

**THE IMPACT OF ALCHOL USE ON HEALTH AND ACADEMIC  
PERFORMANCE OF STUDENTS IN KENYA MEDICAL  
COLLEGES IN CENTRAL PROVINCE**

**BY**

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**Declaration**

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

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## **Dedication**

This thesis is dedicated to my two lovely sons, Kenneth Maina and David Kibunja for their patience and perseverance throughout my study period. It is also dedicated to my parents, Mr. Samuel Kibui Kibunja and Jedidah Wambui Kibui whose encouragement gave me motivation, support and strength throughout this study.

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## Abbreviations and Acronyms

AOD	-Alcohol and Other Drugs
BC	-Before Christ
KMTC	-Kenya Medical Training College
NACADA	- The National Agency for the Campaign against Drugs Abuse
NIAAA	-National Institute on Alcohol Abuse and Alcoholism
PGH	-Provincial General Hospital
SPSS	-Scientific Package for Social Sciences
STIs	-Sexually Transmitted Infections
US	-United States

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## Abstract

Alcohol is the most widely used and misused substance in the world. For many decades it was perceived as a moral weakness but in recent times, alcohol use and misuse has begun to be viewed as a disease. Attitudes and moral notion of alcoholism still prevail, resulting in missed diagnosis and lack of treatment of the affected persons. The impact of excessive alcohol use in human health and well being is substantial and no one is immune from the complete range of medical, social, family, legal and economic problems that are brought by the uncontrolled use of alcohol. However, marketing of alcohol and tobacco has contributed to increased health related problems; especially in developing countries. Alcohol continues to be the psychoactive substance most frequently used and abused by young people along side tobacco. Efforts to reduce students from drinking alcohol have largely been unsuccessful, because research based on prevention strategies, have not been consistently applied. The prevalence of alcohol by students in Kenya's central province is 26.3%. Accordingly, the purpose of this study was to understand the factors associated with alcohol use and its impact on health and academic performance of students in medical training colleges in the Central Province of Kenya. The study used survey design and data were collected from six medical training colleges in central province. In this study it was hypothesized that there was no significant association between academic performance, health and demographic characteristics of students who used and those who didn't use alcohol. The study site was conveniently selected because the researcher works in the area. Data were collected through self-administered questionnaires given to 250 respondents' selected using snowballing method (a non-probability sampling technique). Data were tabulated using Microsoft Excel spreadsheet and comparisons were analyzed and tested. Chi-Square test was also done using the Statistical Package for Social Sciences (SPSS). This was to assess whether there was any significant association between academic performance, health, demographic data and alcohol use. Chi-Square statistical test indicated that there was a significant association between academic performance,  $\chi^2 = 240.249$ , d.f. = 3,  $p < 0.001$ , immediate health problems such as hangover  $\chi^2 = 428.430$ , d.f. = 6  $p < 0.0001$ , injury  $\chi^2 = 113.425$ , d.f. = 4,  $p < 0.0001$ , demographic characteristic, multiple drug use and alcohol use. This study found out that academic performance, demographic characteristics, immediate health problems, other drugs use were all significantly related to alcohol use by college students. It was also found out some of the students who used alcohol were at risk of developing alcohol dependence while others tested positive for alcohol dependence in that they had signs and symptoms of alcohol dependence. This study recommended that college administration through the services of trained college counselors, should offer counseling services to students especially those found using, abusing or are already dependent on alcohol. Colleges' academic committees to strengthen academic achievement requirements by giving students regular exams and supplementary tests to students who did not meet the minimum grade of 50%.

## **CHAPTER ONE: INTRODUCTION**

### **1.1 Background of the Study**

Beer making began almost as soon as people domesticated barley to make bread around 8000 Before Christ (Goodwin, 1999). Stone-age culture that survived into the twentieth century or modern times has been familiar with the manufacture and use of alcohol. Early European explorers in Africa frequently found out that alcohol was important in the local cultures. Across the continent, alcohol has been used medicinally and in religious ceremonies for thousands of years. According to Goodwin (1999) alcohol has a long history of recreational use.

Alcohol-related problems pose a significant threat to world health than tobacco use (World Health Organization, 2003). In fact, alcohol is reported to be responsible for four percent of global death and disability (Ibid). World Health Organization (WHO) further recorded that the per capita alcohol consumption in adults is highest in developed countries, though developing countries are fast catching up.

Alcohol is the most widely used and misused substance in America (Varcorolis, 1990). Varcorolis (1990) further reported that more than a third of adolescents had tried alcohol by age thirteen and that ninety-three percent of students in their senior years in high school had taken alcohol. He further reported that six percent of the students in their senior high school had drunk alcohol on daily

basis and one third of the senior students had been confirmed to be drinking one or two drinks daily. However, two thirds were reported to have felt that four or five drinks per day could be harmful.

Swadi (1988) reported that in Britain young people start drinking alcohol by the age of thirteen and their drinking increased to ninety percent by age of seventeen. According to Swadi, similar findings have been reported in Scotland by the age of sixteen. A survey carried out among three thousand adolescents in six schools in London showed that two thirds had used alcohol and that one in nine, were frequent and possibly heavy drinkers (Swadi, 2005).

In Africa, culture restricts consumption of alcohol to elders' and important cultural occasions such as after the birth of a child, after harvesting crops and during funerals (National Agency for the Campaign Against Drug Abuse, 2007). Even then, only elders have the right to take alcohol (NACADA, 2007). According to the same study, alcohol consumption is no longer restricted to elders or special occasions. It is readily available to adults and youth between ten to twenty four years, though the law prohibits its sale and use by people below eighteen years (NACADA, 2007).

Between 2001 and 2002, NACADA conducted a survey on alcohol use in Kenya, which revealed that alcohol use by secondary school and college/university students was widespread. The survey also revealed that students entertain the falsehood that alcohol use enables them to study for longer

hours. In this study NACADA found out that students using alcohol come from all walks of life.

Another survey by NACADA (2007) further revealed that the national alcohol prevalence was 24.9% but varied from province to province, with Western Province having the highest prevalence of 43% followed by Nairobi Province 41%, Nyanza 27%, and Central 26.3%. Rift Valley and Coast each had a prevalence of 21%, Eastern 17% and North Eastern 2%.

The tendency towards alcohol use and misuse may be influenced by many psychological and socio-cultural factors, including weak law enforcement, lack of school fees due to poverty, peer pressure and sale of alcohol in sachets to the youth (NACADA, 2007). The above factors are major public health problems that affect the student's academic performance and discipline in colleges.

In Nyeri Provincial General Hospital, the psychiatric ward admitted eighteen patients with alcohol related problems in 2004. In 2005, the same ward admitted twenty patients, one from Nyeri Medical Training College, three health workers and sixteen others (PGH Nyeri, 2004 and 2005). Despite the growing awareness among doctors in general and psychiatrists, in particular, that alcohol and drug abuse is becoming a major problem in Kenya, there is limited studies addressing this problem. In fact, several epidemiological studies carried out in developed countries have shown that alcohol use affect the academic performance and health of college students.

## 1.2 Statement of the Problem

Entrance into colleges, the world over, marks the beginning of significant change in the life of young adults. For many students, college is a place where drinking alcohol either begins or increases in frequency (Wechsler *et al.*, 2004). According to *Journal of America College Health* (2006), it is not only those who engage in high-risky drinking who are affected but also students who do not use alcohol suffer secondary effects from the behavior of others who drink. Such effects include study or sleep interruption, taking care of a drunken student colleague, suffering from insult or humiliation, experience of unwanted sexual advances, serious argument or quarrel and property damage (National Council on Alcoholism and Drug Dependence, 2000).

Goodwin (1999) reported that in the United States (US) there were an estimated 20,000 deaths each year from alcohol related automobile accidents. Of these, 500 were young people, 10% were under fifteen years. The statistics further showed that 20% to 30% of males admitted in psychiatric units were alcohol or had alcohol related problems.

NACADA (2007) indicated that there is limited documented information on alcohol use and misuse by college students in Kenya but the situation is similarly worrying. It is suspected that students particularly those in colleges, consume a lot of alcohol, which may have severe consequences on their academics and social life (NACADA, 2007). Alcohol predisposes the youth to disease, poor health, conflict with the law, and poor academic performance (NACADA, 2007). In Kenya, the youth have been exposed to some deadly brews, for example, alcoholic drinks that have been laced with harmful

substances such as battery acid, jet fuel, methanol or formaldehyde. These drinks, according to NACADA, have killed or blinded many people.

Efforts to reduce students from drinking alcohol have largely been unsuccessful, because researches based on prevention strategies have not been consistently applied. In this regard, an understanding of the factors that place adolescents at a higher risk of alcohol use and abuse is critical for the development of effective prevention strategies. Many factors may influence adolescents' risk for alcohol and these could include psychological, social, cultural, environmental, individual and institutional variables (NACADA, 2007). The purpose of this study therefore was to assess use of alcohol and its impact on academic performance and health of students in Medical Training Colleges in Kenya.

### **1.3 Broad Objective**

This study aimed at assessing the use of alcohol and its impact on academic performance and health of Kenya Medical College students in Central Province with a view of ameliorating the situation.

### **1.4 Specific Objectives**

The study aimed specifically to: -

1. Establish the current status of alcohol use among KMTC College students
2. Compare the demographic characteristics of alcohol users and non-users  
within the studied colleges

3. Compare the academic performance and health status of alcohol users and non-users in the selected colleges
4. Establish multiple drugs use and alcohol dependency among the KMTC Students

### **1.5 Research Questions**

1. What is the current alcohol use status among the KMTC students?
2. What differential demographic characteristics of alcohol users and non users exist in the studied KMTCs ?
3. How does the academic performance and health status of alcohol users compare with that of non-users in the studied KMTCs ?
4. Are KMTC students using multiple drugs and have they developed alcohol dependency?

### **1.6 Null Hypotheses**

**H<sub>01</sub>:** There is no significant difference between demographic characteristics of alcohol users and non-users

**H<sub>02</sub>:** There is no significant difference between academic performance of alcohol users and non-users

**H<sub>03</sub>:** There is no significant difference between health of alcohol users and non-users

**H<sub>04</sub>:** There is no multiple drug use among the KMTC students in central province

### **1.7 Justification of the Study**

This study was significant in several respects. First, if KMTC students are made aware of the effects of alcohol and alcohol prevention strategies, they can enhance their chances of avoiding alcohol and other drug-related problems. Accordingly, the findings of this study may contribute positively to the realization of KMTC academic performance. In fact, though most college students may try to avoid alcohol and other drugs, peer pressure to indulge in high-risk behavior is often very profound. Such a study therefore may be handy in providing anti-alcohol strategies for the students.

Second, Alcohol and other drugs may be a factor in accidents, injuries, vandalism and other crimes in colleges. The present study therefore was aimed at providing useful information that can be used in the designing of preventive approaches to mitigate the effects of alcohol abuse in KMTC and other colleges in the country and elsewhere.

Third, given the prevailing concern on the prevalence rate of alcohol abuse in Kenya (24.9 %) and Central Province (26.3%), there is need for such studies to provide more information with a view to minimize alcohol use and abuse among medical college students that may put them at a higher risk of ill health and poor academic performance.

Fourth, though many studies have been done in developed countries such as in US and Britain, which shows that alcohol use by college students is associated with poor academic performance and health, the present research was aimed at replicating such studies in resource poor settings with a view of finding out whether these findings holds for medical students in Kenya, especially with its diverse socio- cultural, economic and educational system.

Finally, there are gaps in knowledge with regard to effective alcohol prevention interventions. The information obtained from this study may be used in planning effective programmes especially those targeting colleges as well as identifying problems of alcohol use among the various college students.

### **1.8 Definition of Concepts**

**Abstainer**-A person who drinks less than one drink per week

**Academic performance**- college credits or grades obtained by a KMTC student.

**Alcohol** – is a liquid substance obtained through fermenting or distilling grains, fruits or even some kinds of vegetables. The chemical name for alcohol is ethyl alcohol or ethanol. As a beverage, pure alcohol is diluted with other ingredients.

**Alcoholism** – A variety of disorders associated with the chronic use of alcohol usually over time, in amounts that have affected the user physiologically, emotionally or psycho-socially.

**Antisocial personality** – A personality disorder marked by impulsive meditative and criminal behavior, without any feelings of guilt on the perpetrator.

**Anxiety** – A feeling of apprehension, uncertainty or tension stemming from the anticipation of an imagined or unreal threat, sometimes manifested by palpitation, sweating, disturbed breathing, trembling or even paralysis.

**Risk drinking**-Defined as an uptake of 29 and more alcoholic drinks per week.

**Depression** -Means extreme sadness. This is characterized by presence of effect of mood such as sadness, unhappiness, cognition, loss of interest, difficulty in concentrating or low self- esteem. In this study the concept will also be used to include behaviors such as psychomotor retardation, social withdrawal and somatic or physical behaviors such as sleep disturbance, fatigue and body pain.

**Drink** – An uptake of at least 340 milliliters of beer or 142 milliliters of wine or 42 milliliters of spirit. Each one of these contains the same amount of alcohol.

**Drinking behavior**- used to refer to the average number of drinks or units per week of beer, wine and spirits per person.

**Hangover** – The after effect or syndrome following ingestion of alcohol or a direct result of ethanol intoxication.

**Heavy episodic drinking**-Consumption of five or more bottles of alcohol per day

**Heavy drinking**-Defined as drinking 22–28 bottles of alcohol per week per person

**Light drinking** -Defined as drinking 1–7 bottles of alcohol per week per person.

**Moderate drinking**- For this survey, moderate drinking is defined as taking 8 -14 bottles of alcohol per week per person

**Moderate heavy drinking**- Defined as drinking 15-21 bottles of alcohol per week per person

**Personality**- Characteristics and to some extent predictable behavior responses or patterns that each individual evolves, both consciously and unconsciously as their style of life

**Student**- In this study a person over 18 years, who is studying in a college.

**Symptom** – In medical terms, symptoms generally implies pathological or physiological action, for example, hangover or stomach upset.

**Unit of alcohol**- Used to refer, in this study, to eight grams of alcohol

## CHAPTER TWO: LITERATURE REVIEW

### 2.1 Students and Alcohol Use

Alcohol use is global number one public health problem and has a powerful impact on the users. Under age drinking has immediate and long-term health, academic performance and behaviour consequences. In America, college students drink more often than their former high school classmates who do not attend college (O'Malley, 2006). In fact, in America, students drink despite a national minimum legal drinking age of 21 which was enacted in 1984. In this country, the requirement by the safe and drug free school Act of 1989, which stated that colleges publish information about laws that regulate drug and alcohol use, spells out the penalties and periodically evaluating the effectiveness of the institution's drug policy to ensure adherence (Wagenaar, 2005).

Separate studies published in 2001 by WHO showed that 65% of adolescents (14-19 years) in Australia and Canada reported having used alcohol. The same year, WHO reported that 8.8% of students' age 10-14 in Lesotho and 14% secondary students in Kenya, used alcohol. Acuda (1980) found out that 10% of students in several schools in Kenya, drunk alcohol more than three times a week. Dhadphale (1982) also reported that among secondary school students in Kenya, an average of 16% of them smoked tobacco, 10% drunk alcohol more than three times a week, 14% had smoked cannabis and 16% had used other mind altering drugs.

Several studies done in Kenya indicated that alcohol was second only to tobacco in prevalence (Yambo *et al.*, 1983, Dhadphale *et al.*, 1982, Owino, 1982 and Shauri 2007). In another study, Owino (1982) found out that 30% of secondary schools and teachers' college students in Kenya regularly took alcohol at least three or more times a week. Another study, by Bittah (1979) in a rural community in Kenya, showed that 27% of males, 24% of the females and 7% of secondary school students could be considered alcoholic by WHO criteria for alcoholism.

## **2.2 Alcohol and Demographic Characteristics of the Study Population**

Research has shown that the size of an institution is associated with quantity of alcohol consumed. The above statement is supported by the information that students in smaller colleges consume greater amounts of alcohol on a weekly basis than students in larger academic institutions (Presley *et al.*, 1993a, 1995 and 1996a, b). These studies further reported that students at second (2) - year of study in institutions reported lower average weekly consumption levels and a lower percentage of heavy episodic drinking than students in their fourth (4) - year of study in colleges.

Chloupka (2000) found out that increase in alcohol beverage price may lead to substantial reduction, both in the frequency of alcohol consumption and in heavy drinking among the youth.

He further reported that local community tolerance of students drinking may permit alcoholic beverage outlets and advertising to the location near college.

Adolescents living in Finland related living in an urban environment with alcohol use because alcohol is easily available in urban areas than in rural areas. Rose (1998) and O'Hare (1990) reported that students living at home are more likely to be lighter drinkers than students who live in college and men who live in the college are more likely to become heavy drinkers. Similarly Presley *et al.*, (1993b) reported that the average number of drinks per week and the number of heavy episodic drinking are higher for on-college residents as compared with off-college residents. Students living at home with parents tend to drink less (Valliant and Scanlan, 1996). Residence in hostels has also been associated with increased drinking (Barnes *et al.*, 1992 and Gfroerer *et al.*, 1997).

Many colleges are surrounded by a ring of alcohol outlets and that promotion and low-price alcohols are constantly advertised on and off college (NIAAA, 2004). Wechsler *et al.*, (2004) reported that colleges that are located more than a mile from the nearest alcohol outlet had lower rates of heavy episodic drinking than colleges with outlets within a mile.

### **2.3 Alcohol and Academic Performance**

A study carried out on students from New Jersey High School showed that there was a strong relationship between academic performance and alcohol use

(Whitman *et al.*, 1999). The study further showed that the higher the self-reported grade, the lower the proportion of students who have used alcohol in the past one-year. Principals in high school who were interviewed reported that there was a strong association between student alcohol use, tardiness and class absenteeism (Ana-Lyze, (1997). Wechsler *et al.*, (2004) found a strong association between current alcohol use and self-reported academic problems.

In 2004 Wechsler *et al.*, found out that alcohol affects the central nervous system as a depressant resulting in decreased mental activities, anxiety, tension and inhibitions. Wechsler *et al* (2004) also found out that a few drinks can result in behavioral changes, a slowing motor performance and a decrease in the ability to think clearly, concentrate and make judgment.

Akindele (1974) reported, in a study in a Nigeria University, that students were initially introduced to alcohol by friends. The primary motivation was identified as a desire to identify with the peer group. After the initial start with alcohol, other drugs were tried. In the same year, Akindele reported that before examinations, stimulants like amphetamines were used in an effort to stay awake and read. In between examinations, other drugs like alcohol, cannabis, mandrax and barbiturates were also used. Eventually, the students lacked time for academic work and instead spent more time on drinking sprees and drug taking. Drugs created a feeling of being on top of the world, where nothing mattered any more.

The National Institute on Drug Abuse (2003) report revealed that students who are poor academic performers are more likely to begin using drugs early and become regular alcohol users, smokers and other drug users than their more successful classmates. It is further to report that students who were bored by college work and disinterested in academic achievement were more likely to become drug users than those who were more academic oriented. The report, finally revealed that the earlier a child begins to use alcohol, smoke or use other drugs, the greater the likelihood of becoming a heavy drug user.

#### **2.4. Alcohol and Health**

Literature suggests that alcohol consumption may increase health problems and infectious diseases. Roselle (1992) reported that there is clinical evidence of increased incidence of infections among alcoholics. For example chronic alcoholics may have increased incidence of bacterial pneumonia. According to Jacob (1992) chronic alcoholism is also associated with Tuberculosis.

Though some studies of human and animals showed that alcohol might suppress the immune system (Aldo-Benson 2000 and Aldo-Benson *et al.*, 2005), a study by Grossman *et al.*, (1988) indicated no immune suppression. Further, a study by Cohen *et al.*, (2006) showed that up to 4 drinks per day decrease the risk of developing a cold. Alcohol affects all body systems for example, irritation of the gastrointestinal tract may occur with erosion of the lining of the esophagus and stomach, causing nausea and vomiting (Ana-Lyze, 1997).

In general, college students are relatively healthy but they may develop infectious diseases and other acute health conditions related to alcohol intoxication such as oesophagitis, gastritis, vomiting, diarrhea, plus injuries from accidents (Hang and Engs 1992 and Meilman *et al.*, 1989). Engs *et al.*, (1992) further reported that there is an association between infectious illnesses and heavy drinking. Evidently, students who drink between 1-21 alcoholic drinks per week reported having experienced upper respiratory infections and students who drunk 28 or more per week had significantly more problems.

## **2.5 Alcohol and Other Drugs**

A drug is a psychoactive substance that changes the way a person feels, think or behaves. Global Youth Network (2005) revealed that many students are abusing drugs today than any other time in history. Roselle (2006) reported that it is aptly clear that students today are growing up in a world which is increasingly becoming more tolerant to drug use.

O'Malley and Johnston (2002) revealed that tobacco is the second, after alcohol, most frequently drug used among college students. In the same year, O'Malley and Johnston also revealed that 31% of college students had smoked a cigarette, 21% had used marijuana and 1% had used cocaine. Finally, they said that college students use alcohol more than cigarette, marijuana and cocaine. Another study carried out in Trinidad, USA showed that secondary school

students aged between 14-18 years, 84% had used alcohol, 35% had used tobacco, 8% marijuana and 2% cocaine (USA general report, 2000).

Drugs are causing a lot of problems in both the developed and the developing world. For the college student, alcohol and drug use affects his/her academic performance where the student skip's class and fail to do assignments. Alcohol is the most misused drug today and is one of the most popular and readily available type substance found in colleges (America Teen Drug Abuse, 2000). Young adults in America from the age 18-22 years, enrolled full time in college, are more likely to report heavy use of alcohol than their peers not enrolled full time in institutions (Drug and alcohol statistics, 2007). In most cases, some college students feel pressured to fit in and engage in activities that their friends are doing. Consequently, students who have peers who use drugs are more likely to use drugs (Drug and Alcohol Statistics, 2007).

The use of psychoactive, substances that alter the behavioral responses of the student are commonly known and are not new to mankind (PIOJ, 2007). Even in countries that have denounced their use, substance such as tobacco, amphetamine, marijuana, cocaine, heroin cannabis sativa and alcohol continue to be used heavily. Bhang and marijuana are the most common illegal drugs traditionally produced and abused in Africa (Anderson, 2006).

## 2.6 Alcohol Dependence

Alcoholism, also known as alcohol dependence, is a condition that includes the following symptoms: **craving**- a strong need or urge to drink, **loss of control**- not being able to stop drinking once drinking has began, **physical dependence**- withdrawal symptoms such as nausea, sweating, shaking, and anxiety after stopping drinking and finally, **tolerance**- the need to drink greater amounts of alcohol to get high (Alcohol Abuse and Alcoholism, 2009).

Rate of alcohol problems are highest among young people age between 18-29 years and lowest among adults, 65 years or older. Men develop alcohol dependence or they may have more other forms of alcohol problems than women (NIAAA 2003, NCDD 2003 and WHO, 2003). The Journal of American College Health (2000) reveals that alcohol problems may be treated through intervention such as education and counseling. The same journal revealed that a treatment that may be given to either an in-patient or out-patient with alcohol dependence includes self-help groups, medication, detoxification and rehabilitation. A college alcohol study documented in the same journal in 2000 revealed that 43% of all the students reported drinking in a high risk manner at some point in their college life and 20% of them reported using alcohol more often in a high risk manner.

Knight *et al.*, (2002) revealed that 31% of the college students in the U.S. had met the criteria for diagnosis of alcohol abuse and 6% for alcohol dependence.

Alcohol, of all drugs used causes the most problems to college students. However, medical college students are using drugs especially alcohol like other youths in and out institutions of learning. Whether college students are aware that alcohol and drug use have effects on their performance and personal health remains unclear. It is against this background that the present study was undertaken to understand the impact of alcohol use on academic performance and health of KMTC students in Central Province of Kenya

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

### **3.1 Study area**

The study was conducted in both private and public Medical Training Colleges in Central Province. The colleges included, Nyeri Medical Training College and Schools of Nursing in Mathari, Tumutumu, Thika, Murang'a and Kijabe. These six Medical Training Colleges had a population of 1400 students. According to Principals from these colleges, courses that were offered in Nyeri Medical Training College included diplomas in Community Nursing, Medical Laboratory Technology, Environmental Health Sciences and Clinical Medicine and Surgery. Thika and Muranga offered courses such as diploma in Community Nursing and Clinical Medicine and Surgery. Tumutumu, Mathari and Kijabe are Schools of Nursing offering a diploma in Community Nursing. These institutions were selected for the research project because they could represent other KMTCs in the country and that they were convenient to the researcher who happens to work in one of the colleges. The fact that the researcher works in one of the studied colleges made it for the project, especially in revealing salient information about the research problem.

### **3.2 Research Design**

Survey design was used in this study. The design was used to collect data in order to test hypotheses and to answer questions concerning demographic characteristics, alcohol use, academic performance and health variables.

The design was chosen because it allowed the researcher to collect and analyze data within a short period of time.

### 3.3 Study Population

This comprised all KMTC students in the country.

### 3.4 Target Population

The target population consisted of students (males/females) in Medical Training Colleges in Central Province.

### 3.5 Inclusion Criteria.

The study included only students who consented and had been in the selected colleges for at least two years.

### 3.6 Exclusion Criteria

Students who did not consent and had not completed a minimum of two years in the selected colleges were excluded from the study.

### 3.7 Sample Size Determination

Sample size was determined using the formula by (Fishers et al., 1998) for a population greater than 10,000

$$n = \frac{z^2 pq}{d^2}$$

Where:

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

z= the standard normal deviation at the required confidence level.

P= the proportion in the target population estimated to use alcohol.

q = 1-p

d= the level of statistical significance set.

P= 26.3%

$$n = \frac{1.96^2 \times 0.263 \times 0.737}{(0.05)^2} = 298$$

Since the target population was less than 10,000 the required sample size was calculated using the following formula.

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

Where: -

nf = the desired sample size (N < 10,000) n = the desired sample size where (n = 10,000)

N = the estimated number of student (1400)

$$nf = 1 + \frac{298}{1400} = 246$$

Desired sample size was 246 students.

### 3.8 Sampling Method

Convenience sampling method was used to select the province and all medical colleges. Stratified sampling with proportions was used to determine the sample size for each individual college.

**Table 3.1 Distribution of Students by Colleges and Desired Sample Size**

M.T.C	No. of Students	Sample Size
Nyeri	450	79
Tumutumu	150	26
Mathari	150	26
Thika	300	53
Murang'a	230	40
Kijabe	120	21
Total = 6	1,400	246

Example: sample size was given by number of students divided by total (1,400) Multiplied by desired sample size (246).

### **3.9 Snowball Sampling Method**

It is a well-known efficient, cost effective non- probability sampling technique, of survey sample selection that is commonly used to locate hidden behavior such as alcohol use in the population. This method relied on referral from initial sampled respondents to other persons believed to have the characteristic of interest (Johnston, 2009).

The initial respondents were identified using purposive sampling technique. The population sub-group was chosen on the basis of their ability to provide information on alcohol use. Alcohol use behavior is hidden and people tend to hide such behaviour. The special nature of the population concerned makes it difficult for the researcher to have a sampling frame. The fact that the behavior of the student in taking substances and drugs is unacceptable in many college

students prefer not to participate in data collection activities. The students were informed on the purpose of the study and the fact that information collected from them would help in identifying those with alcohol and other drugs problems who will be referred for treatment as appropriate. They were further informed that this will help them achieve their academic goals and prevent them from dropping out of college or absenteeism.

### **3.10 Research Instrument**

Pre testing of the research tool was conducted at St. Luke Kinangop Medical Training College and modified according to the pre-test feedback.

### **3.11 Data Analysis and Management**

The collected data were edited, keyed and tabulated in a computer using the Statistical Package for Social Sciences (SPSS). Descriptive statistics were used to present data in form of frequencies, percentages and measures of central tendency such as mean. Statistical tests between demographic information, academic performance, health and alcohol use variables were analyzed using Chi-Square test. Chi- Square test statistics were used in this study to test the study hypotheses.

### **3.12 Independent Variable**

**3.12.1 Alcohol Use:** Was measured using six quantity- frequency items from the student alcohol questionnaire. Students were requested to indicate the average frequency of drinking beer, wine and spirits and the average number of drinks consumed on one occasion.

### **3.13 Dependent Variable**

**3.13.1 Academic Performance:** data included past academic credits/ grades obtained

**3.13.2 Health:** A student was asked how many times he/she had experienced the following health symptoms the previous month (hangover, upper abdominal discomfort, vomiting after drinking or vomiting blood after drinking and diarrhea).

### **3.14 Ethical Considerations**

Authority to conduct the study was obtained from Kenyatta University, Director of Medical Training Colleges, Provincial Administration, Catholic, Africa Inland and Presbyterian Churches. Consent was also obtained from the students participating in the study. Prior to the study a proposal was sent to the Ministry of Science and Technology Ethical Committee for review to ensure that ethical issues were handled correctly and the procedures for the study met all the legal requirements for conduct a scientific research.

### **3.15 Limitations of the Study**

There were several limitations for the study. First, the study included only medical students from Central Province, omitting other medical students in Kenya. Second, only a sample of 250 students from the said medical colleges was studied. In this case, the study conclusions could probably have been different if the whole population of KMTC students in the country was studied.

Third, the study only covered the perceived effects of alcohol use in Medical Training Institutions. Apparently, this is only a single item among the many

factors and challenges affecting medical students in Kenya. Fourth, the analysis was done mainly on primary data, which could be biased. Analysis of secondary data could have provided a basis of comparison and may have revealed more salient information about the problem. Finally, the fact that the study was based on self opinions and experiences of the students from the Kenya Medical Training College it may have reduced the discretion for provision of more objective information. This is a weakness of survey research, which relies heavily on reports of behavior as opposed to observation of behavior. A questionnaire soliciting the views of the lecturers and principals in the institutions could have strengthened the findings of the study.

## CHAPTER FOUR: RESULTS AND DISCUSSION

### 4.1 Introduction

This chapter presents and interprets the findings of the study. The results are presented, interpreted and discussed in relation to the research objectives contained in Chapter One of this work. The presentation and interpretation of the study results is done next.

### 4.2 Distribution of Students by Gender

Figure 4.1 show the distribution of students according to gender. Of the total sample (250), 52% were females and 48% were males. The high number of females (52%) in the studied KMTCs is probably explained by the fact that these are middle range colleges specializing in health care and health care is part of domestic role handled mostly by women in the society. This makes women more represented in hospitals and medical facilities and institutions.

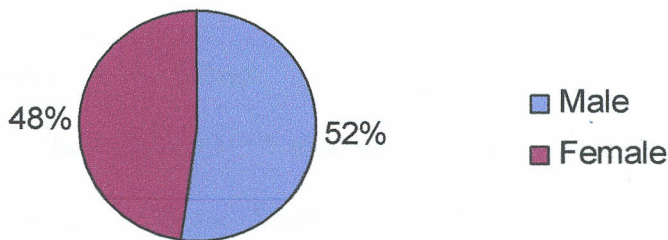


Figure 4.1 Distribution of Students

### 4.3: Distribution of Students by Age

Age is critical variable as far as alcohol uptake is concerned. In fact, this variable was included as part of the demographic characteristics to be tested on alcohol use in a bid to explain its impact on academic performance and health status of the students. The distribution of students by age is aptly captured in Table 4.2.

**Table 4.1: Distribution of Students by Age**

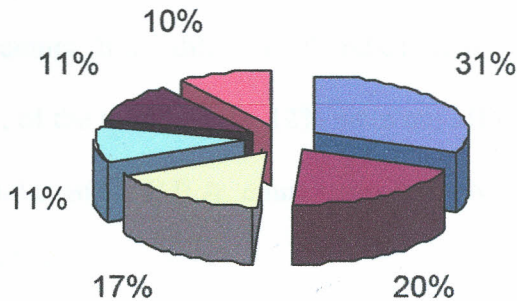
Age	Frequency	Percentage
18-20 years	85	34%
21-23years	143	57%
26-26 years	22	9%
Total	250	100%

Table 4.1 indicates that 57% of the students were aged between 21-23 years, 34% were aged between 18-20 years while only 9% were aged between 18-23 years. The presence of many (57%) of the students in their 21-23 years is a reflection of the average age of college students in the country, especially following the introduction of the 8-4-4 system of education in the 1980s.

### 4.4 Distribution of Students by College

Figure 4.2 shows that the highest (31%) number of students interviewed were from Nyeri, followed by Thika (20%) and Muranga (17%) government Medical training Colleges. Others were from Tumutumu (11%), Mathari (11%) school of nursing and only 10% were from Kijabe School of Nursing. Catholic Church and Presbyterian Church of East Africa run Mathari and Tumutumu hospitals respectively, while the Africa Inland Church of Kenya runs the Kijabe School of nursing.

The higher (68%) percentage of students from Government Medical Training Colleges is a true reflection of the status of medical training in Kenya, with the Government handling the lion's share

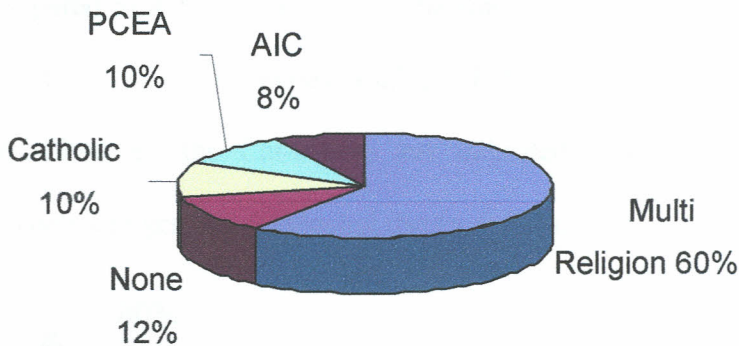


- Nyeri MTC
  - Muranga MTC
  - Consolota Nursing School Mathari
- Thika MTC
  - Tumu Tumu School of nursing
  - Kijabe school of Nursing

Figure 4.2 Distribution of Students by College

#### 4.5 Religious Affiliation

Figure 4.3 shows that most (60%) of the students came from different churches but opted to worship together in their colleges. Accordingly, they reported going to a church that its leadership comes from different churches such as Full Gospel and Gospel out Reach. However, of the total sample, 12% were not affiliated to any church, 10% were affiliated to catholic and P.C.E.A. church respectively. The remaining 8% were affiliated to the A.I.C. church.

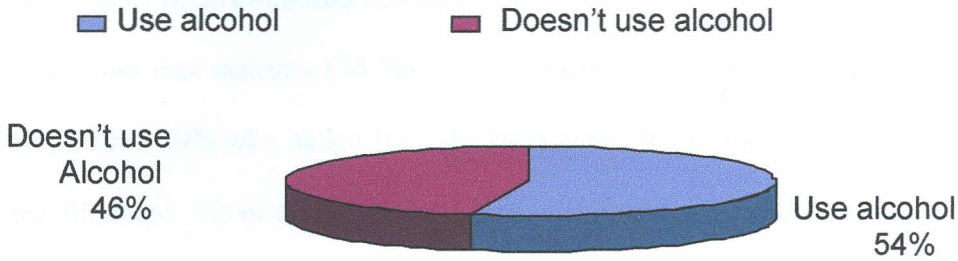


**Figure 4.3 Religious Affiliation**

■ Multi Religion    ■ None    ■ Catholic    ■ PCEA    ■ AIC

#### 4.6 Alcohol Use by Students

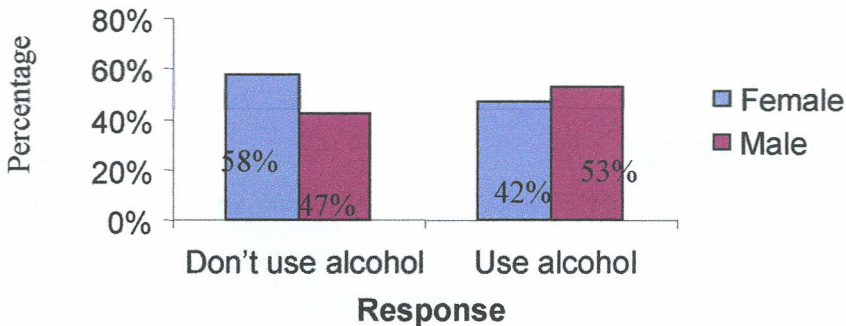
Figure 4.4 shows that over one half (54%) of the students in the institutions used alcohol, while 46% did not use the substance. This shows that more students in these institutions use alcohol. Further, most (68%) of the students who used alcohol came from Government Training Medical Colleges. The Government institution enrolls more students than private one. Therefore it may be easier to maintain discipline in smaller groups than larger ones.



**Figure 4.4 Alcohol Use**

#### 4.7. Gender and Alcohol Use

Figure 4.5 shows that majority (58%) of the female students interviewed did not use alcohol compared to 47% of the males. The findings on alcohol use show that, more than one half (53%) of the males used alcohol compared to 42% of their female counterpart. However, the Chi-square test indicated that there was no significant relationship between gender and alcohol use ( $p, 0.919$ ).



**Figure 4.5 Gender and Alcohol Use**

#### 4.8 Demographics Characteristics of the Study Participants

The demographic characteristics of respondents were discussed in terms of type of college (i.e. private/public), population of the students, setting (i.e. urban-rural) and status (i.e. resident –non-resident).

#### 4.8.1. Location of Institution and Alcohol Use

Figure 4.6 shows that majority (74 %) of the students alcohol users came from urban areas compared to 26% who hailed from the rural areas. Interesting to note is that more than three fifths (61 %) of the non-users were also found to be from the urban areas compare to 39% non-users who came from institutions located in the rural areas.

The results imply that most (74%) of the students who came from institutions located in the urban areas used alcohol more than those from institutions located in the rural areas. The students in institutions located in urban area used alcohol more than students studying in institutions located in rural areas probably because they were more exposed than their counterpart and that alcoholic beverages are easily available in the urban areas. In fact, the Chi-square test indicated that there was a significant relationship between location of the institution and alcohol use among students ( $p, 0.0001$ ).

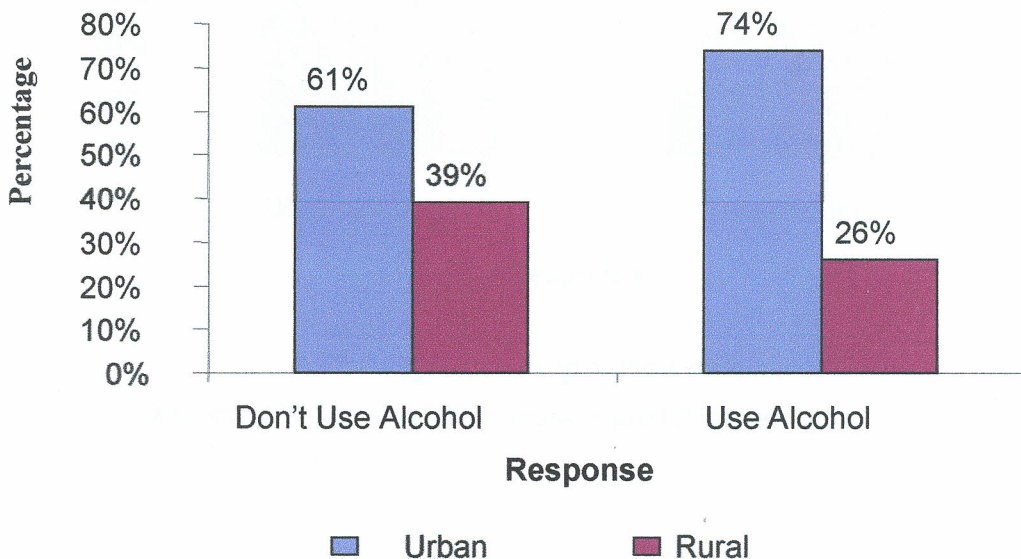
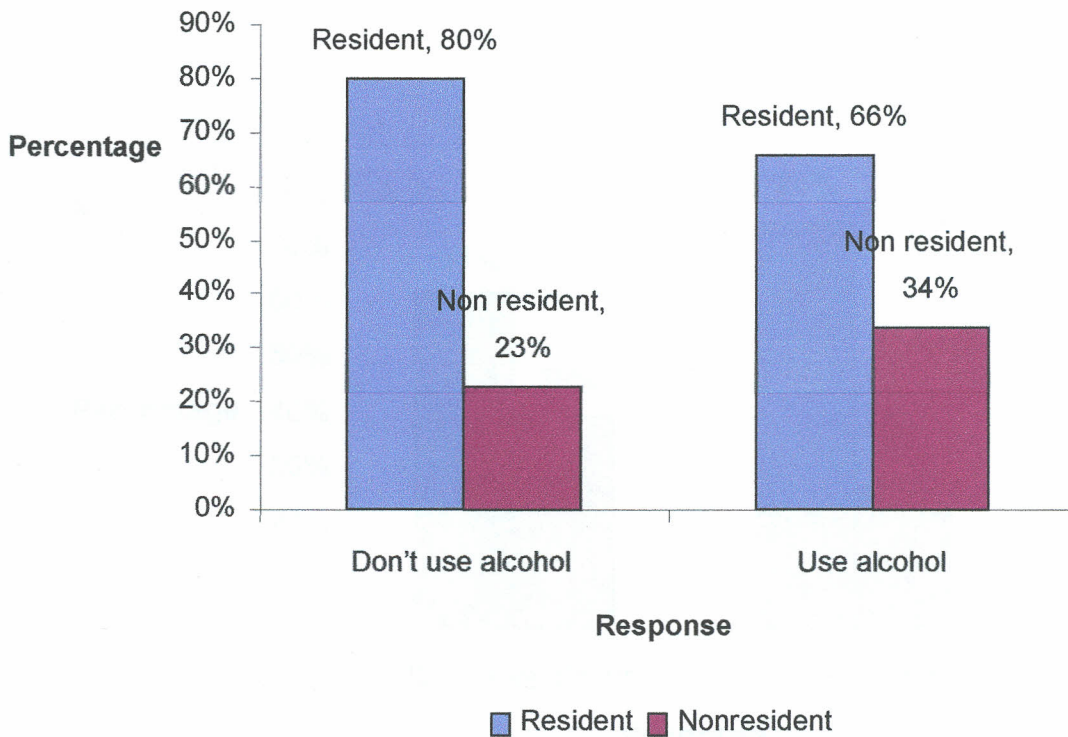


Figure 4.6 Location of Institution

#### 4.8.2. Type of Residence and Alcohol Use

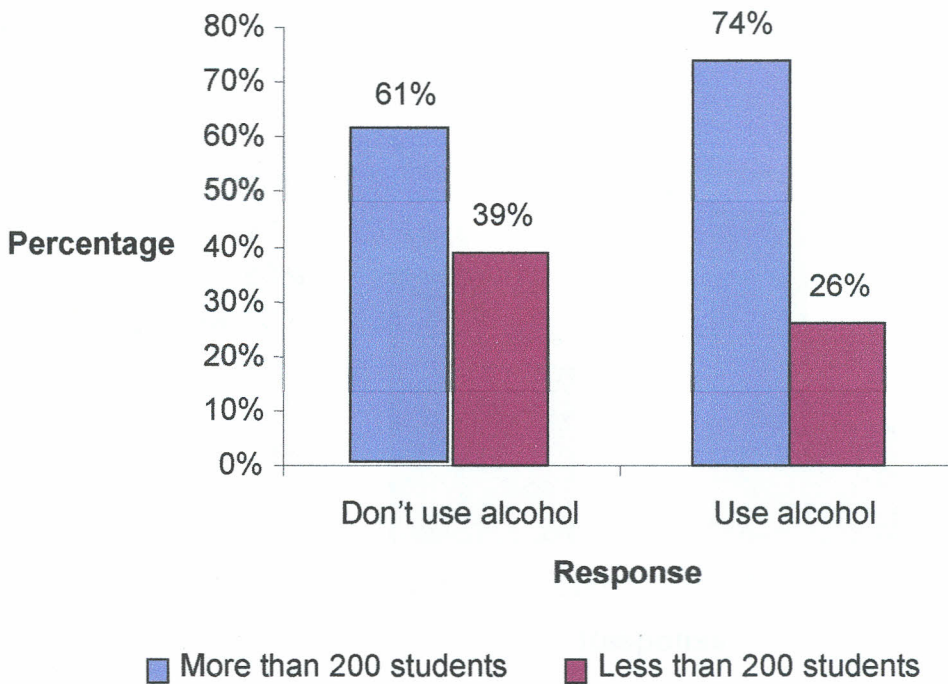
Results in Figure 4.7 show that majority (72%) of the students were residing within the college. Out of the 72% college residents, 66% of them used alcohol compared to 34% of the non-residents. This finding implies that residents used alcohol more than the non-residents. It is most likely that non-residents live with parents or relatives and hence they have little freedom to drink alcohol. The Chi-square test indicated that there was a significant relationship between type of residence and alcohol use ( $p, 0.0001$ )



**Figure 4.7 Types of Residence and Alcohol Use**

### 4.8.3. Size of Institution and Alcohol Use

Figure 4.8 indicates more than three fifths (68%) of the students were from institutions that had more than 200 students. Interesting, majority (74 %) of the students who used alcohol were from institutions which had more than 200 students compared to 26 % of the students who were from institutions with less than 200 students and used alcohol. Institutions that had less than 200 students were private institutions and run by the church and discipline in these institutions was strictly observed. The Chi-square test indicated that there was a significant relationship between size of the institution and alcohol use ( $p, 0.0001$ ).



**Figure 4.8 Size of Institutions and Alcohol Use**

#### 4.8.4. Type of Institution and Alcohol Use

Results in Figure 4.9 show that more than three fifths (68%) of the respondents were from public institution while 32 % were from private institutions. Majority (74 %) of the respondents from public institutions used alcohol compared to 26 % from private institutions. Out of 32 % of the respondents who came from private institutions, 39 % did not use alcohol compared to 26 % who used alcohol.

Apparently, many of the students who participated in the study were from public institutions. This can be explained by the fact that most public institutions admit more students than private institutions and training in public institution is cheaper than it is in private colleges. The Chi-square test indicated that there was a significant relationship between type of the institution (public/private) and alcohol use ( $p, 0.0001$ ).

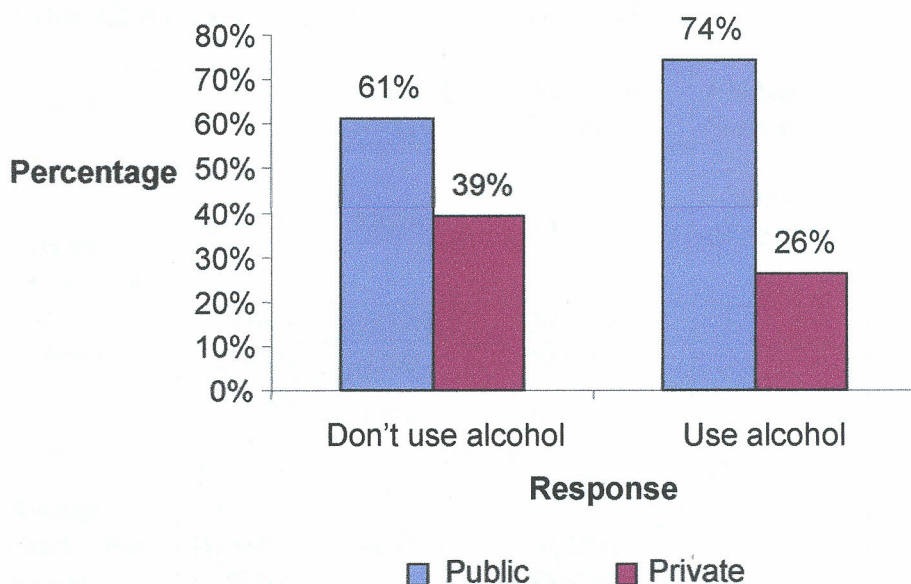


Figure 4.9 Type of Institution and Alcohol Use

#### 4.9 Academic Performance and Alcohol Use

Table 4.2 shows that 43% of the students scored grade A. In the first semester among those who scored grade A, 67% did not use alcohol compared to 22% who used. The results reveal that non-alcohol users scored highly (67%) than users (22%). This may be attributed to the fact that non-alcohol users were more disciplined and had more time to study than the users. The Chi-Square test indicated that there was a significant association between alcohol use and poor academic performance in the first semester ( $p, 0.0001$ ).

Results for the second semester in Table 4.3 show that the students who scored grade A (between 70-100 marks) were 40% out of whom 69% did not use alcohol while 16% were users of alcohol.

The Chi-square test indicated that there was a significant association between average good grade for second semester and non- alcohol use ( $p, 0.0001$ ).

**Table 4.2 Average Grade for Semester One and Two**

Variable		Non- Use N=114	Alcohol use N=136	Chi-Square Statistic	p-Value
Average Grade For first Semester	A(70-100)	77(69%)	30(22%)	Chi =240.249 df =3	P=0.0001
	B(69-60)	35(31%)	26(19%)		
	C(59-50)	2(2%)	79(58%)		
	D (below 40)	0(0%)	1(1%)		
Average Grade For Second Semester	A (70- 100)	79(69%)	22(16%)	Chi =191.119 df =3	P=0.0001
	B(69-60)	34(30%)	30(22%)		
	C(59-50)	1(1%)	83(61%)		
	D (below 40)	0(0%)	1(1%)		

#### 4.10 Health Problems and Students' Use of Alcohol

Students were asked whether they had suffered any immediate health problems after using alcohol in the past two weeks. Analysis showed that students who used alcohol experienced immediate health problems such as hangovers, stomach upsets, diarrhea, nausea, injuries and accidents. This finding implies that alcohol use was related to immediate health problems.

Results in Table 4.3 show that, 63% of the female students did not have hangovers compared to 48% of the males who did not have the symptom. Findings of the study also revealed that 24% of the males experienced hangover once in the last two weeks as compared to 18% of the female students who experienced it once. Further, it is shown that 18% of the male students and 12% of the females experienced hangover twice in the past two weeks. However, 10% of the male students and 8% of the female students experienced hangover three or more times in the past two weeks. The Chi-square test indicated that there was a significant association between hangover and alcohol use ( $p, 0.0001$ ).

Further, Table 4.3 shows that well over half (54%) of the male students and nearly (50%) of the female students did not experience stomach upsets in the last two weeks after using alcohol. More so, it is shown in this study that 28% of the female students and 26% of the male students experienced symptom once, 14% of the female students and 13% of the male students experienced it twice while 8% of the male and female students respectively experienced stomach upsets three or more times in the previous

two weeks. More (28%) female students experienced stomach upsets more than male students (26%) because, in most cases, females drink less often than males and hence their bodies are not used to alcohol intoxication compared to regular drinkers. Chi-square test indicated that there was a significant association between stomach upset and alcohol use ( $p, 0.0001$ ).

Results in Table 4.3 also reveal that nausea was experienced by 61% of the female students and 57% of the male students in the last two weeks predate the study. Further, 27% of the male students and 25% of the female students experienced it once, 13% of the male students and 8% of the female students experienced it twice, while 8% of the female students and 3% of the male students experienced nausea three or more times in the last two weeks respectively. Slightly more (27%) of the male students experienced nausea than female students (25%) probably because they used alcohol more often and they took many bottles of beer per day than their female counterparts. The Chi-Square test indicated that there was a significant association between nausea and alcohol use ( $P, 0.0001$ ).

Table 4.3 also shows that both male and female students experienced diarrhea after consuming alcohol two weeks prior to the study. More precisely, an overwhelming majority (93%) of the male students and 87% of the female students did not experience it, but 7% of the female and 6% of the male students experienced it once in the past two weeks.

The findings further revealed that 2% of the male students and female students respectively experienced it twice, while 4% of the female students experienced diarrhea three or more times and none of the male students had diarrhea after drinking alcohol in the last two weeks. Female students experienced diarrhea more than their male counterparts after using alcohol because they drink less often and less drinks per day than men and hence they are likely not to be used to the effects of alcohol. The Chi-square test indicated that there was a significant association between diarrhea and alcohol use ( $p, 0.0001$ ).

Both male and female students were injured two weeks prior to the study while consuming alcohol. The statistics in Table 4.3 indicate that 91% of the female students and 88% of the male students were not injured, 12% of the male students and 7% of the female students reported having an injury once and an equal number of students (1%) were injured twice while 1% of the female students reported having injuries three or more times in two weeks prior to the study. Female students were injured more (91%) than male students (88%) probably because of patriarchal considerations that subordinates women. The latter is more intense when women are drunk in that they are insulted and they especially experience unwanted sexual advances from men. The Chi-square statistical test indicated that there was a significant association between injuries and alcohol use ( $p, 0.0001$ ).

Finally, the students also reported that accidents occurred during and after drinking two weeks prior to the study. Evidently, Table 4.3 shows that almost all (99%) of the female

students and an overwhelming majority (98%) of the male students did not experience any accident. Of the total sample, only 2% of the male students and 1% of the female students had accident once while only 1% of the male students reported that they had accidents twice while no student had three or more accidents during the same period. It is likely that male students experienced accidents more than female students while drinking because some drive while drunk and others take risks such as walking home in the middle of the night alone. The Chi-square test indicated that there was a significant association between accidents and alcohol use ( $p, 0.0001$ ).

Table 4.3 Immediate Health Problems of Students' Users' of Alcohol

Gender (N=136)					
Variable (Symptom)	Number Of Times	Male N = 120	Female N=130	Chi-Square Statistic	P-Value
Hangover	None	58(48%)	82(63%)	Chi =428.430 df =6	P=0.0001
	1	29(24%)	23(18%)		
	2	21(18%)	15(12%)		
	3<	12(10%)	10(8%)		
Stomach Upset	None	65(54%)	64(49%)	Chi =534.663 df =6	P=0.0001
	1	31(26%)	37(28%)		
	2	15(13%)	18(14%)		
	3<	9(8%)	11(8%)		
Nausea	None	68(57%)	79(61%)	Chi =492.394 df =5	P=0.0001
	1	32(27%)	32(25%)		
	2	16(13%)	10(8%)		
	3<	4(3%)	10(8%)		
Diarrhea	None	111(93%)	113(87%)	Chi =1435.295 df =5	P=0.0001
	1	7(6%)	9(7%)		
	2	2(2%)	3(2%)		
	3<	0(0%)	5(4%)		
Injuries	None	105(88%)	118(91%)	Chi =113.425 df =4	P=0.0001
	1	14(12%)	9(7%)		
	2	1(1%)	1(1%)		
	3<	0(0%)	2(2%)		
Accidents	None	117(98%)	129(99%)	Chi =724.808 df =2	P=0.0001
	1	2(2%)	1(1%)		
	2	1(1%)	0(0%)		
	3<	0(0%)	0(0%)		

#### 4.11 Drugs Use and Alcohol Use

The students were asked whether they used other drugs such as tobacco, khat and bhong other than alcohol. Interestingly, less than a quarter (18%) of the college students had used both alcohol and other drugs.

#### 4.11.1 Multiple Drug Use

Findings in Figure 4.10 show that almost (90%) of the respondents did not take other drugs. However, among the 11% of those who took other drugs 18% of them admitted that they also used alcohol compared to 2% who used other drugs but did not use alcohol.

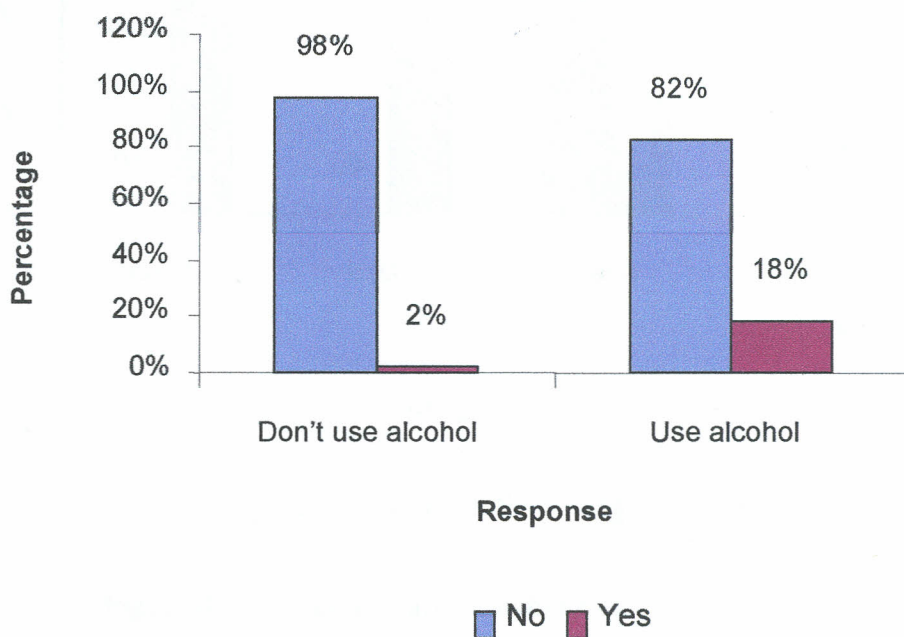
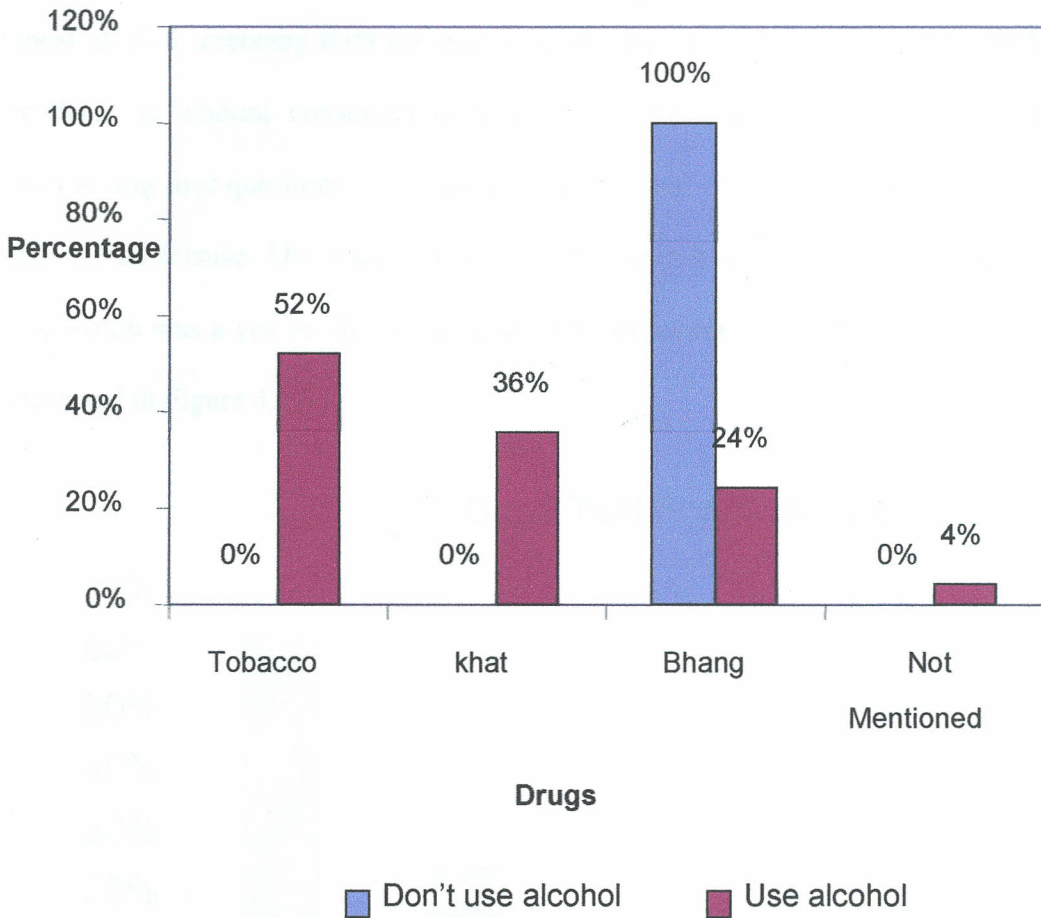


Figure 4.10 Uptake of other Drugs

#### 4.11.2 Drugs Use and Alcohol Use

Figure 4.11 shows that out of the 27 students, who took other drugs, 25 of them used both alcohol and other drugs. This means that slightly over one half (52%) of them combined alcohol and tobacco, 36% combined alcohol with khat, and 24% combined alcohol with bhong. Of the total sample, only two students did not combine alcohol and other drugs.

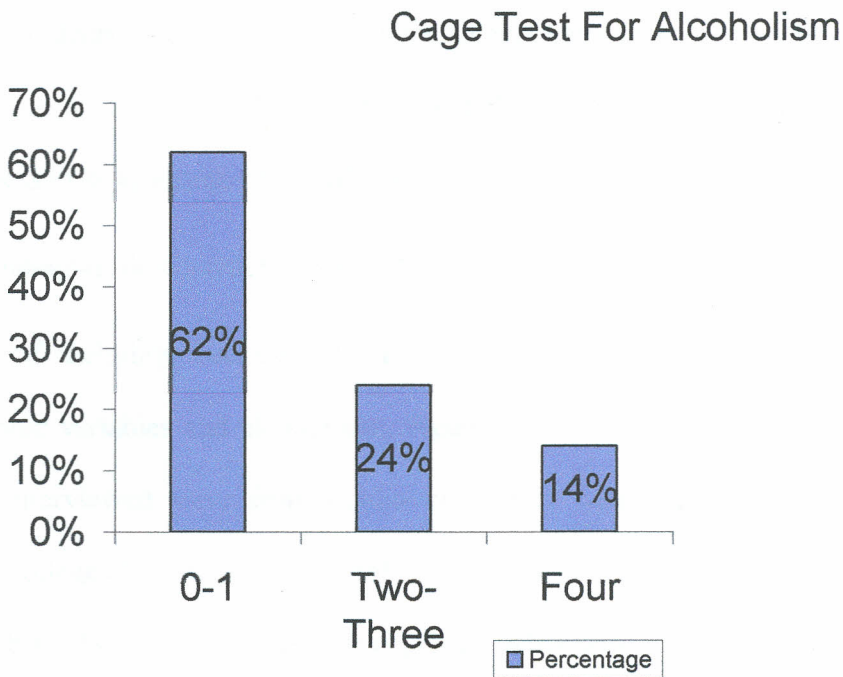


**Figure 4.11 Drugs Use and Alcohol Use**

#### 4.12 The Cage Test

According to Mayfield *et al.*, (1974) and About, (2009) “CAGE” is a short screening test ideal for health care screening. Initial diagnosis may be followed up with in depth testing. CAGE cannot be used to diagnose the disease, it only suggests that a disease may be present and other tests are needed to diagnose alcohol dependence. It is one of the oldest and most popular tool for screening alcohol dependence. It involved asking four short questions that diagnosed quickly whether the person who used alcohol experienced alcohol-related problems at primary and emergency levels.

However, because of denial that usually accompanies alcohol problem, the CAGE test like most alcohol screening tests ask questions about problems associated with drinking rather than the amount consumed (About, 2009). More precisely, the CAGE Test involves asking four questions (Cut, Annoyed, Guilty and Eye-Opener) to assess alcohol dependence or/ misuse. The students were expected to indicate a score for each question if the question was a yes for the drinking problem experienced. The results of the study are presented in Figure 4.12.



**Figure 4.12 Cage Test for Signs of Alcoholism**

The study results in Figure 4.12 show that slightly over three fifths (62%) scored between 0-1 which means they had no signs of alcohol dependence or misuse, almost a quarter (24%) of the students who used alcohol had scores of 2-3 out of 4 scores meaning that they had a high index of alcohol dependence while 14% scored 4 which is pathognomic for alcohol dependence.

## **4.13 Discussion of the Study Results**

### **4.13.1 Status of Alcohol Use**

Findings in Figure 4.5 indicate that out of 48% of the male students interviewed, 53% of them used alcohol. This figure was high for male students as out of 52% of the female students interviewed, only 47% of them used alcohol.

Slightly more than half (53%) of the male students interviewed compared to less than half (47%) of the female students interviewed used alcohol. This was a clear indication that male students consumed slightly more alcohol than female students. This finding supports Rosenbluth *et al.*, (1998) who reported that men have a greater frequency of drunkenness in large groups of mixed sex.

### **4.13.2 Demographic Characteristic and Alcohol Use**

The aim of including background variables was to explore relationships between demographic variables and alcohol use. Figure 4.2 shows that the highest numbers of students interviewed were from public institution. More specially, Nyeri Medical Training College (MTC) had (31%), followed by Thika MTC with (20%) and Muranga MTC with (17%). The rest were from private schools of nursing institutions, which included Tumutumu, Consolata in Nyeri with (11%) respectively and Kijabe had (10%).

Gender information in Figure 4.1 indicates that 52% of the respondents interviewed were females while 48% were males. This implies that more females than males participated in the study. Analysis in Table 4.1 show that 57% of the respondents were in age group (21-23), 34% were in age group (18-20) while 9% were above 24 years.

This implies that most of the respondents who participated in the study were in age group (21-23). Age of the student was subjected to Chi-square test and it was found that age was significantly associated with alcohol use.

This finding supports another finding by WHO (2001) which posits that slightly less than three quarters (65%) of the students both in developed and developing countries had used alcohol at age (14-16) years.

Figures 4.6, 4.7, 4.8 and 4.9 indicate that 68% of the respondents interviewed were from public institutions which had more than 200 students while 32% were from private institutions with less than 200 students. All the public institutions were observed to be located in urban areas. These institutions included Nyeri MTC, Muranga MTC, Thika MTC while all the private institutions were observed to be located in the rural areas. They included Tumutumu MTC, Kijabe MTC and Mathari MTC. College students in large medical institutions, which are based in urban areas have a higher alcohol intake compared to those students in smaller, private and rural medical colleges. The reason for the differences is most likely due to the fact that alcohol is easily available in the urban areas. The low use of alcohol in private institutions is probably due to the fact that the church runs such colleges.

Statistics on type of residence in Figure 4.7 indicated that 72 % of the students lived within the institution while 28 % were non-residents. This implies that 66 % of the resident students used alcohol compared to 34% of the non-residents who also used

alcohol. This finding is consistent with Barnes *et al.*, (1992) and Gfroerer *et al.*, (1997) who argued that living in hostels is associated with increased drinking.

Analysis in Figure 4.3 shows that 60% of the students in public institutions went to different religious institutions for example, Catholic, PCEA, AIC and the Mosque. Twelve percent (12%) were not affiliated to any of the above-mentioned churches while those students studying in institutions sponsored by the churches, 10% went to Catholic and PCEA Churches respectively. The remaining 8% went to AIC church. From the findings, students from institutions sponsored by churches use less alcohol compare to students from government institutions. This finding confirms those of Wechsler *et al.*, (2005), Eng *et al.*, (1996) and Patock-Peckham *et al.*, (1998) who reported that those students who did not see the importance of religion drunk more heavily compared to those with religious values.

#### **4.13.3 Location of Institution and Alcohol Use**

Results in Figure 4.6 indicate that most (74 %) of the alcohol users came from institutions located in the urban areas compared to 26 % of the alcohol users who were from institutions located in the rural area. This finding collaborates that of Rose (1998) which revealed that adolescents living in Finland related living in an urban environment with alcohol use because alcohol is easily available and there are many outlets that promote low price in the urban areas as compared to rural areas.

#### **4.13.4 Type of Residence and Alcohol Use**

Results in Figure 4.7 show that out of 72% of the students who were resident, 66% of them used alcohol. The study further showed that 28% of the students who were non-residents, 34 % of them used alcohol.

There was a significant association between type of residence and alcohol use ( $p, 0.0001$ ). This means that students who lived in colleges drink more alcohol compared to those who lived with their parents. This was attributed to strict parental control for the non-residents. This finding supports that of O'Hare (1990) who said that men who live in college are likely to become heavy drinkers.

#### **4.13.5 Size of Institution and Alcohol Use**

Figure 4.8 show that most (68%) of the public institutions had more than 200 students. Interestingly, 74% of these students had used alcohol. The study also revealed that 32% of the students interviewed were from private institutions with less than 200 students and 26% of them had used alcohol. In fact, there was a significant association between size of institution and alcohol use ( $p, 0.0001$ ). The above finding is inconsistent with the studies carried out by Presley *et al.*, (1993a, 1995 and 1996a, b) which indicated that small colleges consume greater amounts of alcohol as compared to students in larger colleges.

#### **4.13.6 Type of Institution and Alcohol Use**

Results in Figure 4.9 indicated that 74% of the students in public institutions use alcohol compared to 26% of the students in private institutions. The Chi -square test showed that there was a significant association between type of institution and alcohol

use ( $p, 0.0001$ ). Private colleges enroll fewer students than public colleges. Management and enhancing discipline in private college is easier than enhancing the same in public colleges.

This finding is consistent with Presley *et al.*, 1993a, 1995 and 1996a, b) that size and type of institution is associated with quantities of alcohol consumed.

#### **4.13.7 Academic Performance of Alcohol Users**

Table 4.2 indicated that students who used alcohol scored lower average grade in the two semesters compared to those who did not use alcohol. The observed Chi-square value of 0.001 was smaller than the standard value at 5% confidence interval; hence the null hypothesis was rejected at  $p < 0.05$ . In this case, there was evidence to believe that academic performance of those who used alcohol was different from those who did not. It was concluded therefore that alcohol use was associated with poor academic performance. This finding collaborates those of Wechsler *et al.*, (2005) and Whitman *et al.*, (1999) who found out that current alcohol use is strongly related to academic problems. A few drinks may slow motor performance and decrease the ability to think clearly, concentrate and impair judgment and finally affecting academic performance of the user.

#### **4.13.8 Immediate Health Problems of Alcohol Users**

Table 4.3 showed that hangover was considered as the immediate health symptom experienced by those who used alcohol. The study further revealed that male students experienced hangover more than female students. The second major symptom experienced by students who used alcohol was stomach upset ( $p < 0.05$ ).

Females experienced stomach upsets than males. Male students (53%) used alcohol more frequent than female students and this may be the reason why they experience hangover more than females. There were also differences in the number of health symptoms experienced by male students who use alcohol compared to female students. Analysis showed that students who used alcohol experienced immediate health problems such as hangover, stomach upsets, diarrhea, nausea, injuries and accidents more than those students who did not use alcohol. This finding collaborate that of Hang and Eng (1992) and Meilman *et al.*, (1989) that in general students are relatively health but they may develop infectious diseases and other health conditions related to alcohol intoxication such as oesophagitis, gastritis, vomiting, diarrhea, plus injuries from accidents.

#### **4.13.9 Multiple Drug Use by Alcohol Users**

Findings in Figure 4.10 demonstrated that there was a significant ( $p < 0.05$ ) difference between other drugs used by students who used alcohol and those who did not. The findings showed that some few (18%) students who used alcohol also used other drugs such as khat, tobacco and bhang. This finding reveals that those who use alcohol are also likely to be using other drugs such as khat, tobacco and bhang. This finding supports O'Malley and Johnston (2006) who revealed that tobacco is the second, after alcohol, which is the most frequently used substance among college students. The duo also said that college students at one point use other dugs such as khat, marijuana and cocaine during their college life.

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

### **5.1 Summary**

The study findings are summarized according to the specific study objectives contained in Chapter One of this thesis. Importantly, this section summarises the study findings into five thematic areas based, inter alia, on the study's specific objective. First, over half (54%) of the students in the studied colleges used alcohol while 46% did not use the substance. The higher (54%) percentage of use was attributed to the fact that these colleges are mostly in urban areas where access to alcohol is easy.

Second, according to the study findings, alcohol use is associated with the study's demographic variables of the selected colleges. In fact, 72% of the alcohol users came from institutions located in the urban areas compared to 26% of the users who were from institutions located in the rural areas, 66% of the students who resided in the college used alcohol, 74% of the students who used alcohol were from institutions which had more than 200 students.

**Table 4.4: Summary of Association of Demographic Variables and Alcohol****Use**

<b>Variable</b>		<b>Non Use % N = 114</b>	<b>Alcohol Use % N= 136</b>	<b>Chi- Square</b>	<b>P= Value</b>
<b>Location Of Institution</b>	Urban	70 (61%)	101 (74%)	Chi=64.67 d.f. =1	P =0.0001
	Rural	44 (39%)	35 (26%)		
	Total	114 (100%)	136(100%)		
<b>Type Of Residence</b>	Residence	90(80%)	90(66%)	Chi=64.403 d.f. =1	P =0.0001
	Non- Residence	23(20%)	46(34%)		
	Total	113(100%)	136(100%)		
<b>Size Of The Institution</b>	More Than 200 Students	70(61%)	101(74%)	Chi =64.674 d.f. =1	P =0.0001
	Less Than 200 Students	44(39%)	35(26%)		
	Total	113(100%)	136(100%)		
<b>Type Of institution</b>	Public	70(61%)	101(74%)	Chi =64.674 d.f. =1	P =0.0001

Third, students who used alcohol scored lower average grade in the two semesters compared to those who did not use alcohol. Less than three quarter (67%) of the non-users in the studied colleges scored highly than users (22%). The observed Chi-square value of 0.0001 was smaller than the accepted value of 5% confidence interval. In this case, there was evidence to believe that academic performance of those who used alcohol was different from those who did not.

**Table 4.2 Average Grade for Semester One and Two**

Variable		Non- Use N=114	Alcohol use N=136	Chi-Square Statistic	p-Value
Average Grade For first Semester	A (70-100)	77(69%)	30(22%)	Chi =240.249 d.f.=3	P=0.0001
	B (69-60)	35(31%)	26(19%)		
	C (59-50)	2(2%)	79(58%)		
	D (below 40)	0(0%)	1(1%)		
Average Grade For Second Semester	A (70-100)	79(69%)	22(16%)	Chi =191.119 d.f.=3	P=0.0001
	B (69-60)	34(30%)	30(22%)		
	C (59-50)	1(1%)	83(61%)		
	D (below 40)	0(0%)	1(1%)		

Fourth, according to this study alcohol is related to immediate health problems such as hangover, stomach upset, nausea, diarrhea, injuries from accidents. The study revealed that 63% of the females did not experienced hangover compared with slightly less than half (48%) of the male students. This is attributed to the fact that over half (53%) of the male students were alcohol users compared with less than half (42%) of female students who were users. The study also showed that more (28%) of the female alcohol users in the studied colleges experienced stomach upset than male alcohol users (26%). This is because in most cases, females drink less often than males and hence their bodies are not used to alcohol intoxication compared to regular drinkers.

Table 4.3 Students Immediate Health Problems Due to Alcohol use

Gender (N=136)					
Variable (Symptom)	Number Of Times	Male N = 120	Female N= 130	Chi-Square Statistic	P-Value
Hangover	None	58(48%)	82(63%)	Chi =428.430 d.f.=6	P=0.0001
	1	29(24%)	23(18%)		
	2	21(18%)	15(12%)		
	3<	12(10%)	10(8%)		
Stomach Upset	None	65(54%)	64(49%)	Chi =534.663 d.f.=6	P=0.0001
	1	31(26%)	37(28%)		
	2	15(13%)	18(14%)		
	3<	9(8%)	11(8%)		
Nausea	None	68(57%)	79(61%)	Chi =492.394 d.f.=5	P=0.0001
	1	32(27%)	32(25%)		
	2	16(13%)	10(8%)		
	3<	4(3%)	10(8%)		
Diarrhea	None	111(93%)	113(87%)	Chi =1435.295 d.f.=5	P=0.0001
	1	7(6%)	9(7%)		
	2	2(2%)	3(2%)		
	3<	0(0%)	5(4%)		
Injuries	None	105(88%)	118(91%)	Chi =113.425 d.f.=4	P=0.0001
	1	14(12%)	9(7%)		
	2	1(1%)	1(1%)		
	3<	0(0%)	2(2%)		
Accidents	None	117(98%)	129(99%)	Chi =724.808 d.f.=2	P=0.0001
	1	2(2%)	1(1%)		
	2	1(1%)	0(0%)		
	3<	0(0%)	0(0%)		

Fifth, the findings of this study show that over one half (52%) of the students combined alcohol with tobacco, 36% combined alcohol with khat and 24% combined alcohol with bhang. Interestingly, CAGE test revealed that almost one quarter (24%) of the college students who used alcohol had a high index of alcohol dependence while 14% had signs and symptoms of alcohol dependence.

This study makes the point that alcohol use per se does not directly cause health problems and poor academic performance. Instead, it argues that alcohol interacts with environmental variables to facilitate health problems and poor academic performance.

Other than attempting to institute radical and unatenable preventive initiatives such as alcohol prohibition in colleges, changes in policy which could have little effect on alcohol use behaviour, one area in which both researchers and policy makers can direct their attention is the development of counseling services and education programmes aimed at reducing substance use and abuse and need to identify and refer students found abusing drugs for appropriate treatment .

Given the early ages at which adolescents begin to consume alcohol in Kenya, it would be prudent to begin such interventions in year one of study and continue through classroom teaching and sports programmes.

## **5.2 Conclusions**

This study found out that academic performance, demographic characteristics, immediate health problems, other drugs use were all significantly related to alcohol use by college students. It was also found out that there was multiple drug use by most of those students who used alcohol such as tobacco, khat and bhang. Some of the students who used alcohol were at risk of developing alcohol dependence, while others tested positive for alcohol dependence using the CAGE test. This means that they had signs and symptoms of alcohol dependence.

### **5.3 Recommendations**

From the findings of this study, it is recommended that college administrators implement programmes and policies that will make a difference in the following areas:

#### **5.3.1 Strengthening Academic Performance**

This can be achieved through three strategies. First, the college administration under the stewardship of the academic committee should strengthen academic achievement requirements by giving students regular examinations and supplementary tests to students who do not meet the minimum grade of 50% especially those identified to be involved in beer taking behaviour. Such strategy will ensure that these students get focused on bridging their grades rather than wallowing in beer drinking

Second, it is recommended that lecturers should give tutorials and homework to students who score grade C and below due to their involvement in alcohol use behaviour. This strategy will keep the students busy minimizing their beer outings and hence may improve their academic performance.

Third, the college administration should extend the time for the library and recreational facilities especially in the evening to keep the students busy and discourage idleness that can lead to indulgency to substance of abuse by the students. This, has the potential, inter alia, of restricting the students on either reading or participating in indoor games such as scrabble, table tennis and chess instead of going out of college to drink alcohol.

### **5.3.2 Discipline**

The college administration through both the departmental and college disciplinary committees should promote a culture of discipline, especially among those students who are found engaging in unacceptable behaviors associated with alcohol and other drugs use. In such cases, the parents should be informed on the possible punishment that can be imposed on students, such as expulsion from college when students engage in serious or repeated violations of alcohol or other drugs policies and regulations during college sessions.

### **5.3.3. Counseling, Education and Treatment**

The college administration, through the services of trained college counselors, should offer counseling services and programmes to students especially those found using, abusing or are already dependent on alcohol. In fact, students who are dependent on alcohol and other drugs need to be identified and referred for appropriate treatment services. Launching regular college campaigns to inform students about dangers and consequences of alcohol and other drug use should be encouraged.

### **5.4 Further Research**

This study recommends that in future, research should be done to explore factors that were not investigated such as availability of alcohol, cost of all beverages, distance and number of alcohol outlets near the colleges, alcohol advertisements and compare these variables with students' uptake of alcohol, the effects they have on health status of the students and their academic performance.

Similar studies should also be done in other areas and covering other types of colleges apart from Kenya Medical Training Colleges which were the subject of this research.

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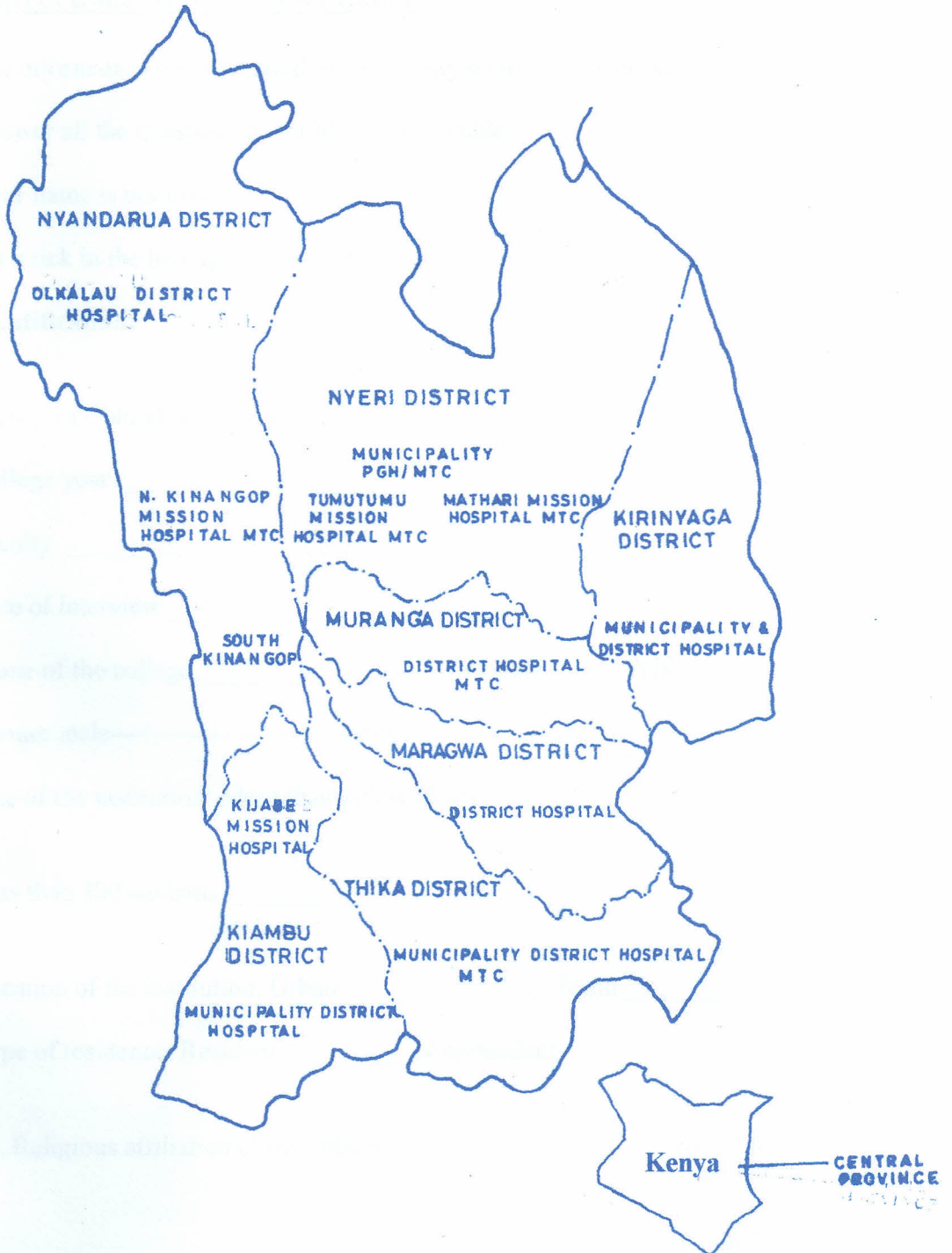
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**Appendix 1**  
**Map Of Central Province, Kenya Showing Study Sites.**



## Appendix 2

### Individual Survey Questionnaire

#### Instructions And Confidentiality

The information you will put down will only be used for learning purposes.

Answer all the questions as truthfully as possible.

Your name is not necessary.

Put a tick in the box against the correct response.

#### **Identification:**

1. Survey I.D. Number \_\_\_\_\_
2. College year \_\_\_\_\_
3. Faculty \_\_\_\_\_
4. Date of interview \_\_\_\_\_
5. Name of the college \_\_\_\_\_ Private \_\_\_\_\_ Public \_\_\_\_\_
6. Gender male-----female----- Age -----
7. Size of the institution; More than 200 students \_\_\_\_\_  
 Less than 200 students \_\_\_\_\_
8. Location of the institution, Urban \_\_\_\_\_ Rural \_\_\_\_\_
9. Type of residence, Resident \_\_\_\_\_ Non-resident \_\_\_\_\_
10. Religious affiliation of the college \_\_\_\_\_

11. What grade do you usually get?

- 1. As mostly-----5. As and Bs mostly-----
- 2. Bs mostly-----6. Bs and Cs mostly-----
- 3. Cs mostly-----7. Cs and Ds mostly-----
- 4. Ds mostly-----8. below Ds mostly-----

12. Do you feel that alcohol has affected your usual grades?

(If, No skip to Q 34)

- 1. Yes
- 2. No

13. I yes, what grades did you use to get before you started drinking?

- 1. As mostly-----5. As and Bs mostly-----
- 2. Bs mostly-----6. Bs and Cs mostly-----
- 3. Cs mostly-----7. Cs and Ds mostly-----
- 4. Ds mostly-----8. below Ds mostly-----

14. How many times have you experienced the following immediate health symptoms after consuming alcohol?

- 1. Hangover
- 2. Upper abdominal discomfort
- 3. Throwing/ or Vomiting after drinking
- 4. Vomiting blood after drinking
- 5. Diarrhoea

15. Have you ever been referred to a hospital because of problems/ symptoms associated with drinking alcohol?

1. Yes

2. No

16. How often do you drink alcohol? (8 bottles of beer is equivalent to 2 bottles of wine or 1 bottle of spirit).

	BEER	WINE	SPIRIT
(0) Never -----			<input type="checkbox"/>
(1) Every day -----			<input type="checkbox"/>
(2) 2-3 days a week -----			<input type="checkbox"/>
(3) Once a week -----			<input type="checkbox"/>
(4) Once a month -----			<input type="checkbox"/>

17. What is your usual mean number of drinks sitting? (8 bottles of beer is equivalent to 2 bottles of wine or 1 bottle of spirit).

	BEER (BOTTLES)	WINE (TOTS)	SPIRIT (TOTS)
(0) under one drink -----			<input type="checkbox"/>
(1) 1to 7 drinks/ units -----			<input type="checkbox"/>
(2) 8 to 14 drinks/ units -----			<input type="checkbox"/>
(3) 15 to 21 drinks/ units -----			<input type="checkbox"/>
(4) 22 to 28 drinks/ units -----			<input type="checkbox"/>

18. How often do you have 5 bottles / glasses of your usual drinks on one occasion?

(0) Never

(1) Less than monthly

(2) Monthly

(3) Weekly

(4) Daily

19. Can you stop drinking without a struggle after 2 or 3 bottles of beer/glasses of wine etc?

(0) Never

(1) Monthly

(2) Weekly

(3) Daily or almost daily

20. How often during the last month have you failed to do what was normally expected of you because of drinking?

(0) Never

(1) Less than monthly

(2) Monthly

(3) Weekly

(4) Daily or almost daily

21. How often during the last month have you needed a first drink in the morning to get yourself going after a heavy drinking session?

(0) Never

(1) Monthly

(2) Weekly

(3) Daily or almost daily

22. Have you ever thought you should CUT back on your drinking?

1. Yes

2. No

23. Have you ever felt GUILT or remorse because of your drinking?

1. Yes

2. No

24. Have you ever felt ANNOYED by people criticizing your drinking?

1. Yes

2. No

25. Have you ever awakened in the morning after drinking the night before and found you could not remember a part of the evening?

1. Yes

2. No

26. Have you ever gotten into trouble at college because of your drinking?

(1) Yes

(2) No

27. Has a relative or friend or parents or a health worker been concerned or complained about your drinking?

(1) Yes

(2) No

28. Do you take any other drugs apart from what the doctor has prescribed for you?

1. Yes

2. No

If yes, which one(s)

1. Tobacco

2. Bhang

3. Miraa

4. Inhalants

5. Others, specify.....