

## Substance Use Assessment among School Going Adolescents in Kenya.

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### Abstract

The use of alcohol and other psychoactive substances has remained a critical problem among adolescents in Kenya. From a social learning and problem behavior theories' perspective, substance use among adolescents is conceptualized as a behavior which results from the interplay between environment and personal factors. The main objective of this study was to assess the levels of psychoactive substance use among secondary school students in Kieni, Nyeri County. The study was a descriptive quantitative study. Purposive and simple random sampling techniques were used to select participants (n=1038) from the eight wards in Kieni sub-County. A self-administered questionnaire was employed to collect data on socio-demographic characteristics and levels of psychoactive substance use. Data collected was analyzed using SPSS version 20. Descriptive statistics were applied to summarize categorical variables while measures of central tendency and dispersion were used to summarize continuous variables. The overall lifetime use of psychoactive substances was found to be 57.4% while the current prevalence was 48.7%. This may have been an indication of adolescents experimenting with these substances and changing their behavior later. Slightly more than half the participants (53.8%) indicated that they had seen parents or relatives using substances (alcohol, tobacco, drugs) with 78.2% of the participants reporting that they had seen someone they knew using substances. It is therefore recommended that education stakeholders in Kenya adapt ways of substance use prevention and reduction in younger adolescents.

*Key words:* adolescent, psychoactive substance, drug, social learning, prevalence, problem behavior, development

### Introduction and background

The use of psychoactive substances, in the form of alcohol, tobacco and other drugs, is a widespread human behavior that has been in existence since the beginning of time (Hart, Ksir, & Ray, 2009). Drug-using behavior and the responses it elicits are dynamic, complicated phenomena and cannot be understood apart from the sociocultural and historical contexts in which they occur. Substance use has differed dramatically over time and across cultures in terms of accepted practices, beliefs about harm, and patterns of use (Durrant & Thakker, 2003). It is important to note that drinking alcohol was generally the prerogative of the elders, and more often than not, the male elders; so was the use of tobacco. According to Durrant and Thakker (2003), restrictions were placed on youth, but both men and women elders were free to use it. Therefore, drug use and abuse as a social problem did not exist in the African culture because strong social cohesion acted as a mechanism.

Literature reviews by the United Nations Office for Drugs and Crime (UNODC, 1996) showed that drugs and alcohol were used and consumed as part of the cultural traditions in pre-

colonial Africa. The traditional rules and values of most African cultures strictly prescribed the circumstances under which drugs and intoxicants could be obtained, used and consumed. This, unfortunately, is not the position in the twenty-first century, and the use of these substances by adolescents has become one of the major global challenges (McCabe, Boyd, & Teter, 2009). Studies show that more preadolescent and teenage children are using drugs and alcohol, with long-term studies observing that the sequence of use runs from tobacco, alcohol, and marijuana to other substances (Botvin & Griffin, 2011).

The global drug survey report (2014) indicated that most young people below age 30 had used alcohol, tobacco and cannabis in the previous year preceding the survey (Winstock, 2014). In addition, the UNODC (2014) report estimated that 3.5-7% of the world's population aged between 15 and 64 years had used an illicit drug. Consequently, psychoactive substance use continues to exert a significant toll on valuable lives as well as destroying productive years of many young people. This is primarily because psychoactive substance use can result in a wide range of health and social problems for individuals, their families and the wider society (WHO, 2007).

The WHO (2012) substance abuse management and the UNODC (2014, 2015) reports indicated that many countries face an increase in alcohol and drug consumption among young people aged 15-29 years. The WHO (2007, 2009) reports also showed that two million people use illicit substances, which account for about 4.5% of the global disease burden and 3.8% of all deaths worldwide. The rates are highest in Europe and the United States of America (USA) and are seen to be rising in other regions. Thus, psychoactive substance use by adolescents has become a major concern for not only the developed but also for the developing world (UNODC, 2009; UNODC/WHO, 2008).

Substance use and abuse is particularly problematic during adolescent development. For this age, substance use is often a function of the negative pro-drug social influences and exposure, together with individual development and vulnerabilities (Mayberry, Espelage, & Koenig, 2009). From a theoretical perspective, substance use is conceptualized as the interplay between social-environmental and personal factors. Substance use behavior, like other types of behavior, may be learned through a process of modeling and reinforcement, mediated by personal factors such as cognitions, attitudes, and beliefs (Kaplow, Curran, & Dodge, 2009). The social learning (Bandura, 1977) and the problem behavior (Jessor & Jessor, 1977) theories suggest that the problem of psychoactive substance use may manifest itself initially in the consumption of the socially accepted substances. However, many adolescents discontinue use after a brief period of experimentation without forming substance use disorders and dependency (Kandel, 2002; Mayberry et al., 2009).

There is growing evidence suggesting that alcohol, tobacco, marijuana and other substances use increases from early to late adolescence, peaking when adolescents enter early adulthood (Johnston, O'Malley, & Bachman, 2009; Mayberry et al., 2009). In 2012, a study by the National Survey on Drug Use and Health (NSDUH) in the USA indicated that the rate of current illicit drug use varied by age as follows: Among youths aged 12 to 17, the rate increased

with age from 3.5 % at ages 12 or 13 to 8.2% at ages 14 or 15 to 16.6 % at ages 16 or 17. The highest rate of current illicit drug use (23.9%) was among 18 to 20 year olds with the next highest rate occurring among 21 to 25 year olds (19.7 %). These results indicate that adolescents' use of substances increases as they progress in age chronologically up to 25 years (Substance Abuse and Mental Health Services Administration [SAMHSA], 2012).

According to the UNDOC regional trends in drug use report (2014), there is limited data available on psychoactive substance use situation in Africa. However, the report indicated that there is 12.4% cannabis use in West and Central Africa, which is higher than the reported global average of 3.85%. Cannabis remains the most commonly used substance among young people in Africa, aside from alcohol. The situation is similar in sub-Saharan Africa where psychoactive substances use is not well documented (Acuda, Othieno, Obondo, & Crome, 2011; UNODC, 2007; WHO, 2008). However, there is consensus on the types of substances used with alcohol on the lead, followed by tobacco, cannabis, khat and solvents within the East African region. This information is congruent with several studies carried out among secondary school students in different regions in Kenya (Maundu, 2013; Oteyo, Kariuki, & Mwenje, 2013; Otieno & Offulla, 2009).

According to a drug survey in Kenya in 2012 by NACADA, one in three students reported using one or more drugs. The survey indicated that alcohol was the most commonly used substance, with 36.3% of students reporting a lifetime use. Miraa comes second with usage reported among 31.5 % of students, cigarettes were used by 20.2 %, bhang by 9.8 %, kuber by 5.5 %, heroin by 3.1%, inhalants by 2.7 %, amphetamines/mandrax by 2.6 %, and cocaine was used by 2.2 %. The findings, therefore, indicate that the dynamics of psychoactive substance use in our context have changed and there is need to be concerned about the escalating rates of alcohol and drug use among the adolescent population in Kenyan schools.

Research carried out among secondary school students by Otieno and Offulla (2009) showed that a large number of students in secondary schools in Kenya have been exposed to alcohol, tobacco, *miraa* (khat), glue sniffing, bhang (marijuana) and even hard drugs such as heroin and cocaine. This is in line with another study by Siringi and Waihenya (2001) on drug abuse that showed that 22% of secondary school students were on drugs. These findings indicate that adolescents are at risk of getting involved with psychoactive substances, forming the rationale for the present study.

## **Methodology**

A cross-sectional descriptive survey design with a quantitative approach was used to assess and describe psychoactive substance use among secondary school going adolescents in Kieni sub-County, Nyeri County. The study participants were drawn from seven secondary schools within Kieni East sub-County. The study involved all the form two and three students in the seven schools. The sample size was calculated using the Casagrande, Pike, and Smith (1978) formula ( $n=1038$ ).

The research instrument was a self-administered questionnaires consisting of a researcher-developed socio-demographic questionnaire and selected questions from the Global School-based Student Health Survey (GSHS) developed by WHO (2001). Drugs assessed in this study included alcohol, tobacco, marijuana, Khat, kuber, inhalants and others. The questionnaire was administered to students in their respective schools after approvals from Daystar University, the Nairobi Hospital Research and Bioethics board, National Commission for Science, Technology and Innovation (NACOSTI) and the Nyeri County Commissioner and Directorate of County Education.

The questionnaire was administered in a school setting. The collected data was coded, double entered, cleaned and validated using filter questions before being analyzed using Statistical Package for Social Sciences (SPSS v. 20). Descriptive statistics such as proportions were applied to summarize categorical variables while measures of central tendency and dispersion were used to summarize continuous variables.

## Results

As presented in Table 1, a total of 1038 participants were enrolled in the study from public secondary schools in Kieni, Nyeri County. Socio-demographic and economic characteristics were assessed together with the prevalence of substance use in terms of life time and current (the previous 30 days) use among the participants. The substances used assessed were tobacco (cigarette smoking or smokeless tobacco use), alcohol, and drugs (bhang, khat, kuber, inhalants and others).

The participants were between the ages of 13 and 22 years with the majority falling within the 16 to 18 years age category (81%). This falls within the normal age bracket of students in form two and three in the Kenya education system. Through data from the background indicators, it was possible to provide explanation for the observed findings from the study. The proportion of males was higher (62.1%) compared to females (37.9%). This agrees with a study that found out that the girl child education may not be a priority in rural Kenya (Kagendo, 2013) and this might have lowered the number of female participants in a school set up in Kieni. The proportion of participants enrolled from form two was slightly higher (53.7%) than form three (46.3%) due to school dropout levels as students move up the classes. The study also presumed that substance use had negative impact on students' well-being and education which could also have been a cause of students dropping out of school as they moved up the classes (Maggs, Patrick, & Feinstein, 2008). This is consistent with Kagendo's (2013) study on the factors affecting effective management of secondary schools in Nyeri which found that substance use had a major effect on school dropping out rates. With regard to religious affiliation of the study sample, 41.1% of the participants were Protestants, 28.0% were Pentecostals, 26.8% were Catholics, and Muslims or those with other religious or no religious affiliations comprised 4.1%.

Table 1: *Socio-demographic and socio-economic characteristics of the study participants*

Variables	n=1038	%
<b>Gender</b>		
Female	393	37.9
Male	645	62.1
<b>Age in years</b>		
13-15	130	12.5
16-18	841	81.0
19-22	67	6.5
<b>Class/form</b>		
Form 2	557	53.7
Form 3	481	46.3
<b>Religious affiliation</b>		
Catholic	278	26.8
Protestant	427	41.1
Pentecostal	290	28.0
Islam	22	2.1
Others	21	2

Analysis of awareness and environmental influence on substance use among the participants was done as presented in Table 2. Slightly more than half the participants (53.8%) indicated that they had ever seen parents or relatives using substances (alcohol, tobacco, drugs), with 78.2% of the participants reporting that they had seen someone they know using substances. According to the social learning theory (Bandura, 1977), this may help explain why adolescents pick up the substance use behaviour.

Table 2: *Social environmental influence and substance use among the study participants*

Variables	n=1038	%
<b>Ever seen parents or relatives using substances (alcohol, tobacco, drugs)</b>		
Yes	558	53.8
No	480	46.2
<b>Ever seen someone they know using substances</b>		
Yes	812	78.2
No	226	21.8

Analysis of lifetime and current substance use among participants is presented in Table 3. Prevalence of overall lifetime substance use was 57.4%, which was a combination of specific prevalence of use of tobacco (smoke or smokeless) (31.1%), alcohol consumption (48.6%) and drugs (37.8%). Analysis of lifetime poly-substance use revealed that 19.3% used one type, 18.6% used two types, while 20.3% used three types. Prevalence of overall current (in the previous one month) substance use was 48.7% which was a combination of specific prevalence of use of tobacco (smoke or smokeless) (19.9%), alcohol consumption (34.7%), and drugs (29.6%). Analysis of current poly-substance use revealed that 17.8% used two types while 8.9% used three types of substances at the same time. This suggests that some participants may have used some substances to counter the physiological effects of other substances initially used.

As indicated in the analysis, alcohol, tobacco and other psychoactive substances like bhang, khat, kuber and inhalants use were found to be highly prevalent among adolescents in this study. This concurs with the UNDOC (2014; 2015) reports which indicated an increasing trend of drug use among youth and young adults globally. This study in Kieni is congruent with global trends in adolescent risky behaviour as it pertains to substance use and abuse. The overall prevalence of life time use of psychoactive substances in this study was 57.4%, with current use at 48.7% (Table 3). This may have been occasioned by the ease of accessibility to alcohol, khat and tobacco which are considered social substances within the community in the study area. About 40% of the substance users also had poly-substance use tendencies. These findings are higher than those from a study conducted nationally by NACADA (2012) among 15 to 24 year olds where the life time substance use was 37.1% and the current (previous 30 days) use was at 19.8%. The results are above the findings in a study by Maithya (2009) on drug use in secondary schools in Kenya which found out that life time use for all participants was at 29.4%, with 33.7% of life time users coming from day schools. This explains the findings from Kieni where over 90% of all secondary schools are day schools.

These findings, however, are almost similar to results from a study among 600 rural school-going adolescents from Osun State in Nigeria where 65.7% of the respondents aged 10-19 years indicated having used similar psychoactive substances in their lifetime. It also confirms a national survey in the USA that revealed continued high rates of alcohol, cigarette, and marijuana use among adolescents (Johnston et al., 2009; Oguniola & Fatusi, 2016). Nevertheless, it is lower than the findings in a study among Croatian students from Zagreb aged 13 and 23 years. The Croatian study revealed a one-time experimentation with alcohol at 90%, tobacco at 80% and marijuana at 39% (Ijubotina, Galic, & Jukic, 2004). The current use in the Croatian study found out that 37% had consumed alcohol, 28% had smoked tobacco and 11% had taken marijuana which was a little higher than the findings from Kieni for current use. This could indicate that although the participants may have been in the same age bracket, there may be other extraneous variables that determine levels of substance use in adolescents in different environments.

As shown in (Table 3), this study established that alcohol was the most commonly used substance with current use prevalence of 34.7%, followed by drugs at 29.6%, while tobacco

(smoked and smokeless) was at 19.9%. These findings are similar to those from the NACADA (2012) rapid situation assessment of drug and substance use in Kenya where alcohol abuse was highest (35.6%) among the 15 to 24- year-olds. This was within a similar age bracket of the current study participants. Nonetheless, with tobacco use at 19.9%, the study results contradict the NACADA (2012) findings on tobacco use which was ranked second at 30.8%. This could be due to the fact that the NACADA studies involved the general population whereas this study was specifically among school-going adolescents. At the same time, adolescents in Kieni may have had easier access to drugs like khat and bhang due to environmental and social factors.

Previous studies on drug abuse had indicated alcohol, tobacco, and cannabis are the commonly used drugs among young people. However, the findings from Kieni suggest a slightly different order which is similar to a study by Oteyo et al., (2013) among students in Kiambu and Nairobi counties using the GSHS tool. Khat was found to have overtaken tobacco use and was the second most used substance to alcohol. Among the drugs used in Kieni, khat was the most commonly tried by the majority of the students for the first time followed by bhang. This could be due to the study area's location along the transit route for khat from Meru where it is grown, to Nairobi where its biggest market and export routes are in Kenya. The results also corresponded with the UNODC (2009) report which indicated that the East African region was noted to be an area that continues to grow psychoactive substances such as khat that are not under international control. In fact khat is a legitimate cash crop in Kenya; hence, most people in the population do not know that it has physiological effects on the body.

Interestingly in this study, more participants had perceived getting cigarettes to be easier than getting khat; yet, they consumed more khat than cigarettes. Most students indicated that they were not aware that khat was a psychoactive substance since they viewed its chewing as a socially acceptable practice. Although bhang use was lower than khat use, most of the schools were located near the Mount Kenya forest where bhang is grown illegally; hence, it is easily accessible. Its lower consumption could be due to the fact that it is an illicit substance in Kenya.

The most commonly used form of smokeless tobacco in the study area was "*Mbaki*" probably because many participants had access to it. The communities living in Kieni also attach some religious and cultural importance to it. The young people who practice African Traditional Religion use it as a choice drug. As a result the prevalence of '*mbaki*' use (69.5%) is higher than from the NACADA (2012) study (2.1%) among rural youth in Kenya.

The most commonly used alcoholic drinks were spirits (41.9%) and wine (24.4%) which was contrary to the belief that illicit toxic liquor and traditional liquor is commonly used in the area as indicated by the NACADA (2010) study. This may be because the study was carried out at a time when the local vernacular radio stations in Kenya had started sensitizing people about the dangers of the second-generation alcoholic drinks that are highly potent and adulterated. The Kenya government surveillance and crack down of the illicit brews in the study area was also seen to have contributed to the youth going for packaged alcoholic drinks.

The current substance use prevalence was lower than the life time prevalence (Table 3). This implies that some of the adolescents experimented with substances before they were the age

14 years then stopped as they transitioned to mid and late adolescence. This confirms other studies which assert that adolescents typically experiment with risky behaviour such as substance use along the developmental path as they transit to adulthood (Bava & Tarter, 2010; Botvin et al., 2008; Kyalo, 2010; Whitesell et al., 2013). For example, in this study, 78% indicated having smoked cigarette by age 14, yet only 15% were current smokers. The same trend applied to all the substances assessed. The use of most of the psychoactive substances studied was found to have been initiated when participants were below the age of 10 years and increased considerably between the ages of 10 to 18 years. This supports the UNODC report (2014) that initiation of substance use has been observed to be occurring at younger ages. The findings were also similar to the study by Oteyo et al. (2013) on co-occurrence of drug use among secondary school students in Kiambu and Nairobi counties where one in every four students had used psychoactive substances before the age of 10.

The occurrence of substance use increased with age and was varied according to gender. Prevalence was higher among older adolescents and male participants. The males had increased odds for using substance compared to females (OR=3.72; 95% CI: 2.52-5.49; p=0.001). Males have more tolerance for psychoactive substances and it is also socially more acceptable for them to use some of the substances as compared to adolescent females. This confirms findings from a study in Central Kenya by NACADA (2010) which indicated that the prevalence of alcohol use among males was about six times more than the prevalence of use among females. The male prevalence rate for Central Kenya was much higher than the national prevalence rate indicative of higher prevalence in this study since Kieni is located in Central Kenya.

This study showed that there was up to 20% prevalence of poly-substance (more than one substance) use. Oteyo et al., (2013) also found that 17.5% of the secondary school students in Kiambu and Nairobi counties were poly-substance users. Garret (2011) and Thomson et al., (2014) assert that most adolescents begin with alcohol and tobacco as gateway substances which increase the probability of progressing later to other drugs like marijuana. However in the Kieni study, alcohol and khat were the gateway substances from which adolescents graduated to the use of tobacco and other drugs.

Figure 1 presents distribution of specific drugs and tobacco used during the past 30 days. The most commonly used drugs include Khat (21.3%), Bhang (7.7%), and Kuber (5.1%). Other specific drugs accounted for less than 5.0%. The proportion of participants using cigarette smoking was high (14.8%) compared to smokeless tobacco (9.1%).

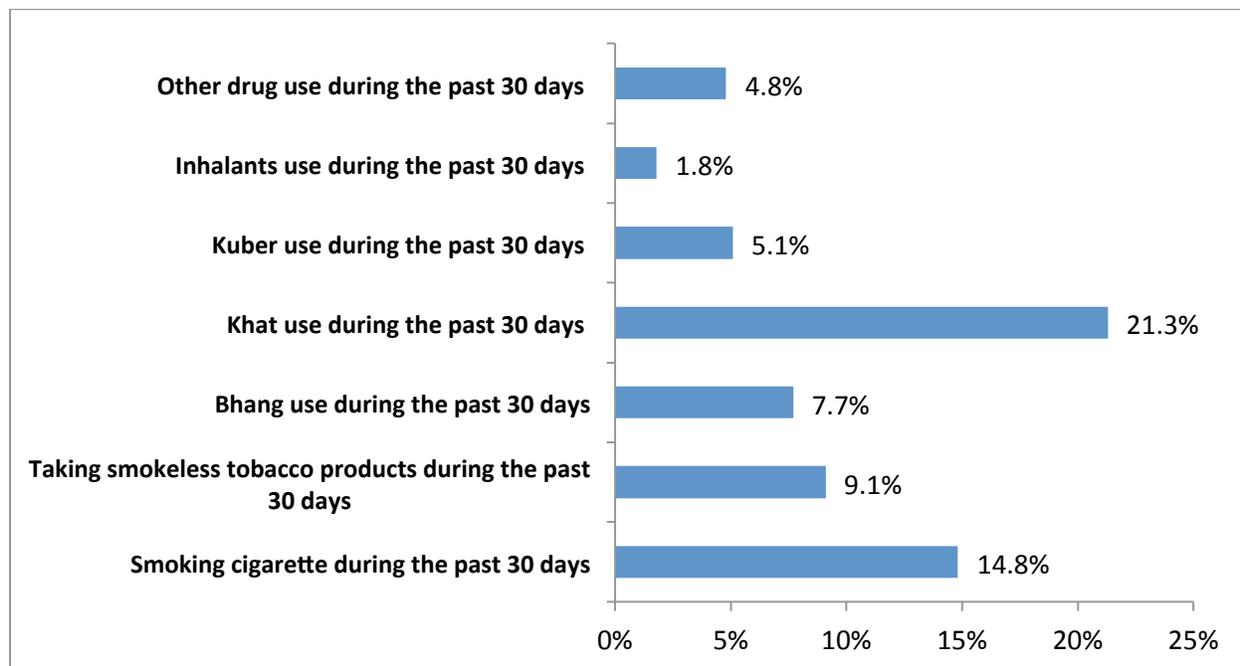


Figure 1: Distribution of specific drugs and tobacco used during the past 30 days.

Table 3: Overall Prevalence of Lifetime and Current Substance Use

Variable	Lifetime (n=1038)			Current (n=1038)		
	n	%	95% CI	n	%	95% CI
Smoke tobacco						
Yes	275	26.5	21.3 - 31.7	154	14.8	9.2 - 20.4
No	763	73.5	70.4 - 76.6	884	85.2	82.9 - 87.5
Used smokeless tobacco						
Yes	131	12.6	6.9 - 18.3	94	9.1	3.3 - 14.9
No	907	87.4	85.2 - 89.6	944	90.9	89.1 - 92.7
Used tobacco (Smoke or smokeless)						
Yes	323	31.1	26.1 - 36.1	207	19.9	14.5 - 25.3
No	715	68.9	65.5 - 72.3	831	80.1	77.4 - 82.8
Consumed alcohol						
Yes	504	48.6	44.2 - 53.0	360	34.7	29.8 - 39.6
No	534	51.4	47.2 - 55.6	678	65.3	61.7 - 68.9
Used drug						
Yes	392	37.8	33.0 - 42.6	307	29.6	24.5 - 34.7
No	646	62.2	58.5 - 65.9	731	70.4	67.1 - 73.7
Multiple substance use						
None	434	41.8	37.2 - 46.4	533	51.3	47.1 - 55.5
One type	200	19.3	13.8 - 24.8	228	22.0	16.6 - 27.4

Two types	193	18.6	13.1	24.1	185	17.8	12.3	23.3
Three types	211	20.3	14.9	25.7	92	8.9	3.1	14.7
Overall substance (Tobacco, Alcohol, Drugs) use								
Yes	592	57.4	53.4	61.4	505	48.7	44.3	53.1
No	442	42.6	38.0	47.2	533	51.3	47.1	55.5

## Conclusion

This study revealed that there is high prevalence of substance use among the participants which is indicative of substance use being a major public health problem in secondary schools in Kenya and the world over. From the study, it was also clear that there is poly substance use among students in Kieni, Nyeri County which may be an indication of the situation in other regions in Kenya. The use of these substances begins at an earlier age and increases with the developmental age up to late adolescence. There were students who used substances before the age of 14 years, implying that there is need for early sensitization among preadolescents to prevent development of substance use disorders in late adolescence or adulthood. Children and youth start using psychoactive substances in the context of personal and environmental exposure. The study findings indicated that some participants had learnt substance use behavior from significant others and at an early age which is consistent with the social learning theory (Bandura, 1977). This gives impetus to future researchers in psychology to expound on theories of learning and behavior with regard to psychoactive substance use at different human developmental stages. The level of awareness of care givers on the effect of their substance use behavior on adolescents need to be studied for future intervention on lowering substance use modelling in adolescents.

The fact that the study was done in schools and the instrument was self-administered may have exposed the data to some response bias from some respondents due to fear of consequences of their behavior. In Kenyan schools, a student found to be using psychoactive substances is either suspended or expelled from school. Hence, some respondent may have given socially acceptable responses.

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