PREVALENCE OF ALCOHOL CONSUMPTION AND ITS ASSOCIATED FACTORS AMONG SECONDARY SCHOOL STUDENTS IN MOSHI RURAL DISTRICT, TANZANIA

By

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CERTIFICATION

The undersigned certifies that, she has read the dissertation titled;- **"PREVALENCE OF ALCOHOL CONSUMPTION AND ITS ASSOCIATED FACTORS AMONG SECONDARY SCHOOL STUDENTS IN MOSHI RURAL DISTRICT, TANZANIA"** in partial fulfillment of the requirement for the degree of Master of Public Health.

SUPERVISOR: Dr. Candida Moshiro

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DEDICATION

I dedicate this dissertation to my wife Sophia, my sons Gilbert, Benson, Keith and Brandon and my parents, for their patience, tolerance, encouragement and support to me to acquire the long desired knowledge and skills for my self-esteem.

ABSTRACT

According to 2002 World Health Organization (WHO) reports, it is estimated that, alcohol is the fourth leading cause of death and disability globally, almost at par with tobacco. Misuse of alcohol among youths and students has recently become a public health concern in Tanzania. Several studies in urban areas reveal the lifetime prevalence of alcohol use among students and youths to be between 8.7% and 38.4%. While very little is known on the extent of the problem and its associated factors in rural settings. A cross-sectional study involving 267 consented randomly selected secondary students of both sexes from the age of 18years and below was done in Moshi-Rural district using a pre-tested self-administered questionnaire. Data analysis was done using SPSS 15.0. The Chi-square test was used to examine the association between alcohol drinking and different factors. For attitudinal variables, Cronbach's alpha and ANOVA test were used. The significance level was set at 5%. Of the 267 participants, 150 (56.2%) were males and 117 (43.8%) were females, age range was from 13 to 18 years and mean age was 16.2 years (SD 1.0). The lifetime prevalence of alcohol was 43.1% whereas the prevalence of current alcohol use was 13.5%. The most common type of alcohol consumed was locally brewed "Mbege". Main reasons for starting to drink alcohol were experimentation and friends. Low level of education of parents, friends (peers) drinking alcohol, parents and siblings drinking alcohol, ancestral offerings and ceremonies were associated with alcohol consumption. Given the extent of the study findings, there is a need of concerted efforts to convey basic factual information to the students and society at large on health hazards and social consequences of drinking alcohol.

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LIST OF ACRONYM/ABBREVIATIONS

ADIC	Alcohol and Drug Information Centre
AMA	American Medical Association
DALY	Disability Adjusted Life Years
DEO	District Education Officer
FAO	Food and Agriculture Organization
HIV	Human Immunodeficiency Virus
RAS	Regional Administrative Secretary
UN	United Nations
WHA	World Health Assembly
WHO	World Health Organization

CHAPTER 1: INTRODUCTION

1.1 Background

Alcohol is a product that has provided a variety of functions for people throughout all history. Historically, alcoholic beverages have served as sources of needed nutrients and have been widely used for their medicinal, antiseptic, and analgesic properties. The word "alcohol" comes from the Arabic language, "*al-kul*, the name of an early distilled substance, and/or from *al- gawl*, meaning "spirit" or "demon" equally to liquors being called "spirits" in English. The role of alcohol as a thirst quencher is obvious and it plays an important role in enhancing the enjoyment and quality of life. But, while alcohol has always been misused by a minority of drinkers, it has proved to be useful in daily life. For instance, spirit is one of the antiseptics, source of energy in cars and many more.

According to World Health Organization (WHO) estimates, alcohol is the fourth leading cause of death and disability globally, almost at par with tobacco. The 2002 World Health Report indicated that, 4% of the burden of disease (Disability Adjusted Life Years, DALYs) and 3.2% of all deaths globally are attributed to alcohol (WHO, 2002). In Tanzania, alcohol is estimated to cause a total of 62,000 DALYs and about 300 total deaths in a year (WHO, 2004).

Alcohol has a serious impact on human welfare affecting individuals, families, communities and society as a whole, and contributes to social and health inequalities (WHO, 2002). About sixty disease categories have been identified in which alcohol is a

contributing factor, while male burden of disorders associated with alcohol and drug use was nearly six times higher than that for female and accounted for one-quarter of the male neuropsychiatry burden (Lopez et al 2006). However large prospective studies consistently shows that, alcohol consumptions exerts a protective effect on cardiovascular death at all levels of consumption (Murray et al, 1997). Alcohol contributes to the cause of chronic and acute health problems because of its direct toxic effects on organs (as in alcohol liver cirrhosis), its intoxicating properties (as in accidents and injuries), and because it is a dependence producing substance (Babor et al., 2003). Alcoholism has a firm grip in any country's productivity and its future generations. One in every eight people who drinks alcohol drifts into alcoholism and becomes addicted (Willis, 2006).

There is considerable variation from one society to another in habit and patterns of drinking and may differ in terms of frequency of drinking, choice of beverage, amount consumed and the context of drinking as well as the location, social settings and the occasion of drinking (Chande et al, 2007). The magnitude of alcohol consumption among students differs globally from area to another. A study done in China found lifetime prevalence of alcohol use among adolescents to be 69%, male 78% and female 61% (Li, 1996) which does not differ much with a study done in France which showed that 82.1% of male and 74.5% of female students had already consumed some alcohol drinks (Courtois et al 2004). These findings are high compared to the findings in different studies done in Africa.

A study done among students in South Africa showed that alcohol lifetime prevalence was 47.9%, with that of male students being 59.8% and female students 37.8% (Taiwo et al, 2006) which is similar to that reported in some African countries such as Congo in which 42.4% of male and 44.0% of female students had consumed alcohol by the time the study was done (Courtois et al 2004). But in another study which was done in south western Nigeria, it was found that, lifetime prevalence of alcohol drinking among students to be 33% for male and 20% for female students (Fatoye, 2003).
In Tanzania, an urban survey conducted in 2003 among 2491 students aged 13–14 years old from Dar es Salaam found the rate of lifetime prevalence of alcohol use to be 8.7% among male students and 9.9% among female students (Flisher, 2001).

Patterns of production and consumption of alcohol in Tanzania revealed a change from traditional practice whereby, alcohol was for ceremonial purposes but off late it is acquiring commercial and recreational purposes with young people incorporated with consequent destructive patterns of consumption. Misuse of alcohol among youth has recently become a public health concern in Tanzania due to the damage alcohol causes to their health. In Tanzania, alcohol appears to be the most common drug of use among youths and adults (Kazaura, 1997). Reports from the police department of drugs and alcohol reveal that 52% of the cases reported are youths of the age between 16-24 years old (Kaaya 1992).A study done at Muhimbili National Hospital showed that 10% of all

motor traffic accidents were associated with alcohol consumption and 30% were fatal (Kaaya, 1992).

Different measures have been attempted to control alcohol consumption among young people in both developed and developing countries. These include educational methods and policy changes on manufacturing and distribution licensing, outlet licensing, advertising and age limitation (WHO, 2004).

Some studies have reviewed alcohol prevention and control policies that have been found to be effective in the industrialized world and recommended the ones relevant to the African culture that could be added to the existing alcohol policies in different African countries. For example, a school based alcohol prevention program called "Our Times, Our Choices curriculum" which was developed in the United States was adapted in South Africa and found to be effective (Karnell et al, 2006).

Also "The Global Burden of Disease, 2001" which is an information guidance, if it is applied rationally, it will reduce the persistent burden of disease from different causes and risk factors including alcohol and accelerate progress towards attaining the Millennium Development Goals (Lopez et al, 2006).

Recently, the 61st session of the World Health Assembly adopted an important resolution on "Strategies to reduce the harmful use of alcohol". This resolution calls for the development of a global strategy draft that is based on available evidence and

existing best practices taking into account different national, religious, and cultural contexts (WHO, 2008).

In Tanzania, the minimum age set for alcohol consumption is 18 years and manufacturers are required to put a usage warning against underage. Under the Intoxicating Liquors Licensing and Legislation act No. 28 of 1968 and its amendment of 2004, outlets are not allowed to sell alcohol to underage nor allow them to enter the selling premises i.e. bars and clubs (Ministry of Industry and Trade, 2005).

1.2 Conceptual Framework

Evidence exists on the possible factors that influence alcohol drinking among young people. Figure 1 illustrates the framework for understanding these various factors. They include social and cultural factors, as well as existing policies. Knowledge of the factors that play a major role will assist in planning for effective strategies and interventions aimed at reducing harmful use of alcohol in the targeted population.

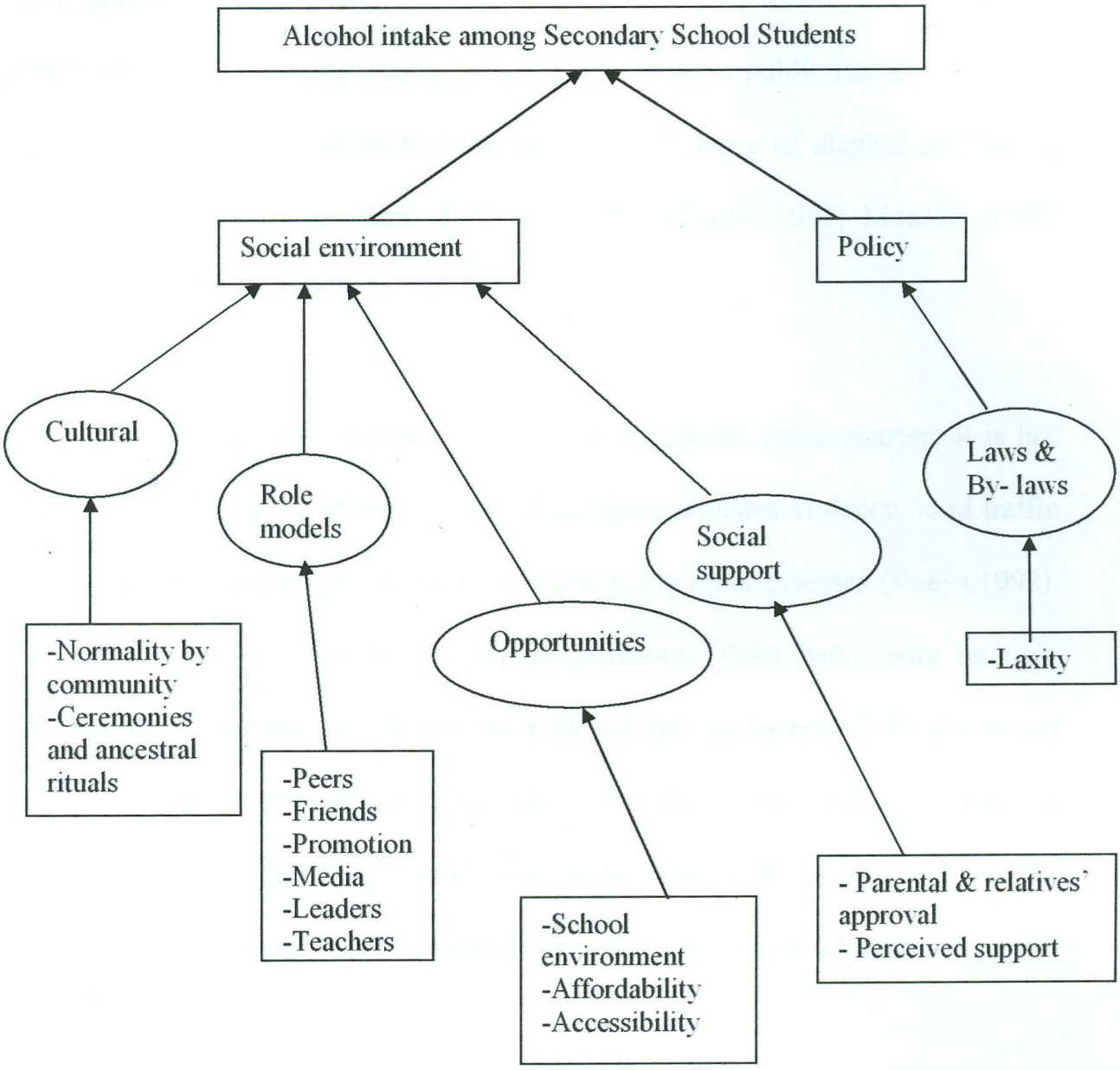


Figure 1: Factors associated with alcohol consumption among secondary school students

1.3 Statement of the problem

Alcohol consumption among young people is becoming a public health concern in Tanzania. Several studies show that the lifetime prevalence of alcohol use among students and youths ranges from 8.7% to 38.4% (Kaaya, 1992; Musoke, 1997; Flisher, 2001; Chande, 2007))

Excessive alcohol use has serious social and health related consequences. It is has been documented that the effects of alcohol drinking includes violence, road traffic accidents, use of illicit drugs, liver cirrhosis and many other diseases (Kaaya,1992). Furthermore, it is well known that alcohol influences risky behaviours such as, casual and indiscriminate unprotected sex with multiple partners and the dangers of acquiring sexually transmitted infections including HIV and/or unplanned pregnancies. Also, it has been found in a study done in Botswana that, alcohol reduces compliance to patients on tuberculosis treatment (Ashley, 2006).

Various factors that influence alcohol drinking among young people have been studied. In developed countries, studies have demonstrated that parents/guardians and friends, out of home parties and discotheques were factors that influenced alcohol drinking among youths (Donato et al, 1995). Similarly, evidence from the developing world shows that sex, type of family, lack of parental supervision, religiosity and poor academic performance were associated with substance abuse including alcohol among adolescents (Fatoye, 2003).

Despite the existence of government laws and school regulations prohibiting students from drinking alcohol, there are still some secondary school students who start and continue to drink alcohol. Basic health information on alcohol is usually available to adolescents in industrialized countries. But this is not always the case in developing countries including Tanzania.

In Tanzania, few studies have been done to investigate factors associated with alcohol use among students. Most of the studies done on alcohol consumption were based in urban areas and focused mainly on the patterns of alcohol drinking (Kaaya, 1992). Little is known on the magnitude and factors that influence alcohol drinking among students in rural areas of Tanzania. There is a therefore a need to establish the prevalence of alcohol consumption and its associated factors among secondary students in a rural setting.

1.4 Rationale

For successful planning of prevention activities, there is a need to understand the possible factors that influence alcohol use among young people. The study will provide information on the magnitude of alcohol consumption among secondary school students in a rural setting. Results from this study will be useful for getting an insight on the social and environmental factors that predispose students to drinking alcohol. It is expected that the information generated will be used to formulate effective preventive strategies aiming at raising awareness among the students on the negative effects of alcohol.

Findings from the study will also enable comparisons to be done between urban and rural settings. This will assist in planning for tailored interventions that take into account different contexts.

It is expected that results of this study will also help to emphasize on better enforcement of laws and regulations regarding alcohol consumption among young people.

CHAPTER 2: OBJECTIVES

2.1 Broad Objective

To determine the prevalence of alcohol consumption and its associated factors among secondary school students in Moshi Rural district.

2.2 Specific Objectives

1. To determine the prevalence of alcohol consumption among students
2. To describe alcohol drinking patterns among students.
3. To identify demographic, social and cultural factors influencing alcohol intake among students.
4. To assess students' attitudes towards behavioural outcomes of drinking alcohol among students.

CHAPTER 3: LITERATURE REVIEW

Adolescence is a period of physical and psychological development. It has also been described as a stage of increased curiosity, experimentation and quest for personal identity. Students and particularly secondary students globally are regarded as those adolescents from the age of 10 years to 19 years, and are among the group of youth which according to WHO are those in age ranging from 14-25 years old (UN, 1982). They constitute a demographic bulge, that is, they are the largest group in the world. They are also described as demographically dense. Many life changes take place during this stage of development.

Adolescence is a transitional period from childhood to adulthood, when and where then, a young person is ready for employment, leadership, and independence from parental supervision. They are a future workforce and parents. Among many challenges they face at this young age is the risk of drug abuse i.e. hard drugs like cocaine, cigarette smoking and drinking alcohol (Miller, 2007). Numerous studies have shown that, students who reported lifetime use of alcohol have started drinking at an early age (9-14years) (Kiangi, 1995, Odejide 2006).

Alcohol has been associated with numerous health and social problems for centuries but it is only in recent years that the extent of such problems has been quantified. Excessive alcohol consumption by young persons has been reported to result in violence, vehicular accidents and unsafe sexual practices (Jernigan 2001). These consequences call for urgent public health intervention measures.

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3.1 Prevalence of alcohol consumption

Several studies from Africa have noted the increasing consumption of alcohol particularly by the youth.

A study done among rural adolescents students in South Africa showed that alcohol lifetime prevalence was 47.9%, with that of male students being 59.8% and female students 37.8%. Onset of alcohol consumption was 13-15 years old (Taiwo et al, 2006) while in urban schools of Durban lifetime prevalence of alcohol use was found to be 63.4% among male students and 32.9% among females (WHO, 2004).The alcohol lifetime prevalence observed in South Africa is similar to that reported in some African countries such as Congo but it differs very much when compared to European and Asian countries. A comparative study on teenagers' consumption of psychoactive substances done in Congo and France showed that 82.1% of male and 74.5% of female French students had already consumed some alcohol drinks, while only 42.4% of male and 44.0% of female Congolese students had consumed alcohol (Courtois et al 2004) which is similar to the findings of a study done in China where lifetime prevalence of alcohol use among adolescents was found to be 69%, male being 78% and female 61% (Li, 1996). But a study which was done in south western Nigeria, found lifetime prevalence of alcohol drinking among students to be low at 33% for male and 20% for female students compared to the findings in South Africa and Congo (Fatoye, 2003).

Alcohol consumption is common in Tanzania. An urban survey conducted in 2003 among 2491 students aged 13–14 years old from Dar es Salaam found the rate of lifetime prevalence of alcohol use to be 8.7% among male and 9.9% among female

students and alcohol debut age of as early as 13 years old (Flisher, 2001). Another study done in an urban area in Temeke district in Dar es Salaam found that the prevalence of alcohol consumption among individuals aged between 15 and 24 years was 12% (Chande et al 2007). Studies on the pattern of production and consumption of alcohol in Tanzania reveal a change from traditional practices. Whereas in the past production and use of alcohol was for ceremonial purposes, of late it is acquiring a commercial and recreational use. At the same time, younger people are incorporated into the commercialization process, with increasingly destructive patterns of consumption (Kaaya et al 1992). In another study which was done among school adolescents in Dar es Salaam, it was found that, current users of alcohol were about 12.8% (Kazaura, 1997).

In Tanzania studies among students in rural areas are lacking.

3.2 Patterns of drinking alcohol

There is considerable variation from one society to another in patterns of drinking and patterns may differ in terms of frequency of drinking, choice of beverage, amount consumed and the context of drinking as well as the location, social settings and the occasion of drinking. In some societies there is a general pattern of daily drinking of alcoholic beverage with or without meals in a family setting. In other societies, a distinctive pattern is seen of frequent drinking alcohol outside the home. Another pattern is infrequent communal drinking on special occasions when large quantities of beverages locally brewed or specially brought and collected for that occasion are consumed. Habits of abstinence or near abstinence may be observed in specific religious groups (Chande et al 2007).

Some studies on the patterns of alcohol use in Africa highlighted that, alcohol consumption has currently been on the increase with the underage and young persons of both sexes predominating. A 1989 survey of 2059 secondary school students in Nakuru, Kenya found that 12% of males reported drinking beer and 2 per cent reported drinking *chang'aa*, versus 3% and 0.5% respectively for females. In another 1995 nation-wide three-year study on alcohol and other drug use carried out in secondary schools and teacher training colleges in Kenya, they surveyed about 2381 students. Of these, 42% had used beer or wine, 31.5% had used spirits, and 22% had drunk *chang'aa* (Jernigan, 2001). A more recent study in different parts of Kenya showed that among secondary students who reported drinking in the past year, 25% drank everyday (Obot, et al. 2003). In most of the studies early onset of drinking (10-16years) appeared to be the pattern among many African countries. Studies form Sub-Saharan Africa found that, young persons drink alcohol for having a good time, socialization and for purpose of getting drunk (Odojide, 2006)

It has also been noted that, within the last three decades, adolescents and young adults who constitute the largest proportion of the population of African countries, have become the target audience for alcohol marketing (Odejide et al, 2006). This is because, youths are in a transitional period from childhood to adulthood hence they tend to experiment things for the sake of trial or to show that they are grown up which makes alcohol market companies to target them as an easy market and mostly as they constitute the demographic bulge and there is a big profit from them.

3.3 Social and cultural factors

Alcohol drinking is dependent on socio-cultural influence and is strongly related to historical and geographical backgrounds. A study among high school students in Italy found that, there are two drinking patterns among adolescents based on the culture. Those who drink alcohol beverages especially wine with meals do not consume excessive alcohol when they are away from home. On the other hand, some adolescents who do not regularly drink wine with meals, they sometimes drink much out of home in parties and discotheque to the extent of feeling drunk (Donato et al, 1995).

In a rural and suburban community, residents may believe that drug use is an inner-city problem and not a relevant concern to them. Adolescent substance use, particularly alcohol use, may be recognized by the community, but accepted as a relatively normal, harmless part of growing up (Hawkins *et al*, 2000). In many African tribes, there were infrequent communal drinking of alcoholic beverages, particularly palm wine and local brews on special occasions when large quantities of beverages locally brewed or specially brought and collected for that occasion are consumed (Chande et al 2007). In another study, it was found that, alcohol use plays a significant role in Australian culture. Many young people see alcohol use as a "rite of passage" accepting the culture of youth 'binge drinking' (Factsheet, 2006)

In the 2001 WHO Global Status Report of alcohol and young people, there are several factors which have been reported to influence alcohol drinking among youths. These include peer pressure, school and/weekend parties, accessibility to alcohol, media, availability etc. Family members and friends' use of alcohol have

also been found to have positive relationship with adolescents' drinking behaviour. The social cognitive theory (Bandura 1986 cited by Kiangi 1995, Bobo *et al* 2000.) purports that parents, siblings and friends influence adolescents' behaviour by setting examples (role models) and providing social reinforcement. In Tanzania, although many adults and youths use alcohol, their effects on adolescents' and students' drinking has not been investigated (Kiangi 1995). It was also remarked that marketing plays a critical role in the globalization of patterns of alcohol use among young people with the production of new alcoholic beverages specially designed for youth markets such as wine coolers and use of brand names for alcoholic beverages. This reflects the revolution that is occurring in marketing in general (Jernigan, 2001).

3.4 Attitudes towards behavioural outcome of alcohol drinking

Attitude towards alcohol is an important factor in motivating or discouraging people to or from drinking behaviour. Attitudes may be influenced by one's knowledge, or experience like observations or instigation messages from others or the media (Kiangi 1995).

The ease at which young and adolescents get alcohol and personal values linked to it, may also contribute to the use/non-use of alcohol. Individuals contemplating using alcohol may perceive it as luxurious or pleasurable while advocates of individuals and societal well-being would implicate alcohol in acute and chronic health problems and social disruption (Kiangi, 1995). However, people's attitude towards alcohol differs according to their socio-cultural background. There is accumulated evidence that, attitude towards outcome expectancies of drinking alcohol do indeed predict intentions and drinking behaviour. This has been articulated in a comprehensive

attitude behaviour model 'The theory of Reasoned Action' by Fihbein and Ajzen (Wall 1998). Some may see it as a good refreshing drink and some sees it as bad behaviour, but what most of people do not like is the behaviour once a person has drunk alcohol, that, most of them misbehave especially when they have taken beyond their limit.

Drug use including alcohol, is cited as one of the key factors responsible for undertaking risky behaviours, although both are seen as a result of an antecedent history of a dysfunctional social and cultural environment. A study which was done in China found out that, alcohol drinking among adolescents was strongly associated with unbecoming outcome behaviours including cigarette smoking, school run away/absenteeism, stealing and fighting (Li, 1996).These findings are similar to the findings in United States of America, that alcohol consumption is associated with academic impairment and other alcohol related problems. Also neighbors of campus reported as indiscipline outcome behaviours of drinking alcohol among students including sex and vandalism (Monti, 2004).

CHAPTER 4: METHODOLOGY

4.1 Study area

The study was conducted in Moshi rural district in Kilimanjaro region, northern Tanzania. Moshi district is bordered by Moshi urban and Mwanga district to the south, Vunjo district to the east, Hai to the west and Kenya to the north. Administratively it is divided into 31 wards. The district covers an area of 2,654 sq. kms and has a population of 402,431 people with 192,998 males and 209,433 females (National Bureau of Statistics, 2002). The ethnic group is Chagga, but there is an infiltration of Maasai and Pare. The district has 90 secondary schools with a total enrolment of 29,578 students, of which 60 are government with 20,328 students (males 8,680, females 11,648) and 30 are privately owned schools with 9,250 students (males 4,258, females 4,992). Only 3 government schools are boarding while only one of the privately owned school is a day school (Wizara ya Elimu, 2008)

4.2 Study design

A cross-sectional study based on quantitative research methods was carried out from June to August 2008.

4.3 Study population

The study population was ordinary level secondary school students of both sexes from the age of 18 years and below in Moshi rural district because those above 18years are not bound by the countrys' Liquor and Intoxicating law.

4.4 Sample size

The minimum sample size n, for the study was obtained using the following formula (Kirkwood, 2003):

$$n = \frac{Z^2 P (100-P)}{E^2}$$

Where:

P = Proportion of secondary school students who are drinking alcohol = 38.4% (Kaaya, 1992).

E= margin of error set at 6%

Z = standard normal deviate set at 1.96 for 95% confidence level

$$n = \frac{1.96^2 \times 38.4(100- 38.4)}{6^2} = 253$$

4.5 Sampling technique

A multistage random sampling technique was used to select the sample. This was done in two stages as described below:

In the 1st stage, a list for government and private schools was obtained. Six schools were randomly selected using lottery method.

In the 2nd stage, considering the calculated sample size of 253, the number of study participants needed from each selected school was 42 students. Two streams were randomly selected from each school since each stream had a maximum of 35 students. The study was carried out during the first week of the school term and hence attendance of students was low. All students in the selected streams who were present at the time of the study were therefore selected as study participants.

4.6 Data collection

Two research assistants were recruited and trained. The purpose of the training was to ensure that they understand the questions and how the students are supposed to fill in their responses. Their task was to provide assistance to students when required. Data were collected by the researcher and research assistants using a self-administered questionnaire. The questionnaire was translated from English to Swahili and was pre-tested by 15 students from different secondary schools in Dar es Salaam. All necessary corrections were made accordingly before data collection commenced. The following information was obtained through the questionnaire:

i. Demographic characteristics (for example; age, sex, grade, religion)
ii. Alcohol drinking status (lifetime and current use)
iii. Pattern of alcohol intake (age of initiation, type of alcohol, frequency of drinking)
iv. Potential social and cultural factors (education level of parent, ancestral rituals, ceremonies in community)
v. Attitudes towards behavioural outcomes of drinking alcohol

A preliminary meeting was held between the researcher and the Regional Administrative Secretary (RAS). The aim of the study was explained and permission to conduct the study was obtained. A list of all secondary schools was obtained from the District Education officer (DEO) in which a random selection of 6 schools was done. Appointments for data collection were made in each school but the Headmasters/Headmistresses were requested not to inform the students about the

study as a precaution to prevent pre-informed answers and absenteeism of students especially those who are drinking alcohol.

In each school, students who were selected as study participants were gathered in one class. A brief introduction on the purpose of the study was given. The researcher requested teachers to give freedom to the study participants by leaving the class. The students were told by the researchers that the survey was for research purposes only and participation in the survey was voluntary. They were also informed that, their responses will not interfere with their studies.
All of them agreed and each was given a consent form to sign. Those who participated filled in the questionnaire in the classroom and it was inspected for completeness by the researcher or research assistants. The participants were then given unmarked envelops to put in their dully filled questionnaire, sealed them and deposited the envelopes in an empty box. Monitoring of data quality was done through checking of the forms and ensuring that the questions were well understood and dully filled by the participants.

4.7 Definitions

Alcohol is any beverage with alcohol which can be bottled beer, local brew (eg. Mbege), wine, local spirit (Gongo) or spirits.

Lifetime alcohol users/Ever drinkers are those who are currently drinking or drank in the past but are currently not drinking alcohol

Current alcohol users are those who are still drinking alcohol up to the time when the study was conducted.

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Non drinkers are those who had never drank or tasted any type of alcohol up to the time when this study was conducted.

4.8 Data processing and analysis

All questionnaires were assigned unique numbers accordingly. Open ended questions were coded before data entry. Data were entered, cleaned and analyzed using SPSS version 15.0. Data is presented using frequency tables, graph and cross tabulations. The Chi-square test was used to examine the association between alcohol drinking and different factors. For attitudinal variables, Cronbach's alpha coefficient which is a measure of internal consistency was used to assess reliability of variance for each item. One item which was not consistent with the rest of the scale was removed and Cronbach's alpha value of 0.72 which is extensive level of internal consistency was obtained. Sum score was computed with a range of 5-25. One-way Anova test was used to compare the mean scores. The significance level was set at 5%.

4.9 Ethical clearance

The study was approved by the Muhimbili University of Health and Allied Sciences Research and Publications Committee. A letter of introduction to the Kilimanjaro Regional Administrative Secretary (RAS) was written by the School of Public Health and Social Sciences of Muhimbili University College of Health and Allied Sciences. Information regarding the study which was to be carried out in secondary schools in Moshi Rural District was provided and RAS was requested to give the consent and necessary support during the study period. RAS wrote a letter to Moshi District Administrative Secretary (DAS) who also wrote a letter of introduction to the Moshi

District Executive Director (DED) in turn did so to the Moshi Rural Education Officer (DEO). The DEO wrote an introduction letter to all Headmasters/Headmistresses of the selected secondary schools to allow the researcher to conduct the study in their schools and to provide cooperation and all necessary support. Written informed consent was requested and obtained from individual participants after an adequate explanation of the objective of the study, assurance of anonymity and confidentiality of their responses, freedom to participate, expected outcomes and benefits of the study.

CHAPTER 5: RESULTS

5.1 Demographic characteristics

A total of 267 secondary school students from 6 secondary schools in Moshi Rural district were interviewed. Of these, 150 (56.2%) were males and 117 (43.8%) were females. The participants ranged in age from 13 to 18 years, with a mean age of 16.2 years (SD 1.0) years. Most of the students, 256 (94.9%) were aged between 15 and 18 years. About one half of the participants were in form two. Majority of the students studied, 245 (91.8%) were Christians. The study also found out that, more than three quarters of the students, 208 (77.9%) were hailing and living in the three divisions of Moshi Rural district. Out of the 267 students studied, 182 were day students in government schools and 85 were boarders in private schools. Most of the students, 170 (63.7%) were living with both parents, 44 (16.5%) lived with mothers only and 38 (14.2%) with guardians such as grandparents.

Table 1: Demographic characteristics of students

Characteristic		Number (n=267)	Percentage
Age	13-14	11	4.1
	15-16	144	53.0
	17-18	112	41.9
Form	One	42	15.7
	Two	127	47.6
	Three	98	36.7
Gender	Male	150	56.2
	Female	117	43.8
Religion	Christian	245	91.8
	Moslem	22	8.2
School type	Day	182	68.1
	Boarding	85	31.9
Living with			
	Both parents	170	63.7
	Father only	5	1.9
	Mother only	44	16.5
	Guardians	38	14.2
	Others	10	3.7

5.2 Prevalence of alcohol consumption

Table 2 illustrates the prevalence of alcohol use by demographic characteristics. Overall, 115 students (43.1%) reported to have ever drunk alcohol. About 36 (14%) of the respondents were current users.

Table 2: Percentage of lifetime and current alcohol users among students according to age, gender, grade, religion affiliation and school type.

Characteristic		Total sample	Lifetime users n (%)	Current users N (%)
Age group	13-14	11	4 (36.4)	1 (9.1)
	15-16	144	57 (39.6)	13 (9.0)
	17-18	112	54 (48.2)	22 (19.6)
Gender	Male	150	76 (50.7)	27 (18.0)
	Female	117	39 (33.3)*	9 (7.7)*
Form	One	42	22 (52.4)	6 (14.3)
	Two	127	49 (38.6)	14 (11.0)
	Three	98	44 (44.9)	16 (16.3)
Religion	Christian	245	114 (46.5)	35 (14.3)
	Moslem	22	1 (4.5)**	1 (4.4)**
School type	Day	182	93 (51.1)	30 (16.5)
	Boarding	85	22 (25.9)**	6 (7.1)**
Overall		**267**	**115 (43.1)**	**36 (13.5)**

$p<0.01$, ** $p < 0.001$

Older students were significantly more likely to use alcohol compared to their younger counterparts. A significantly greater proportion of males, 76 (50.7%) were

lifetime users as compared to 39 females (33.3%). About one half of the students who were Christians had ever drunk alcohol while only one student among the Moslems had done so. Prevalence of lifetime and current alcohol use was significantly greater among students who were studying in day schools compared to those in boarding schools.

5.3 Alcohol drinking patterns

The age at which students reported to have started drinking alcohol ranged from as early as 4 years to 17 years. The mean age of alcohol debut was 11.0 years (SD 3.5). It was observed that the average age of alcohol initiation was not that much different between males (11.2 years) and females (10.6 years), but the difference is statistically significant ($p<0.05$).

Table 3 shows the pattern of alcohol use among students who were currently drinking alcohol. The most common type of alcohol consumed has been reported to be local brew "Mbege" by 34 students out of 36 (94%) followed by beer, 14 students out of 36 (39%). Results also showed that about one third of the students obtained alcohol from home and bars/pubs. Fifty percent of the current users drink alcohol on special occasions whereas 8 students (22%) drink more than once a week. Majority of the respondents, 29 students out of 36 (81%) reported that they drank during weekends while only 2 students (5.5%) drank daily. Among the current users, 17 students (47%) reported that they have been drinking alcohol for more than five years now. About two thirds of the students who are current drinkers are drinking

with schoolmates and out-of-school friends. However, only males drank alcohol with out-of-school friends and siblings.

Table 3: Pattern of alcohol consumption among current users

Variable	Total (n=36)	
Type of alcohol*		
Local brew	34	94.4
Beer	14	38.9
Whisky	3	8.3
Gongo (local spirit)	1	2.8
Frequency of alcohol use		
More than once a week	8	22.2
Once a week	5	13.9
Once a month	5	13.9
On special occasions only	18	50
Duration of drinking		
Less than a year	6	16.7
More than a year	13	36.1
More than five years	17	47.2
Drinking companion		
Schoolmates	14	38.9
Parents/guardians	7	19.4
Brother/sister	5	13.9
Out-of-school friends	10	27.8

*Multiple responses

5.4 Social, cultural and behavioural factors associated with alcohol intake

Students were asked about what were the reasons for starting to drink alcohol. Most of the respondents, 74 out of 115 (64%) reported that they wanted to try while 21 respondents (18%) mentioned friends as being the reason for starting to drink alcohol (Figure 1). About two thirds of the students got their first drink at home and one third did so in parties. Findings from the study also show that 75% of the current users reported that, reasons for continuing to drink alcohol were socialization with friends and enjoyment.

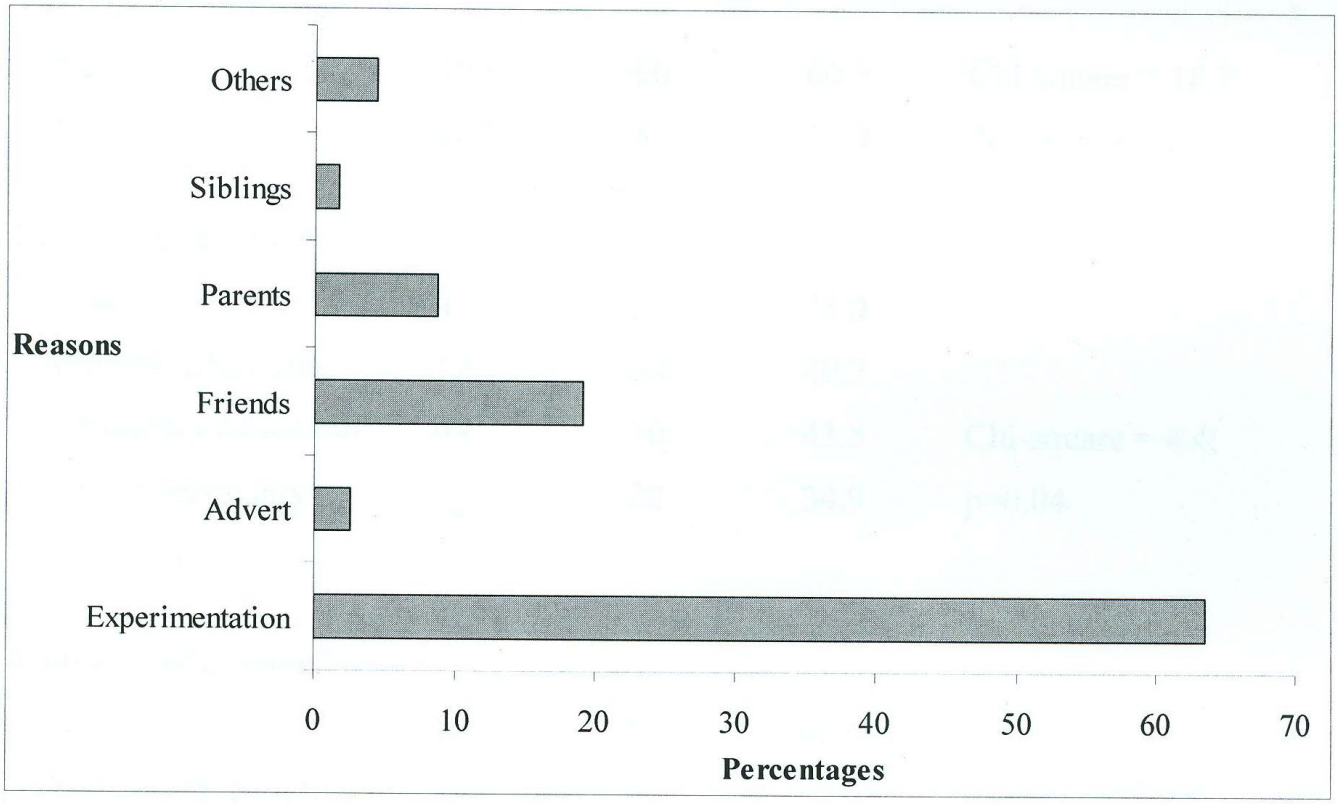


Figure 2: Reasons for starting drinking alcohol among lifetime users

Table 4: Prevalence of lifetime alcohol use by social factors.

Factor	Responses number	Lifetime users Number	%	Significance
Parents/guardian drink alcohol				
Yes	206	106	51.5	Chi-square= 26.0;
No	61	9	14.8	df = 1; p<0.01
Friends drink alcohol				
Yes	160	88	55.0	Chi-square = 23.2;
No	107	27	25.2	df = 1; p<0.01
Siblings drink alcohol				
Yes	100	60	60.0	Chi-square = 18.7;
No	167	55	32.9	df = 1; p<0.01
Father's education*				
None	4	3	75.0	
Primary education	122	60	49.2	
Secondary education	69	30	43.5	Chi-square = 4.4;
Above secondary education	63	22	34.9	p=0.04
Mother's education*				
None	10	6	60.0	
Primary education	150	72	48.0	Chi-square = 9.5;
Secondary education	71	30	42.3	p<0.02
Above secondary education	33	6	18.2	

*Numbers do not add up to total due to missing data (e.g. single parents, divorced, etc.)

Table 5: Prevalence of lifetime alcohol use by cultural and behavioural factors.

Factor	Total sample	Lifetime users Number	%	Significance
Cigarette smoking				
Yes	4	4	100.0	Fisher's exact test:
No	263	111	42.2	p = 0.01
Ever heard/watched alcohol advertisements				
Yes	245	105	42.9	Chi-square= 0.06;
No	22	10	45.5	df = 1; p=0.81
Young persons allowed to drink alcohol during ancestral offerings				
Yes	153	79	51.6	Chi-square= 10.7;
No	43	14	32.6	df = 2; p<0.05
Young persons allowed to drink alcohol during harvesting and circumcision ceremonies				
Yes	138	76	55.1	Chi-square= 17.7;
No	64	22	34.4	df = 2; p<0.01
Alcohol drinking by young persons regarded as normal				
Yes	168	77	45.8	Chi-square= 1.41;
No	99	38	38.4	df = 1; p=0.24

Table 4 and Table 5 illustrate the prevalence of lifetime alcohol consumption by social, cultural and behavioural factors. Results show that the prevalence of alcohol use was significantly higher among students whose family (parents or siblings) and friends drank alcohol compared to those who did not drink.

Findings from the study also show that parent's level of education is associated with alcohol use. As the level of education of the male parent increases, the proportion of students who have ever drunk alcohol decreases. This trend was found to be statistically significant (p=0.04). Similarly, there was a tendency of the proportion of students who ever drank alcohol to decrease as the level of education of the female parent increased (p=0.02).

Only 4 (3.5%) students reported that they smoked cigarettes and all had drunk alcohol in the past. In contrast, about 42% of those who did not smoke cigarettes had ever drunk alcohol. This finding should however be interpreted with caution due to the small numbers. Also the study found that 2 out of 36 (5.6%) of current drinkers are smoking bhang and inhale petrol. The association between drinking alcohol and smoking bhang or inhalation of petrol is not significant (p=0.1).

Majority of the students 245 out of 267 (92%) had either read, heard or watched alcohol advertisements through different media, with 190 (71%) students agreeing that the advertisements have a negative influence to those who don't drink alcohol. Results showed that there was no relationship between alcohol use and having ever heard about an alcohol advertisement (p=0.81).

It was also found that 168 (63%) of the students were of the view that alcohol drinking among young persons was regarded as normal in their communities. Furthermore, 153 (57%) and 138 (52%) of the respondents narrated that alcohol drinking among young people was common during ancestral offerings and other ceremonies (example after harvesting and circumcision) respectively. Students who reported that young persons were allowed to drink alcohol during ancestral offerings and ceremonies during harvesting and circumcision in their communities were more likely to have been lifetime users of alcohol compared to their counterparts who had a different view ($p<0.01$)

5.5 Attitudes towards behavioural outcomes of drinking alcohol among students

Findings from the study show that about two thirds of the students disagreed that drinking alcohol does increase chances to fight. On the other hand, more than three quarter have a positive attitude that drinking of alcohol may make one to have financial problems, to fail in academics, to be seen as an undisciplined student as well as increasing the chances of getting different diseases. There was equal bipolar observation on the issue of drinking alcohol and behavioural outcome of approaching a partner for sex. That is, equal proportions of students (39%) responded by agreeing and disagreeing (Table 6).

Table 6: Frequency distribution of students attitudes towards behavioural outcomes of drinking alcohol among students (n=267)

Items	Agree	
	N	(%)
Use of alcohol would:		
1. Increase my chances to fight	36	13.5
2. Cause financial problems	183	68.5
3. Increase my confidence to approach partner for sex	104	39.0
4. Result in me failing to follow studies	205	76.8
5. Make me seen as an undisciplined student	219	82.0
6. Increase the chances of getting diseases	216	80.9

The relationship between students' attitudes towards behavioural outcomes of drinking alcohol and different variables was explored. Findings show that there is a significant association between students attitudes towards behavioural outcomes of drinking alcohol and current alcohol use ($p=0.01$). Similarly, ever having watched alcohol advertisements and influence of the alcohol advertisements were significantly associated with students attitudes towards behavioural outcomes of drinking alcohol ($p<0.02$).

Other variables such as age, sex, grade, religion affiliation, who is living with the student and parents' level of education, were not significantly associated with the students' attitudes towards behavioural outcomes of drinking alcohol (Table 7).

Table 7: Association between students' attitude towards behavioural outcomes of drinking alcohol and socio-demographic characteristics

Socio-demographic variables		N	Mean score (range 5-25)	SD	Df	P-value
Age groups	13-14 years	11	10.64	3.9		
	15-16 years	144	10.08	4.5	2	0.3
	17-18 years	112	10.97	4.8		
Grade level	Form 1	42	9.57	4.04		
	Form 2	127	10.39	4.75	2	0.23
	Form 3	98	10.99	4.53		
Sex	Male	150	10.57	4.48	1	0.73
	Female	117	10.37	4.71		
Religion	Christian	245	10.40	4.60	1	0.35
	Moslem	22	11.36	4.23		
Parents care	Both parents	170	10.69	4.43	4	0.4
	Father only	5	7.00	1.58		
	Mother only	44	10.25	4.69		
	Guardian	38	10.58	5.53		
	Others	10	9.20	2.78		
Fathers' education level	None	4	6.75	0.96	4	0.07
	Primary	122	10.29	4.33		
	Secondary	69	10.86	4.84		
	College	37	9.30	3.91		
	University	26	11.92	4.84		
Mothers' education level	None	10	10.00	4.74	4	0.3
	Primary	150	10.37	4.59		
	Secondary	71	10.58	4.71		
	College	20	9.70	3.64		
	University	13	13.08	4.86		
Currently drinking alcohol	Yes	36	11.89	4.65	1	0.01
	No	79	9.49	3.84		
Watched alcohol advertisements	Yes	245	10.19	4.31	1	0.01
	No	22	13.73	6.09		
Influence of advertisements	Yes	190	9.98	4.39	1	0.02
	No	50	11.84	5.27		

CHAPTER 6: DISCUSSION

In many countries including Tanzania, alcohol drinking among students poses a heavy public health challenge. It affects ones health, school attendance and performance and the future nation as whole. Results from the study indicate that prevalence of alcohol drinking among secondary students in Moshi rural district is quite high. The prevalence of lifetime alcohol use is 43.1%. As expected, males were more likely to have ever drunk any type of alcohol compared to females. These findings are comparable to those reported from rural settings in other African countries such as South Africa, Kenya and Congo (Taiwo et al 2006, Jernigan 2001). However, our findings are lower compared to that reported in France where lifetime alcohol prevalence for males was 82.1% and for females it was 74.5% (Courtois et al 2004). The prevalence of current users of alcohol among the students in Moshi rural district was 13.5%. This figure was slightly high compared to that obtained in a survey done among urban students in Dar es Salaam, which was, males 8.7% and female 9.9% (Flisher 2001). Our finding was however lower by almost one half when compared to a study done among secondary students in different parts of Kenya (Obot, et al. 2003). This study did not measure adverse outcomes, thus the degree of alcohol intake by students may not be that relevant.

Students who have consumed alcohol recalled having taken their first drink at different ages. An average age of 11.2 years was found to be the age at which most of those who reported to have drunk alcohol drunk alcohol for the first time, and which, drinking alcohol is among the many early adolescence risks they face at this

young age. This finding was consistent to that reported from South Africa (Taiwo et al, 2006) and other Sub-Saharan African countries (Odojide, 2006). However, the average debut age reported in this study is low compared to the age of 13 years which was found in a study done in an urban area in Dar es Salaam (Flisher, 2001). A possible explanation for the early alcohol debut age could be that in Moshi rural district, locally made alcohol is brewed in homes using locally available raw materials and therefore it is mostly available, easily accessible and cheap.

It has been demonstrated that the pattern of drinking differs considerably in terms of choice of beverage, frequency of drinking, amount consumed, the context of drinking as well as the location, social settings and the occasion of drinking in the same society or tradition (Chande et al, 2007). Mbege, the most common and popular local brew in the study area was found to be the most common type of alcohol consumed, with 25 out of 27 males and all females reporting to be current users. One third of those who are current drinkers got their drinks from home and the same proportion mentioned bars or pubs. This is because of its easy availability and accessibility respectively. These findings have been found to be different from a study done in Kenya (Jernigan, 2001) where it was found that, only about 22% drunk locally made alcohol.

Half of the students who are current drinkers reported they drink on special occasions. However, most of them do so on weekends because most of the special occasions in the area are held on weekends. This pattern of alcohol consumption among current users' shows to be more of a traditional practice whereby alcohol is

usually served in most ceremonies. This finding differs from the study done in Dar es Salaam which found alcohol drinking is acquiring a commercial and recreational use (Kaaya et al 1992). Only about 5.5% of the current users drank alcohol daily. This is very low compared to that reported from a study in Kenya where 25% of the participants drank daily (Obot, et al. 2003). This difference could be explained by the fact that, Kenya economy is good compared to Tanzanian economy.

Two thirds of the students reported that they usually drink alcohol with schoolmates and out of school friends. This probably indicates that they drink alcohol in bars/pubs, parties and discotheques. Only one third drank in companionship of parents and other siblings. However, only males drank alcohol with out-of-school friends and siblings and this could explain the high proportion of male students who are still current users of alcohol compared to female students. The study has also found that, more than half of ever drinkers, their parents are also drinking alcohol; this is a kind of lifestyle most home practice nowadays. And these are the ones who are making the current drinkers to continue drinking because of socialization such as in gatherings and parties and they become role models to them. These findings show that drinking patterns follow a traditional trend of drinking alcohol among students and not the commercial trend.

Smoking is one of the risk behaviours faced by this young age (Miller, 2007). In this study, it was found that 4 out of 36 (11%) current drinkers are smoking cigarette and 2 out of 36 (5.6%) are smoking cannabis (bhang) and inhale petrol fumes as an alternative to alcohol which are both bad to the human body by causing short and long term health hazards including chest infections, mental illnesses and cancers.

Almost two thirds of the lifetime users started drinking alcohol for experimentation purposes and through the influence of peers (18%). Findings of this study also showed that students whose parents, friends, and siblings were drinking alcohol were more prone to drinking behaviour than those whom their parents, friends and siblings were not drinking. These findings are consistent with those reported in other studies (WHO, 2001).

The high proportion of lifetime and current alcohol male users as compared to females is possibly explained by the tradition of male dominance practiced by most African communities. It is also contributed by the tribes that still perform ancestral offerings and other ceremonies which involve drinking of alcohol usually by men.

Results also indicated that as the education level of the mother or father increases, the prevalence of lifetime alcohol users decreases. The finding was expected to be the other way round that, as the level of education increases so is the socioeconomic status of the parents and therefore alcohol would have been available and accessed for consumption by their children but this study has found it differently. This could be explained by the fact that, as the parents become more educated they become more aware of alcohol health hazards and in turn they educate their children about them.

Students and youths are the targets for advertisements because of their demographic bulginess, they are easily attracted to watch, read, and listen to the advertisements and most of all because of their dynamism and readiness to change (Jernigan, 2001).

Although media in marketing of alcohol plays a very crucial part of influence nowadays in this era of globalization, this study did not find any association between influence of media and alcohol drinking but they should not be allowed to go uncensored.

Shared practices and civilization of Moshi rural district does not differ very much from one place to another since the area is mainly occupied by one ethnic tribe. Therefore, factors that have been found to play a role in alcohol drinking of students probably cut across almost the whole district.

Drinking of alcohol is seen in different ways by students and the community but the behavioural outcomes of drinking alcohol are what matters most. The analysis showed that about two thirds of the students disagreed that drinking alcohol does increase one chances and ability to fight. This observation could have been due to what the students have been seeing or learning from their parents and teachers. However, in a behavioural outcome of approaching a partner for sex after drinking alcohol, there was an equal bipolar response in attitude. This is not surprising because all students interviewed were of the age of 18 years and below, which are the age of adolescence and its characteristic of risk taking behaviour. They were probably responding by following what their mind and body changes are undergoing in them. Furthermore, students' attitude towards the behavioural outcomes of drinking alcohol was significantly associated with current alcohol use, ever having watched alcohol advertisements and influence of alcohol advertisements on drinking of alcohol. This could be explained by the fact that marketing of alcohol has now

targeted youths through advertisements showing either successful young people or well built youths (male or female) drinking certain branded alcohol.

Therefore, this study has found out that, lifetime alcohol prevalence among secondary students in Moshi rural district is 43.1% with an early alcohol debut as early as 4 years (SD 3.5) with greater proportion of male students drinking alcohol than females. Drinking is more of traditional trend, and it is done so mostly on weekend occasions with schoolmates and friends as peers and/or parents and siblings as role models. Majority started drinking for experimentation purposes and friends influences. Local brew "Mbege" which is locally brewed, cheap, easily accessible was found to be the most consumed alcohol. It was also found that, during ancestral ritual performances and ceremonies performed in their communities it is normal for underage to be offered alcohol to drink and those who continue to drink alcohol are doing so because of socialization with friends and enjoyment. Some students are also smoking cigarette and use hard drugs. More than three quarters of the students have positive attitudes towards unbecoming behavioural outcomes of drinking alcohol.

The study has several limitations. The information gathered on alcohol drinking was based on self-reports. This may have led to social desirability bias, for example a student may have denied drinking alcohol by reporting socially acceptable behaviour. Efforts were made to minimize this bias through assurance of confidentiality and privacy by not having the teachers around and not writing their names on the questionnaires. Only form one to three students were selected because it was likely that, the majority of students in the upper classes would be above 18

years old, who according to the country's Liquor and Intoxicating law are allowed to drink.

CHAPTER 7: CONCLUSION AND RECOMMENDATION

Conclusion

This study has shown that the prevalence of lifetime and current alcohol consumption is quite high compared to studies done in other parts of Tanzania. Factors that were found to be associated with alcohol use were low level of education of parents, sex, friends (peers), parents and siblings (as role models), adolescent age of risky taking behaviours and sociocultural factors such as ancestral offerings and ceremonies.

This study provides an insight on the pattern of alcohol consumption and its associated factors among secondary school students in a rural setting. It is hoped that findings from this study will add to the already existing information for planning of effective intervention strategies among students.

Recommendations

1. Concerted efforts to convey basic factual information to the students and society at large on the short and long term health hazards and social consequences of drinking alcohol are needed. These could be effected through the media, school health program, school baraza and community meetings.

2. There is a need of strict enforcement of the Intoxicating Liquors Licensing and Legislation act No. 28 of 1968 and its amendment of 2004 which does not permit the bar/pub owners to sell alcohol to underage individuals.

3. There is a need to censor and reduce the frequency of alcohol advertisements so as to reduce their exposure to underage and the likeliness of their influence.

4. Further research using both quantitative and qualitative approaches is required in order to understand better the prevailing factors that predispose young people to alcohol drinking.

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