Prevalence And Correlates Of Alcohol Use Among Underage High-School Students In Murang'a And Kajiado Counties, Kenya

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ABSTRACT

Background: Alcohol use during adolescence is an important risk factor for a host of physical and social problems affecting the young people globally. There is limited data on the prevalence of alcohol use among the underage in Kenya.

Aim: To determine the prevalence and correlates of alcohol use among underage high-school students in Murang'a and Kajiado Counties in Kenya

Methods: A random sample of 938 respondents (61.9% males and 38.1% females) below 18 years was obtained from Kajiado and Murang'a on proportionate to stratum size. A multilevel logistic regression was used to investigate potential correlates to alcohol use.

Results: The prevalence of current alcohol use was 37% and was significantly associated with being male (AOR = 1.58; 95% CI 1.40, 2.42) ;ease of getting an adult to buy alcohol (AOR=2.20; 95% CI 1.57, 3.10); cigarette use (AOR = 3.8; 95% CI 1.86, 8.28) and having multiple sexual partners (AOR =1.17; 95% 1.15, 1.20).

Conclusion: There is a high prevalence of underage alcohol use in Murang'a and Kajiado. A joint program targeting parents and teachers could be initiated so as to heighten the level of interventions required to avert further escalation of the problem.

Keywords: Prevalence, underage, alcohol use, correlates

1. INTRODUCTION

Alcohol use is a significant contributor to the global burden of disease and injury among individuals aged 10-24 years (Gore et al., 2011). Although adolescence is a critical phase for establishing key foundations for adult life, it is also the period that many undesirable habits including problem alcohol use are initiated and established with serious ramifications on the quality of health in later years (WHO, 2014).

According to the WHO's 'Health for the World's Adolescents report' (2014) an estimated 1.3 million deaths occurred in 2012, most of them from preventable causes including alcohol use. The report goes on to state that mortality was higher in boys and in older adolescents (15–19 years) than in the younger group (10–14 years).

In a recent WHO's ' Global Status Report on Alcohol and Health' (2014), monthly heavy episodic drinking is now more prevalent among young people aged 15–19 years (11.7%) than among the total population aged 15 years or older (7.5%) . Yet there exists a positive association between early debut to alcohol use and problematic drinking in adult years (Nixon and McClain 2010). Previous studies by Bonnie and O'Connell,

(2004) and Miller et al., (2007) have reported numerous social and physical health problems including poor academic performance, fighting, risky-sexual behaviour among those youth who engaged in binge drinking.

The WHO estimates that 2.5 billion people consume alcohol in the world and 76 million of these suffer from alcohol use disorders such as dependence and abuse. Alcohol causes 3.3 million deaths (5.9% of total) and a loss of 139 million (5.1% of total) of Disability-Adjusted Life Years (DALY) (WHO, 2014). This is greater than, for example, the proportion of deaths from HIV/AIDS (2.8%), violence (0.9%) or tuberculosis (1.7%). Moreover, the abuse of alcohol is a causal factor in more than 200 health conditions, including incidences and clinical outcomes of infectious diseases such as tuberculosis, HIV/AIDS and pneumonia. (WHO, 2014).

In Kenya, alcohol use and abuse points to an increasing trend that has permeated all sectors of the society. According to Mwenesi (1995) much of the effects presented by alcohol use in the Country are manifested in economic, social and public health arenas. Recent national findings indicate that 13.6% of the Kenyan population aged 15-65 currently consume alcohol and the abuse of alcohol is prevalent in nearly all the Provinces (NACADA, 2012). Another study involving high-school students in Nairobi revealed that 83.2% of the respondents reported that it was possible for students to abuse drugs without the teachers' knowledge. Alcohol was ranked as the most commonly abused drug in schools reported by 74.4% of the students interviewed (NACADA, 2010).

The use of alcohol at young age and particularly during adolescence remains particularly elusive for policy makers and public health officials the world over. According to the International Center for Alcohol Policies (ICAP) (2012) module 11 report, 'There is currently no consensus regarding the age threshold at which an individual ceases to be a "young person" and becomes an adult'. In the context of alcohol consumption, many countries have different legal age threshold to start drinking based on different experiences (WHO, 2004, ICAP 2012). Moreover, in the eyes of many, adolescence could be the period at which the young people are considered optimally healthy.

Past studies aimed at public health interventions have highlighted some factors involved in underage drinking: They include: other substance use (Siziya, Rudatsikira and Muula,2009;Saban and Flisher,2010), other health risk behaviour including physical fighting, being bullied and sexual activity (Assanangkornchai et al., 2009 ; Chaveepojnkamjorn and Pichainarong 2011, Siziya et al., 2009), injury (Sindelar et al., 2004), lack of school attendance (Siziya et al., 2009; Alwan et al., 2011) psychosocial distress in the form of anxiety, depression and suicidal behaviour (Assanangkornchai et al.,2009; Chaveepojnkamjorn and Pichainarong 2011; Siziya et al.,2009; Saban and Flisher, 2010; Peltzer,2009), adverse childhood events (Kabiru et al.,2010), significant other's problematic drinking (Chaveepojnkamjorn and Pichainarong,2009; Chaveepojnkamjorn and Pichainarong ,2007), peers drinking alcohol (Chaveepojnkamjorn and Pichainarong ,2007), lack of protective factors such as parental supervision (Siziya et al., 2009; Alwan et al., 2011;

Peltzer,2009), alcohol expectancies (Schulte et al., 2009; Newman et al.,2006), personality characteristics (Schulte et al., 2009), male gender (Assanangkornchai et al., 2010; Pichainarong and Chaveepojnkamjorn,2010),educational level (Chaveepojnkamjorn and Pichainarong,2009;Chaveepojnkamjorn and Pichainarong 2010; Pichainarong and Chaveepojnkamjorn 2010), older age (Alwan et al.,2011) and grade point average(Chaveepojnkamjorn and Pichainarong ,2009).

Few studies have been done in Kenya to document the prevalence and correlates of underage drinking (drinking alcohol before the legal drinking age of 18). This poses some danger especially to the public health interventions among this at- risk population, whom the law regard as minors.

1.1 RATIONALE

Despite the existence of alcohol laws that discourage underage drinking in Kenya, anecdotal evidence and actual drinking patterns in the country suggest that a majority of young people use alcohol before they reach the legal drinking age of 18. Data on underage drinking in Kenya is scanty and widely underestimated. This, despite well-established evidence that early alcohol use may have long-lasting consequences. A Study by Grant and Dawson, (1997) showed a fourfold risk for alcohol dependence among youths who began drinking at age 15 or younger when compared with those who delayed their age of onset to at least 20 years. Previous studies report that alcohol contributes more to youth mortalities than all illicit drugs put together (Garlow, 2002; Spear, 2002). A study by Spear, (2002) showed how early onset of drinking interrupted key processes of brain development, leading to mild cognitive impairment as well as future problem drinking. According to the same study, 'subtle alcohol-induced adolescent learning impairments could affect academic and occupational achievement'. Previous studies also report a higher prevalence of co-occurrence of alcohol use disorders and mental conditions like depression, stress and suicidal ideations among young people aged 14-25 years old (Anderson, 2001 and Garlow, 2002). Grunbaum et al., (2002) demonstrates an association between adolescent drinking and risky sexual behaviour such as keeping multiple sexual partners and failure to use protection thus resulting in sexually transmitted behaviour and unwanted pregnancy.

Thus the proximity of adolescents to biological maturity and adulthood provides optimal opportunity for us to implement alcohol preventive activities bench-marked on evidence based research designed to decrease long-term adult problems related to alcohol and drug abuse (Eisenstein, 2005).

1.2 GENERAL OBJECTIVE

To determine the prevalence and correlates of alcohol use among underage high-school students in Murang'a and Kajiado Counties in Kenya.

1.2.1 SPECIFIC OBJECTIVES

- To determine the prevalence of drinking status among underage high-school students in Murang'a and Kajiado Counties.

- To determine individual level factors influencing the drinking status of underage high-school students in Murang'a and Kajiado Counties.
- To determine the influence of institutional (parental and school) factors on the drinking status of underage high-school students in Murang'a and Kajiado Counties

2. METHODOLOGY

2.1 STUDY SITES

The study was purposefully conducted in public secondary schools of Murang'a and Kajiado counties based on alcohol and drug abuse prevalence rates (NACADA, 2010, NACADA, 2014). Murang'a County is located in Central Kenya and covers an area of 1,798Km² with a population of 942,581. Kajiado County on the other hand is located at the southern tip of the former Rift Valley Province of Kenya with an area of 21,902.9 km^2 and a population of 687,312. Murang'a County had 246 secondary schools of public status with a students' population of 84,874 whereas Kajiado County had 46 public secondary schools with a students' population of 15,986 at the time of the survey.

2.2 STUDY DESIGN AND SAMPLE SIZE

The study adopted a descriptive, cross sectional study design where quantitative methods of data collection were used. Total sample size for the whole study was calculated using Bill Godden (2004) formula:

$$n = \frac{z^2 \times p\,(1-p)}{c^2}$$

Where: z - value for selected alpha level (it indicates the level of risk the researcher is willing to take that true margin of error may exceed the acceptable margin of error).

p - Percentage of the population assumed to be drinking.

c - Confidence interval

The number of schools to be surveyed was fixed at 42 (28 in Murang'a and 14 in Kajiado) based on the cost and logistics of undertaking the study. We obtained 100% response rate from 938 participants allocated as n = 643 for Murang'a and n= 295 for Kajiado.

2.3 VARIABLES

The dependent variable was alcohol use. The independent variables were: sex, religion, age, class level, alcohol use among family and friends, alcohol expectations, missing school, academic satisfaction, sex experience, cigarette & marijuana smoking and psychosocial distress symptoms.

2.4 STUDY POPULATION

The study population was high school students in public secondary schools in Murang'a and Kajiado Counties; both boarding and day schools. The target population was high-school students below the age of 18 years. This was an ideal group because they spend most of their time in school and are therefore accessible.

2.5 OPERATIONAL DEFINITION/CRITERIA

The respondents were included into the study if they were high-school students below 18 years, and consented to participate. Further, a respondent was considered to have ever drunk if he/she responded in the affirmative on the question on 'lifetime use of alcohol'. Subsequent questions were used to gather information surrounding current drinking as defined by alcohol use on any of the days in the last one month prior to the survey.

2.6 SAMPLING PROCEDURES

The study was purposively conducted in two counties; Murang'a and Kajiado. Further, the design was stratified into rural and urban secondary schools. The selection of a subset of representative schools was done through random sampling. Random selection of schools at each level of stratification was done proportional to stratum size. Once the actual schools to be surveyed were determined, a sampling frame for each school was compiled. This consisted of all class lists for all eligible students. Thereafter, a systematic sample of students was drawn from the frame by probability proportional to size (PPS) technique as follows: The serialized lists of students in each school was obtained and then a sampling interval k determined by dividing all the students (N) by the predetermined number of students required (n) per school. In the first k serial numbers a number was randomly selected by blindly pointing at the serialised list of students and this became the random start g. That is, the student with the serial number g was the first in the sample. From the random start, the kth numbers ($g + k$, $g + 2k$,....., $g + (n-1)k$) was obtained thereafter. The students with the selected numbers were enrolled into the study.

2.7 DATA COLLECTION INSTRUMENT

A modified self-administered structured questionnaire based on WHO's Global School-based Health Surveys (GSHS) was adopted (WHO, 2013).The questionnaire had questions touching on socio-demographic factors, drinking patterns & habits as well as other risky behaviours common among young people. Pre-test of the questionnaire was done before actual data collection and involved 5 percent of the total sample size (50 students) at a school similar to those in Murang'a and Kajiado but based in Nairobi County. Ambiguous and vague questions were rephrased while some comments made by the respondents were incorporated into the final questionnaire to enhance the clarity of the questions. Cultural sensitivity was critical during pre-test as more relevant information including the names of common drugs and alcoholic beverages were adopted. For example drugs like crystal meth were replaced with drugs known in the study areas like tobacco and marijuana with a view of establishing their association to underage drinking. The final instrument for data

collection was based in English with instructions to the participants to respond to the questions by use of a either pencil or pen and without disclosing their names.

2.8 DATA ANALYSIS

Frequencies and proportions were used for exploratory analyses. Possible association between alcohol use and individual and institutional level factors were investigated using multilevel logistic regression. Variable selection proceeded as follows; first, univariable analyses were conducted for each of the individual and institutional level factors and significant ones (p-value< 0.05) were adjusted for in a multilevel logistic regression. The strength of association was based on adjusted and unadjusted odds ratios (OR) at 95% confidence intervals (CI). SPSS version 22 was used for data coding, entry and cleaning while R version 3.0.1 was used for analyses.

2.9 ETHICAL CONSIDERATIONS

Ethical considerations were pertinent to this study because of the nature of the problem (underage alcohol use) and the kind of persons (minors) serving as research participants. Kenyatta University Ethics Review Committee granted the certificate of ethical clearance. Thereafter, a research permit was sought and obtained from the National Commission for Science and Technology and Innovation (NACOSTI). The County Directors of education from both Murang'a and Kajiado were sought for further approval. The school principals of the surveyed schools gave consent for possible students' involvement. Participants were informed of the objective and nature of the study as well as on issues touching on confidentiality and voluntary participation. Anonymity and privacy of the respondents was safeguarded. All willing participants were required to make informed decisions.

3. RESULTS

3.1 SOCIO-DEMOGRAPHIC CHARACTERISTICS

The socio-demographic characteristics of the study sample are shown in Table 1.We obtained data from 938 students (61.9% males and 38.1% females). The study estimated the participants' mean age at 16.25 years (s.d. 0.81). Majority (97.7%) of the students were Christians and nearly half (42.1%) were from Murang'a rural County. More than three quarters of the students were in forms 2-4. More than fourty two percent of the respondents reported lifetime use of alcohol. More females (57.7%) than males (40.8%) reported life-time use of alcohol. We estimated the mean age of onset of drinking at 12.28 years (s.d. 4.14), 12.31 (s.d. 3.10) for males and 12.23 (3.24) for females. Significantly more females (57.7%) reported lifetime use of alcohol compared to the males (41%). The mean age of onset of drinking was 12.28 years (s.d. 3.14) with no significant differences between genders. Current drinking of alcohol, defined as drinking in the past one month , was more prevalent among males (43.5%) compared to females (26.3%).

Table 1: Socio-demographic characteristics of respondents

Factor	Total		Male		Female	
	N or mean	% or sd	N or mean	% or sd	N or mean	% or sd
All	938		581	61.9	537	38.1
Mean (s.d.) of Age	16.3	0.8	16.2	0.8	16.3	0.8
Mean (s.d.) of onset Drinking Age	12.3	3.1	12.3	3.1	12.2	3.2
Region						
Murang'a Urban	248	26.4	197	33.9	51	14.3
Murang'a Rural	395	42.1	209	36.0	186	52.1
Kajiado Urban	97	10.3	75	12.9	22	6.2
Kajiado Rural	198	21.1	100	17.2	98	27.5
Religion						
Christian	916	97.7	562	96.7	354	99.2
Muslim	17	1.8	14	2.4	3	0.8
Buddhists	1	0.1	1	0.2	0	0.0
Traditionalist	2	0.2	2	0.3	0	0.0
Other	2	0.2	2	0.3	0	0.0
Class						
Form 1	56	6.0	18	3.1	38	10.6
Form 2	323	34.4	211	36.3	112	31.4
Form 3	271	28.9	182	31.3	89	24.9
Form 4	288	30.7	170	29.3	118	33.1
Weight						
Underweight	143	15.2	89	15.3	54	15.1
Normal weight	713	76.0	449	77.3	264	73.9
Overweight	82	8.7	43	7.4	39	10.9
Ever drunk Ever	443	47.2	237	40.8	206	57.7
Never	495	52.8	344	59.2	151	42.3
Current Drinking						
Drinker	347	37	253	43.5	94	26.3
Non – Drinker	591	63	328	56.5	263	73.7

Descriptive statistics show proliferation of alcohol selling outlets and poor enforcement of the alcohol laws as the main factors leading to increased alcohol use among the underage. Current use of alcohol was more prevalent among male Christian students (39.9%) followed by male Muslim students (29.4%).A significant amount of the alcoholic beverages used by the respondents was obtained from clubs, followed by liquor stores and during sporting events away from school. Current alcohol consumption was positively associated with psychosocial distress symptoms, alcohol expectations, cigarette/marijuana smoking, having multiple sexual partners and lack of parental supervision. See table 2 below.

Table 2: Prevalence of current alcohol use by socio-demographic and other factors

Factor	Category	Overall (36.99%)	Male (43.55%)	Female (26.33%)
Socio-Demographic Factors				
County	Murang'a County	37.64	44.09	26.58
	Kajiado County	35.59	42.29	25.83
Age	Less than 16 years	26.34	33.85	13.33

	16 years and above	39.97	46.34	29.79
Religion	Muslim	29.41	35.71	0
	Christian	36.9	43.42	26.55
	Traditionalist	0	0	0
Academic Satisfaction	Very Satisfied	26.8	32.14	19.51
	Somehow Satisfied	38.57	47.76	24.72
	Not Satisfied	37.56	43.24	27.93
	Unsure	52.63	57.14	40
Alcohol Accessibility/Availability				
Getting an adult to buy a drink	Difficult	23.14	29.36	15.2
	Unsure	33.08	41.18	18.75
	Easy	51.2	55.4	42.75
Source of Alcohol	Sporting Events	48.46	50.62	44.9
	Liquor Stores	47.78	58.77	28.79
	Restaurants/Bars/Clubs	63.58	68.75	52.13
Getting Caught by Police	Likely	31.79	39.44	22.6
	Unsure	47.51	50.6	41.94
	Unlikely	34.62	42	17.44
Psychosocial Distress				
Getting Lonely	Never/Rarely	32.34	40.89	18.71
	Sometimes	37.35	43.23	27.88
	Always	53.33	54.41	51.35
Often Worrying	Never/Rarely	30.68	36.87	19
	Sometimes	44.15	53.22	32.03
	Always	61.29	69.7	51.72
Losing Concentration	Never/Rarely	29.93	33.91	23.64
	Sometimes	39.56	49.11	24.29
	Always	40.69	45.9	31.78
Attempted Suicide	No	33.83	41.95	20.13
	Yes	55.88	53.85	58.62
Alcohol Expectations				
Expecting to Feel relaxed	Unlikely	27.73	32.01	22.09
	Likely	51.8	58.5	36.11
Expecting to Gain Confidence	Unlikely	28.78	34.06	21.4
	Likely	48.59	55.17	35.16
Expecting to feel happy	Likely	51.19	57.19	39.44
	Unlikely	25.48	31.02	17.67
Expecting to express feelings	Unlikely	26.29	30.92	20.3
	Likely	47.47	53.92	34.19
Other Individual level factors				
Number of Sexual Partners	1	27.58	32.42	22.26
	2	41.82	41.77	41.94
	>2	64.47	65.7	56
Smoking Bhang	Non Bhang smoker	32.08	36.81	25.14
	Bhang smoker	86.9	90.41	63.64
Smoking Cigarette	Non Cigarette smoker	31.14	36.86	22.66
	cigarette smoker	78.45	80	73.08
Institutional/Parental Factors				
Parents involved in homework	Most of the time/Always	30.91	39.15	18
	Never/Rarely	41.25	46.61	32.21
	Sometimes	41.18	46.32	32.76
Parents understanding of their problems	Most of the time/Always	31.17	39.42	18.75

	Never/Rarely	40.97	46.7	31.13
	Sometimes	41.77	46.2	34.07
Parents know how they spend free time	Most of the time/Always	25.41	32.11	18.18
	Never/Rarely	46.89	49.58	41.53
	Sometimes	40.37	48.39	20.63
Parent/Guardian/Friends Drinking				
Mother/Step mother taking alcohol	No	33.42	40.25	22.41
	Yes	54.78	59.6	46.55
Father/Step Father Taking Alcohol	No	30.8	38.33	18.39
	Yes	42.98	48.64	33.88
Other adults Taking Alcohol	No	24.85	31.19	13.33
	Yes	39.66	46.4	28.96
Best friend Taking Alcohol	No	19.63	24.79	12.9
	Yes	51.57	56.93	40.94
Age mates Taking Alcohol	No	19.19	21.68	16.41
	Yes	44.23	50.68	31.88
Institutional/school factors				
Missed School	Never	32.64	38.7	23.3
	At least once	85.71	86.44	83.33
Other Students Helpful	Never/Rarely	44.23	48.48	36.84
	Sometimes	38.49	45.63	25.23
	Always	33.55	40.22	23.81
Bullied	No	33.98	40.27	24.48
	Yes	47.39	53.47	34.33
Got Drunk at a party	No	16.53	20.35	11.76
	Yes	75.23	76.03	72.94

3.2 PREDICTORS OF UNDERAGE ALCOHOL USE

The results of multivariable logistic regression (table 3) shows that current use of alcohol was significantly associated with being male (adjusted odds ratio [AOR]: = 1.58; 95% CI 1.40, 2.42) ; ease of getting an adult to buy alcohol (AOR=2.20; 95% CI 1.57,3.10); Cigarette use (AOR = 3.8; 95% CI 1.86, 8.28) ;missing school (AOR =2.86; 95% CI 1.28, 6.9), psychosocial distress in the form of anxiety (AOR = 1.73; 95% CI 1.08, 2.78) and having multiple sexual partners(AOR = 1.17; 95% 1.15, 1.20).There was insignificant variability across the schools in terms of actual drinking patterns (variability = 0.02), as the multilevel model was compared with a model without random effects and likelihood ratio test was not significant (p value = 0.09).

Table3: Associations between alcohol use and other factors (Multilevel logistic regression estimates)

Factor	Unadjusted OR (95% C.I)	Adjusted OR (95% C.I)
Age (Years)	1.44[1.21, 1.72]*	1.30[0.94,1.84]
Gender		
Male	2.4[1.69, 3.47]*	1.58[1.34,2.42]*
Female#		
Religion		
Christian	1.41[0.51, 4.53]	-
Muslim#		
Class		

Form 1#		
Form 2	1.08[0.54, 2.26]	0.4[0.13,1.24]
Form 3	2.09[1.05, 4.36]*	0.47[0.14,1.53]
Form 4	2.24[1.13, 4.69]*	0.42[0.11,1.47]
Number of Sexual Partners	1.39[1.28, 1.52]*	1.17[1.15,1.20]*
Region		
Murang'a Urban	1.05[0.52, 2.19]	-
Murang'a Rural	1.02[0.55, 1.95]	-
Kajiado Urban	0.76[0.34, 1.69]	-
Kajiado Rural#		
Alcohol Availability/Accessibility		
Getting adult to buy alcohol		
Difficult#		
Unsure	1.69[1.07, 2.64]*	1.42[0.96,1.76]
Easy	3.69[2.70, 5.10]*	2.20[1.57,3.10]*
Police likely to catch when buying alcohol		
Likely#		
Unsure	1.91[1.36, 2.68]*	1.11[0.56,2.18]
Unlikely	1.13[0.81, 1.58]	1.03[0.95,1.06]
Source of Liquor		
Liquor stores	1.01[0.63, 1.63]	0.65[0.36,1.17]
Restaurants/Bars/Clubs	1.95[1.26, 3.04]*	1.18[0.68,2.04]
Sports events away from school#		
Psychosocial Factors		
Feeling Lonely		
Never/Rarely#		
Sometimes	1.21[0.9, 1.63]	0.69[0.43,1.1]
Always	2.37[1.5, 3.74]*	0.77[0.34,1.74]
Worrying that one never eats nor sleeps		
Never/Rarely#		
Sometimes	1.86[1.38, 2.52]*	1.73[1.08,2.78]*
Always	3.44[1.97, 6.12]*	4.18[1.61,11.47]*
Concentration Frequency		
Never/Rare#		
Sometimes	1.55[1.1, 2.19]*	1.32[0.79,2.22]
Always	1.56[1.09, 2.23]*	1.22[0.7,2.1]
Thought of committing suicide in the last 12 months		
Yes	2.53[1.73, 3.73]*	1.17[0.65,2.11]
No#		
Alcohol Expectations		
Would feel relaxed		
Unlikely#		
Likely	2.90[2.18, 3.88]*	0.71[0.41,1.2]
Would be troubled by police		
Unlikely	1.26[0.96, 1.66]	-
Likely#		
Would gain confidence		
Unlikely#		
Likely	2.52[1.89, 3.36]*	1.03[0.6,1.77]
Would harm health		
Unlikely	1.02[0.75, 1.37]	-
Likely#		

Would express feelings		
Unlikely#		
Likely	2.66[2.00, 3.55]*	1.26[0.76,2.08]
Other Individual level Factors		
Bullied		
Yes	1.75[1.26, 2.42]*	0.60[0.36,1]
No#		
Cigarette Smoking		
Smoker	8.05[5.12,13.08]*	3.8[1.86,8.28]*
Non-Smoker#		
Bhang Smoking		
Smoker	14.05[7.64,28.40]*	2.35[0.99,6.02]
Non-Smoker#		
Missed School		
At least Once	12.38[6.71,25.12]*	2.86[1.28,6.9]*
Never#		
Other Students Helpful		
Never/Rarely	1.57[1.08,2.27]*	1.17[0.64,2.15]
Sometimes	1.24[0.92,1.67]	1.1[0.68,1.78]
Always#		
Parental Intervention		
Parent involvement in homework		
Never/Rarely	1.48[1.09, 2.01]*	0.91[0.55,1.51]
Sometimes	1.58[1.06, 2.37]*	1.31[0.71,2.44]
Always#		
Parents understand their problems		
Never/Rarely	1.48[1.06, 2.06]*	0.64[0.37,1.11]
Sometimes	1.57[1.11, 2.21]*	0.78[0.46,1.32]
Always#		
Parents understand how spend free time		
Never/Rarely#		
Sometimes	2.49[1.8, 3.45]*	1.4[0.82,2.4]
Always	1.94[1.34, 2.81]*	1.3[0.74,2.3]
Parent/Guardian/Friends Drinking		
Mother/Step Mother Taking Alcohol		
Yes	2.41 [1.71,3.42]*	1.3[0.72,2.36]
No#		
Mother/Step Father Taking Alcohol		
Yes	1.69[1.30,2.22]*	1.19[0.73,1.95]
No#		
Other adults Taking Alcohol		
Yes	1.99[1.37,2.93]*	0.60[0.30,1.17]
No#		
Best friend Taking Alcohol		
Yes	4.36[3.26,5.88]*	1.34[0.81,2.22]
No#		
Random effect		
Variability (School)	-	0.057

**-Significance at 5%; # - Reference level; OR - odds ratio*

4. DISCUSSION

Alcohol use and abuse among the young people has become a cause for concern for policy and public health experts in the recent past (Livingston, 2008, Otieno and Ofulla,2009, Eaton et al., 2010).These trends have generated much debate and continue to do so regarding the question of when is the right time for the young people to start using alcohol (Merline et al.,2008, Hingson et al., 2008, DeWit et al., 2000).In this study, prevalence as well as factors associated with underage alcohol use were determined in the two counties of Murang'a and Kajiado based in Kenya. Our study estimated the prevalence of current use of alcohol at 37%. This rates are lower than those reported previously in Kenya (NACADA, 2010 , Atwoli et al., 2011) as well as the United States (41.8%) by Eaton et al., (2010) but higher than those found in other countries such as Thailand (Assanangkornchai et al., 2009 Chaveepojnkamjorn et al, 2009), Zimbabwe (Siziya et al., 2009).The rates however compare well with those found in South Africa (Madu and Matla 2003) , Brazil (Gomes et al., 2010) and Seychelles (Alwan et al., 2011). These differences could be due to cultural and geographical differences which also determine the availability and accessibility of alcohol beverages by the adolescents.

Generally, male respondents reported a higher prevalence (43.5%) in current use of alcohol compared to their female counterparts (26.3%) in this study. This compares well with a previous study by Pichainarong et al., (2010). The variation in gender could be due to societal and cultural differences that favour boys' use of alcohol (Reddy et al., 2007). It was interesting however that more girls (57.7%) reported ever use of alcohol compared to boys (40.8%). This can be attributed to the current globalization trends that seem to empower the girl child especially in the African Continent.

Previous studies in Africa report comparable high prevalence rates in terms of current alcohol use among high-school students (Kuria et al., 1996, Madu and Matla 2003, Otieno and Ofulla, 2009). Probably the apparent similarity could be due to increased level of accessibility to alcohol by the underage due to permissive cultures that seem to tolerate alcohol use by the underage. Indeed the study found a strong association between current use of alcohol and the ease of getting an adult to buy alcohol to a minor (AOR=2.20; 95% CI 1.57, 3.10). The increased drinking pattern witnessed in this study should worry the parents, public health experts and education stakeholders as was associated with other dangerous risky behaviours such as cigarette use (AOR = 3.8; 95% CI 1.86, 8.28 and sexual experience with multiple partners (AOR = 1.17; 95% 1.15, 1.20). These findings compare well with those from previous studies by Siziya et al., (2009) as well as those from another similar study by Saban and Flisher (2010). A past study by DeWit et al., (2000) observed that risky behaviours at a young age are more likely to be reinforced in adult life.

According to this study, the current use of alcohol did not increase with age, hence did not seem to corroborate past findings by Chaveepojnkamjorn and Pichainarong (2010) as well as those by Alwan et al., (2011).This study recorded an average age of onset of drinking at 12.28 years (s.d. 4.14), 12.31 (s.d. 3.10) for

males and 12.23 (3.24) for females. There was no significant difference in the age of onset of drinking between male and female respondents. This early onset in use of alcohol need to be addressed urgently since it could be associated with a higher vulnerability to future problematic drinking (DeWit et al, 2000). A recent study by McCambridge et al., (2011) has associated adolescent drinking to recurrent mental and social-economic problems in adult life. Although the existing Kenyan laws are clear on the legal age of onset of drinking, there could be poor enforcement of the said laws. This is expected given the infectious disease focus of health authorities in developing countries (Ayalu et al, 2012)

Other studies have reported an association between alcohol use and other health-risk behaviour such as physical fighting, being bullied, sexual activity, having sustained an injury and lack of school attendance (Assanangkornchai et al., 2009, Chaveepojnkamjorn and Pichainarong 2011, Siziya et al., 2009, Sindelar et al., 2004, Alwan et al., 2011) however only lack of school attendance (AOR =2.86; 95% CI 1.28, 6.9) and having multiple sexual partners were associated with current use of alcohol in this study.

Like other studies (Assanangkornchai et al., 2009, Chaveepojnkamjorn and Pichainarong, 2011, Siziya et al.,2011 , Saban and Flisher , 2010, Sindelar et al., 2004, Alwan et al., 2011 Peltzer, 2009), this study found an association between current use of alcohol and psychosocial distress symptom of anxiety [AOR = 1.73; 95% CI 1.08, 2.78].The study did not however establish a link between current use of alcohol and other psychosocial distress symptoms such as suicidal ideation and loneliness among underage in Murang'a and Kajiado County.

Moreover, unlike previous studies that have shown an association between adolescent alcohol use and family members with alcohol problems (Merline et al., 2008, Chaveepojnkamjorn and Pichainarong, 2009, Chaveepojnkamjorn and Pichainarong, 2007), peers drinking alcohol (Mundt, 2011, Chaveepojnkamjorn and Pichainarong 2007), alcohol expectancies (Schulte et al. ,2009, Newman et al., 2006) and academic performance (Chaveepojnkamjorn and Pichainarong, 2009), this study did not reveal any such association. These differences could be the subject of another larger study.

Similarly, institutional level factors linked to parental or guardian bond were not associated with current alcohol use among the underage as reported in previous studies (Siziya et al., 2009, Alwan et., 2011, Peltzer, 2009).

4.1 LIMITATIONS

This study had some limitations. Firstly, it only enrolled underage who were in school. School-going youths are only a small segment of Kenyan underage youth and may not accurately represent all the youth in the country as alcohol use patterns are likely to show regional variability. Secondly the use of a self-administered questionnaire especially among the underage could have resulted to recall and social desirability bias. Given the sensitive nature of the study and the type of respondents, we may not rule out issues of underreporting on

some of the questions asked. We however set to minimise issues of underreporting by encouraging the respondents to complete the questionnaire anonymously. Given the cross-sectional nature of our study design, we may not ascribe causality to the correlates of our study. However, the WHO GSHS survey questionnaire has been used elsewhere (Assanangkornchai et al., 2010, Chaveepojnkamjorn et al., 2009, Pichainarong and Chaveepojnkamjorn, 2010) under similar circumstances, and therefore the results are comparable to those found in similar studies.

5. CONCLUSIONS

The prevalence of current alcohol use among underage high-school students in Murang'a and Kajiado County in Kenya is high and mirrors well the results of previous studies. The study reported male gender, cigarette use, anxiety and having multiple sexual partners as individual level factors associated with alcohol use. Institutional level factors associated with underage drinking included ease of getting an adult to buy alcohol for a minor and missing school. Public health and policy experts involved in the prevention and control of underage alcohol use need to ensure strict enforcement of alcohol laws as well as addressing other risk behaviours associated with alcohol use including cigarette smoking, missing school, sexual activity and psychosocial distress symptoms. The government needs to review the legal age of on-set of drinking which currently is 18 years with a review of revising it upwards. A joint program targeting parents and teachers in Murang'a and Kajiado County could be initiated so as to heighten the level of interventions required to avert further escalation of the problem.

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