permission to carry out academic research at Pwani University.


Permission is hereby granted for you to permission to carry out academic research at Pwani University on the following conditions:

- (i) You will deposit a copy of your research proposal with Pwani University.
- (ii) You will deposit the final copy of your thesis with Pwani University.


If you agree to these conditions, please sign in the space provided below, and return a copy of this letter to the undersigned.

Thank you,

  
**PROF. MUNIRU K. TSANUO**  
**DEPUTY VICE-CHANCELLOR (RESEARCH & EXTENSION)**

  
PWANI UNIVERSITY  
DEPUTY VICE CHANCELLOR  
13 MAY 2014  
RESEARCH & EXTENSION  
P.O. BOX 195 80108 KILIFI

I, Grace Mbutia ..... accept the conditions  
under which I will be allowed to collect academic research data at Pwani University.

Signed  ..... Date: 16/9/14

MKT/m

**APPENDIX 9: PERMISSION FROM TECHNICAL UNIVERSITY OF MOMBASA**



**Technical University of Mombasa**  
Office of the Vice Chancellor

All enquiries must be addressed to the Vice Chancellor

When replying please quote: TUM/DVC(ARE)/Acad. 28(65)

**Date:** 19<sup>th</sup> September, 2014

Grace W. Mbutia  
Moi University  
School of Nursing  
P O Box 4606 – 30100  
ELDORET

Dear Madam

**REF: APPROVAL TO CONDUCT RESEARCH AMONG TUM STUDENTS**

Reference is made to your letter dated 5<sup>th</sup> August, 2014 on the above subject.

This is to inform you that your request to conduct research among TUM students on Substance Abuse and Risking Sexual Behaviour is hereby granted. You will conduct your research under the observation of our IRIE Director.

Please report to the Director, Institute of Research, Innovation and Extension for direction.

Thank you.

Yours sincerely

  
Prof. Josephat K.Z. Mwatelah

**Vice Chancellor**

c.c: Director  
Institute of Research, Innovation and Extension  
**TUM**

## **APPENDIX 10: INFORMED CONSENT FORM**

**TITLE: Substance abuse and risky sexual behaviour among University students in the Coastal region, Kenya**

**Principal investigator:** Grace Mbutia

### **Introduction:**

Good morning /afternoon?

My name is Grace Mbutia and I am here with my research team to conduct a study on Alcohol and substance abuse and risky sexual behaviour among university students in Kenya. I would like to seek your permission, please read the consent form below. I would be very grateful if you will assist me by agreeing to be a participant in my study.

### **The purpose of the study**

The aim of this study is to assess prevalence and patterns of substance use and risky sexual behaviour among University students in Kenya. The results of this study are envisioned to help in the formulation of behaviour change strategies among college/University students and to inform the relevant administrations on the need to design institutional policies on alcohol and drug abuse.

### **Procedure**

The purpose of this form is to obtain your consent to participate. If you choose to participate a questionnaire will be administered to you and the interview will take between 10 and 15 minutes to complete. Participation is voluntary and you can choose

not to answer any individual question or all of the questions. However, we hope you will participate in this interview since your views are important.

### **Benefits**

There are no direct benefits to you by choosing to participate in this study. However, the results of this study will be communicated back to your institution and will be vital in informing University policy makers on need for alcohol and drug abuse policy in the institutions.

### **What are the risks of the study?**

Apart from the inconveniences caused by taking part of your time, the process is safe and there are no risks involved. But some questions may appear uncomfortable but it is necessary for you to answer them with honesty. However, we will try as much as we can to make sure we save on your time.

### **What about confidentiality?**

All the information obtained will be strictly confidential and data password protected only accessed by the Principal investigator, participants in the study will be kept anonymous, being identified only by specific initials for the sake of follow-up.

### **Contact information**

For any enquiries in the event of any research related questions, comments or complaints, the following persons will be available for contact:

**Principal Investigator: Grace Mbutia**

**Telephone: 0722 287 196**

**Email: gmbuthia2002@yahoo.co.uk**

**OR**

**The Secretary,**

**Moi University / Moi Teaching and Referral Hospital, Institutional  
Research and Ethics Committee (IREC)**

**P.O Box 3**

**Eldoret.**

**Tel: (053)-2032237**

At this point, do you want to ask me anything about the study?

**Subject permission:**

I, the undersigned have understood the above information which has been fully explained to me by the investigator. I have agreed to voluntarily consent to participate. I was given the chance to ask questions and I received satisfactory responses.

Name \_\_\_\_\_ of \_\_\_\_\_ Participant \_\_\_\_\_ or  
respondent.....

Signature..... Date.....

Signature of the person obtaining consent \_\_\_\_\_ Date \_\_\_\_\_

*(Must be signed by the investigator or individual who has been designated to obtain consent)*

