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ABSTRACT

Substance and drug use is one of the emerging public health problems among the youth in Kenya. Moreover, it is associated with a myriad of medical effects including psychiatric problems, organ failures in addition to lethargy, decreased academic performance and risk of contracting sexually transmitted infections. Although substance and drug use has been associated with these problems, the magnitude of substance and drug use and its predictors has not been investigated in poor resource setting in rural areas of Kenya. Therefore, this study was designed to determine the prevalence of substance and drug use and identify their predictors among the youth in a poor resource setting in Nyamira Sub-County in Nyamira County. To this end this study used a cross-sectional study to evaluate the prevalence of substance and drug use and their predictors in Nyamira slums. The result of this study revealed that there were more males (60.39%) relative females (28.57%) using drugs and substances (p<0.001). A majority of study participants (94.7) had their drug and substance use debut before 20 years. Being divorced/separated/widowed (3.14, 95%CI 1.27-7.78), non-religious (70.2, 95% CI 7.28-676.83), being a Muslim (OR 3.15, 95%CI 0.61-16.31) and residing in urban area relative to rural (OR 0.84, 95%CI 0.53-1.31) were positively associated with drug and substance use. In conclusion, this study found that the prevalence of drug and substance use was high in males relative to females. The main predictors of drug and substance use included residing in urban area, being a Muslims or being non-religious and being divorced/separated or widowed. These data therefore indicated the drug and substance use was influenced by a multiplicity of factors. The results of this study would be important for Ministry of health or government or policy makers in formulating age friendly and family based intervention strategies to curb substance and drug use among the youth and increase public awareness.

Key Words: *drug, substances use, predictors, Youth*

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INTRODUCTION

Substance and drug use is emerging as one of the major public health challenges globally (Deressa & Azazh, 2011), with developing countries bearing the brunt of this problem (Embleton, Atwoli, Ayuku, & Braitstein, 2013). Moreover, substance and drug use has been associated with a lot of morbidity and mortality among the youth (Volkow and Li, 2000). Importantly studies have shown that more preadolescence and teenage children are using drugs and alcohol (ADF, 1999). This is as a result of social economic problems and cultural practices such as circumcision that is considered an important rite of passage to adulthood (Kandel and Chen, 1995). Globally it is estimated that 243 million people aged between 15-64 years use illicit drugs such as cannabis, opioid cocaine or amphetamine type stimulant (World Drug Report, 2013).

In Kenya, the most commonly used substances and drugs include khat (Miraa), alcohol, tobacco, marijuana, inhalants, pharmaceuticals and hard drugs including cocaine (Embleton, 2013). Although data indicate that in Kenya most males use tobacco relative to females, drug use permeate all strata of the society with the youth and young adults being the most affected groups (Mwenesi, 1996 & GoK, 2011 & GoK, 2012). Of note is a study in Eldoret that revealed that substance and drug use is common among the youth from poor resource setting (Embleton, 2013). Similarly, Gathumbi (2003) found that youth in Kenya mainly use cigarettes, bhang, traditional and commercial beer and spirits. Although these data indicate that substance and drug use is a serious public health problem in Kenya, there is still a paucity of data on the magnitude of substance and drug use and the factors that influence their use. Thus, this study was designed to determine the magnitude of substance and drug use among the youth in Nyamira Sub County. Globally the most used drugs are opiates and opiods, cocaine, cannabis, amphetamine, alcohol, tobacco, khat and inhalants (Embleton, 2013 & WHO, 2014). In European countries, there is geographical differences in the prevalence of illegal substance use among adolescents between countries (Rubin, 1984) with higher prevalence among adolescents from the more developed countries (Miller, 2009). Similarly, in United States (US) youth between the ages of 18-20 years mostly use cannabis and tobacco while in the United Kingdom the youths mainly use cannabis (Frisher, 2007). Furthermore, in Slovenia a study revealed that the youths mainly used cannabis, cocaine and opium (Rubin, 1984). In Sub-Saharan Africa, the youth mainly use alcohol, Khat, cannabis, tobacco, inhalants, cocaine, ecstasy pills (Miller, 2009 & Embleton, 2013).

In Kenya, a study by National Authority for the Campaign Against Alcohol and Drug Abuse (GOK) revealed that the most frequently used substances and drugs are alcohol, miraa, tobacco, inhalants and bhang in that order (Gok, 2012). While a previous study indicated that the most frequently used drugs in Kenya include alcohol, tobacco, narcotics (opium, morphine, heroin, cocaine, synthetic, analgesics, and barbiturates), cannabis, hallucinogens, inhalants (aerosols, gasoline, petrol sprays, glues), stimulants like Amphetamines, cocaine, *khat* and caffeine beverages (Amayo, 1994). Recently studies have shown that there is increased use of sex enhancement drugs (Harte and Meston, 2012 & Hardon and Idrus, 2015), and antiretroviral drugs among the youth (Grelotti, 2014). Although these data indicate that drug use is common among the youth and there are geographical differences in the types of substances and drugs used. There is a paucity of data on the types of substances used by youth in poor resource setting in peri-urban and rural settings in Kenya. Moreover, there is limited data on the use of sex enhancement and antiretroviral drugs among the youth in Kenya. Therefore, this study was designed to determine the types of substances and drugs used by the youths in Nyamira Sub County in Nyamira County.

Substance and drug use amongst the youths is influenced by several factors including: Individual factors like gender which has been associated with drug and substance use with more males relative to females found to use tobacco in Kenya (Miller, 2009 & GOK, 2012). While comparative study in US and South Africa revealed more females relative to males use alcohol in US while the reverse is true in South Africa (Brown, 2001), indicating there are context-specific difference on how individual factors influence use of alcohol. Of note, there is variation on how gender influences use of given drugs and substance, indeed a study in Brazil revealed that smoking is more prevalent among girls, while alcohol consumption is common among boys (Brown, 2001). In Ethiopia, the male gender is associated with use of alcohol, tobacco and Khat among undergraduate Medical University students (Deressa and Azazh, 2011). Religiosity also plays an important factor in determining use of drugs and substance with those who are more religious being less likely to use substance and drugs (Brown, 2001 & Kelly, 2011). The other factors that have been found to be independent predictors of substance and drug use amongst the youth include age, availability and affordability of substances and drugs, peer influence, medical condition, socio-economic factors, ethnicity, parent-adolescent communication, school factors, experience of violence and having someone with similar habit in the family (Reda, 2012 & Denise, 2013 & Suerken, 2014). Although these data indicate that substance or drug use is influenced several factors, there is limited data on the factors that influence substance and drug use among in Kenya. Hence this study determined the predictors of substance and drug use in Nyamira Sub-County in Nyamira County using multivariate logistic regression analysis.

Statement of the Problem

Substance and drug use is emerging as a serious public health problem in Kenya (Gok, 2011). In fact, studies have shown that the youths from poor resource settings are more susceptible to likely use the drug and substance (Craig, 2012 & Embleton, 2013). Significantnw substance and drug use has been associated with serious medical problems including psychiatric problems, organ failures and morbidities such as cancers, liver cirrhosis, hypertension and pancreatitis, poor academic performance, lethargy, antisocial behaviors, risky sexual behaviors, violence, child abuse/neglect and workplace absenteeism and mortality (Corrao, 2004 & Borges, 2006 & Lau, 2008 & WHO, 2011). However, despite public health problem associated with substance and alcohol use there is still a paucity of epidemiological data in developing countries (Degenhardt, 2008 & Giovino, 2012). For example, In Kenya, epidemiological data on substance and drug use are available for selected populations such as adults attending medical facilities, street children, prisoners (Ndetei, 2009 & Othieno, 2009 & Embleton, 2013) and adolescents in major towns (Mugisha, 2003 & Ogwell, 2004) and from small-scale surveys indicate there are geographical disparities in the magnitude of substance and drug use in Kenya. (GOK, 2010). But these studies had several limitations including assessing the magnitude of a few selected substances and drugs and none looked at the magnitude of use of sex enhancement drugs and anti-retroviral drugs. Moreover, reports suggest that drug and substance use is emerging as common practice among youths living in Nyamira County (Kostelny, 2014 & NASCOP, 2014).

This understanding would help in providing epidemiological data on drug and substance use in Nyamira county which was lacking. Thus, with this data the county would be able to craft sound policy to help address the problem associated with drug and substance use.

Study Objectives

The general objective of the study was to evaluate drug and substance use and its predictors among the youth in Nyamira Sub-County, Nyamira County. The specific objectives were:

- To determine the prevalence of drug and substances use among the youth in Nyamira Sub County
- To determine the types of drugs and substances used by youths in Nyamira Sub County
- To evaluate the predictors of drugs and substance use among the youth in Nyamira Sub County

LITERATURE REVIEW

Epidemiology of substance and drug use among youth

Estimates indicate that about 243 million youths use illicit drugs such as cannabis, opioid cocaine or amphetamine type stimulant globally (World Drug Report, 2014), indicating that substance and drug use is emerging as one of the major public health problems (McCabe, 2009 &Deressa and Azzah, 2011). For example, 4% of deaths globally is associated with tobacco smoking and alcohol use associated with a lot of morbidity including cancers, cirrhosis, hypertension, pancreatitis, cardiovascular diseases, psychiatric problems, violence, antisocial behaviors and criminal activity and mortality among the youth (WHO, 2011). It is projected that by 2030, that tobacco smoking alone will result in eight million deaths with 80% of these premature deaths occurring in developing countries (WHO, 2011b). This will further overburden public health infrastructure in Sub-Saharan Africa since it is already bearing the brunt of this problem (Odejide, 2006 & Embleton, 2013). Importantly previous studies indicate that14% to 92% of youths in Latin America, Africa, the Middle East and Asia use substance or drug during their lifetime (Pagare, 2004 &Souza,2010 & Embleton, 2013). Most of the youths mainly use these substances and drug to forget their problems, dull hunger, gain peer acceptance, feel warmer, and/or help them endure difficult work (Njord, 2010 & Embleton, 2013). This has been compounded by African cultural practices such as circumcision, seen as a rite of passage to adulthood allowing the youth to start using substance and drugs (Kandel and Chen, 1995). Moreover, the youth in resource constrained settings engage in drug or substance use due to abject poverty, child abuse, neglect, familial dysfunction, death of parents, war and socio-cultural and religious beliefs (Embleton, 2013). Of significance studies have indicated that the types of substance and drug use differs geographically due to differences in socioeconomic status (Miller, 2009 & Dressa and Azazh, 2013). Hence there is a need to understand the types of substances and drugs used in different geographical settings.

In Kenya, alcohol and diverse types of substances that are permitted or prohibited by law are readily available to adults and to a growing number of young people, both female and male students and non-students together (NACADA, 2003). A preliminary survey was conducted among secondary school students in Kenya and the results confirmed that drug abuse was quite prevalent among secondary school students. The study also revealed that the problem was more acute in urban schools as compared to rural schools. Nairobi and Mombasa are notoriously known for being transit routes for illegal substances (Aden, 2006). Drug abuse is widely spread used in Nairobi. An example is in the year 2000 in which many Kenyans about 130 died at Mukuru kwa Njenga and Mukuru Kayaba. Many went blind and hundreds of others were hospitalized after consuming illegal brewed poisonous liquor called kurni kumi containing methanol and other additives such as car battery acid and formalin. In Kenyan streets, many street boys and girls can be found sniffing many kinds of inhalants like cobbler's glue, petrol and other substances. This is the way these children express frustration, hopelessness and powerlessness (Otieno, 1979).

Family Factors

Familial risk factors include childhood maltreatment (including abuse and neglect), parental or familial

substance abuse, marital status of parents, level of parental education, parent-child relationships, familial socioeconomic status, and child perception that parents approve of their substance use. Child maltreatment has been classified for the purpose of this paper as a familial factor, though it is important to note that not all maltreatment is perpetrated by a family member. The federal Child Abuse Prevention and Treatment Act (CAPTA) defines maltreatment as child abuse or neglect, which encompasses any act or lack of an act by a child's caretaker that results in physical or emotional harm (Department of Health,2011). Childhood maltreatment, including physical abuse and neglect, has been linked to increased risk for adolescent substance use, with one study reporting 29% of children who experienced maltreatment participating in some level of substance use and another reporting 16% of maltreated children abusing substances (P. L. Kohl, 2007).

Individual Factors

Though many risk factors for adolescent substance abuse and dependence are external, there are some individual factors that can contribute to the risk of developing a substance use disorder. Within the literature, two commonly discussed individual risk factors are attention deficit hyperactivity disorder (ADHD) and depression (American Psychiatric Association, 1994). Likewise, individuals who are diagnosed with posttraumatic stress disorder (PTSD) or mental illness are at greater risk for adolescent substance abuse.

Attention deficit hyperactivity disorder (ADHD) is defined by either sustained inattention, characterized in part by forgetfulness and distractedness, or ongoing hyperactivity-impulsivity (American Psychiatric Association, 1994). In this definition, hyperactivity includes fidgeting and continuously moving, and impulsivity is characterized by interruptions and inability to wait. The DSM-IV estimates that the prevalence of ADHD among school-aged children (from 5 to 17 years old) is

approximately 3–5% (American Psychiatric Association, 1994). However, the CDC reported that, in 2007, 13.2% of male children and 5.3% of female children between the age of 4 and 17 had been diagnosed with ADHD. Furthermore, the CDC has also found that, between 1997 and 2007, the rate of diagnosis of ADHD among children aged from 4 to 17 increased between 3% and 5% each year (Centres for Disease Control and Prevention, 2011). It is important to note that this may reflect an increase in reporting statistics or inaccurate diagnoses rather than an increase in prevalence in the past decade.

Several studies, including a meta-analysis of thirteen studies, have indicated that childhood ADHD leads to increased risk of developing a substance use disorder during adolescence or adulthood (The Psychiatric Times, 2004). Specifically, children with ADHD have an increased chance of substance use, with the increased likelihood ranging from 1.47 to 3 times, where the former was based on the development of a substance use disorder and the latter on lifetime use of an illicit drug other than marijuana. Furthermore, the aforementioned meta-analysis concluded that ADHD can specifically lead to increased risk for alcohol or nicotine abuse (Charach, E. Yeung, T. Climans, and E. Lillie, 2011). However, the meta-analysis of the results regarding the link between marijuana use and ADHD was inconclusive.

Researchers have also questioned whether drugs used to treat ADHD (stimulants) may also increase the likelihood of adolescents developing a substance use disorder (Wilson, 2007). However, studies have generally found that stimulant drugs used as medications for the treatment of ADHD do not increase the likelihood that an adolescent will develop substance abuse or dependence (Wilson, 2007). Research, including a meta-analysis of six studies, has revealed that stimulant drugs prescribed for the treatment of ADHD may in fact reduce the risk of developing a substance use disorder by as much as 50% (Wilson, 2007).

Types of Substances and drug used by Youth

Globally it is estimated that there is upsurge increase in the number of youth using prescription and non-prescription drugs and substance (WHO, 2013). A recent study indicated alcohol is the most commonly used substance but there is variation in alcohol drinking based on whether they were from rural, peri-urban and urban regions (Chan, 2015). A part from alcohol a study revealed that in Kenya most males use tobacco relative to females and drug use permeate all strata of the society with the youth and young adults being the most affected groups (Mwenesi, 1996 & GOK, 2011 &GOK, 2012). Of note, a study in Eldoret revealed that substance and drug use is common among the youth from poor resource setting (Embleton, 2013). Similarly, Gathumbi (2003) found that youth in Kenya mainly use cigarettes, bhang, traditional and commercial beer and spirits. Another study revealed that youths in Kenya commonly use tobacco, marijuana and khat (Kinyanjui and Atwoli, 2013). Although there is low rate of injecting drug use in Kenya, studies have found that the use of cocaine and morphine was high within Nairobi, Malindi and Mombasa (Ndetei, 2004). In addition, heroine, amphetamines, ecstasy pills, opiates and opioids, psychotic drugs are commonly used by the youth in urban centers (Beckerleg, 2006 & Kinyanjui and Atwoli, 2013 & Tun, 2015). Other studies have reported increased use of sex enhancement drugs such as erectile dysfunction medications among the youths (Harte and Metson, 2012 &Yu, 2015). Of significance is that the use of these drugs and substances are associated with increased risk of sexually transmitted infections like Human Immunodeficiency virus (HIV) (Yu, 2015). More importantly, even after getting HIV infection, studies have shown that there is increased use of antiretroviral drugs as recreational drugs among the youths (Grelotti, 2014 & Rough, 2014 &Hardon and Idrus, 2015). Overall these data indicate that each region has unique socio-demographic and substance and drug use profiles. However, there is still a paucity of data on the magnitude of substance and drug use and the factors that influence their use. Thus, this study was designed to determine the magnitude of substance and drug use among the youth in Nyamira Sub-County. Moreover, substance and drug use among the youths is influenced by several factors that are context specific (Embleton, 2013 & Kinyanjui and Atwoli, 2013 &Yu, 2015). Therefore, there is a need to understand the context-specific determinates of substance and drug use among the youths.

Factors Influencing Substance use among Youth

Substance and drug use is associated with several factors. For example, several studies indicate that drug and substance use is associated with gender (Miler, 2009 & GOK, 2012 & Dressa and Azzah, 2013). In deed studies in Kenya revealed that more males relative to females use cigarettes and alcohol (Miller, 2009 & Gok, 2012). However, in United States of America prevalence rates of alcohol use were significantly higher among female students than male students (Brown, 2001). These data further suggest that ethnicity is one of the determinants of substance or drug use. Studies have also revealed one the important predictors of substance and drug use among the male youths was the specific substance or drug use by peers, partners or parents (Washburn, 2014). Indeed, a study among university students revealed that peer influences and having previously used a drug or substance were important determinant for alcohol and tobacco use (Deressa and Azzah, 2011). Moreover, family factors such as socioeconomic status, violence including child abuse and exploitation, parental monitoring of the youths are important determinants of drug use among the youth (Embleton, 2013 & Marcos and Martinez, 2015). In deed studies have shown that residential location whether rural or urban, low parental education levels and low annual family income are independent predictors of drug and substance use among the youth (Deressa and Azzah, 2011 &Parikh, 2015).

Religiosity has also been found to be one of the predictor of drug and substance use among the youths (Silva, 2006). In fact, studies have revealed that being a Muslim youth was strongly and positively associated with khat use while Christianity was strongly and positively associated with alcohol use (Deressa and Azzah, 2011). In addition, another study revealed that being religious was a protective factor against the use of psychoactive substance (Silva, 2006). Of note, a recent survey in Nyamira county found that religion was a major determinant of drug or substance use among the youths, with Seventh day Adventist being less likely to use alcohol and tobacco relative to Catholics (Kostelny, 2014 &).

The increased use of sex enhancement drugs such as erectile dysfunction medications and antiretroviral drugs among the youths as recreational drugs (Harte and Metson, 2012 &Yu, 2015), indicates that other factors such as the health status like erectile dysfunctions can lead the youths to use drugs. Of significance increased drug and substance use has been reported among the men who have sex with men due to stigmatization (Hardon and Idrus, 2015), suggesting that cultural values are important determinants of substance and drug use. Indeed, cultural stigmatization due to history of incest, problems in romantic relationships, and being single parenthood doubles the youth's chances of engaging in heavy alcohol drinking and drug use (Snyder and Rubenstein, 2014). Overall these data indicate that there are unique context-specific factors that influence drug and substance use among the youths (Embleton, 2013 & Kinyanjui and Atwoli, 2013 &Yu, 2015). However, there is a paucity of data on the determinants of drug use among the youths in Kenya. Thus, this study was designed to determine the predictors of drug and substance use among the youths from poor resource settings in Nyamira Sub-County.

Kasundu et al. (2012) contends that social-cultural factors also play a major role in determining one"s behavior. For instance, some cultures recommend taking of stimulants, depressants and hallucinogens such as beer, liquor, wine, tobacco and cannabis sativa during cultural functions. Some liquor or drugs are culturally accepted and during these cultural ceremonies or festivities, people are grouped in age sets and provided with the drugs. The social environment also plays a great role in influencing drug abuse ranging from the family environment to the peer group influence and the need to fit in a certain group (Horta, 2007; Kaduri, 2008; and Priscilla, 2007). Kasundu, et al. (2012) findings on their study on factors contributing to drug abuse among the youths in Bamburi location, Kenya, indicated that social cultural factors such as peer pressure and motivational factors such as accessibility of drugs in the area, need to experiment, need to relieve stress and need to enjoy the feeling out the potency has been blamed for the rise of the menace among the youths in the study area. In conclusion, the study findings revealed that influence from friends plays a great role in influencing drug abuse in the study area than any other social cultural factor.

A friend or peer group is likely to be the source of information for drug users about the availability of drugs and the alleged effects (Ngesu, 2008). The interest and expectation of the peer groups have an important bearing-on whether or not a person will try dependence or be lured to taking drugs (Oketch, 1997). Many scientists have come up with several explanations as to why individuals first become involved with drugs and then move on to abuse (Van Atta & New mark, 2005). One of these explanations is that starting to abuse a drug may lead to affiliation with more drug abusing peers which, in turn, exposes the individual to other drugs. Association with drug-abusing peers is often the most immediate risk for exposing adolescents to drug abuse and delinquent behaviour.

Pudo (1998) noted that children from homes whose parents take drugs tend to imitate the behavior of their parents by taking illegal drugs. Parental drug behavior, parental attitude about drugs and substances and various aspects of parent child interaction best predict imitation into drug and substance abuse. 18 There are many consequences of drug abuse in our homes, schools and communities (Elizabeth et al, 2003). Children's earliest interactions occur within the family whereby by it is the first to socialize the children. It has been noted that children from a high social economic background will go to school early and their parents also have a high income. Therefore, it is hard to find them idle. On the other hand, children from low social economic background whose parents have low income are likely to engage in drugs at an early stage e.g brewing of chang'aa and other illicit drugs. There is lack of mutual attachment and nurturing by caregivers or parents, ineffective parenting, a chaotic home environment, lack of a significant relationship with a caring adult (Elizabeth et al, 2003).

In a research conducted in Kisumu town, Kenya, students from low social economic class areas that are slums of the town were more involved in drug abuse compared to those from high social economic class areas of the town. Family influence has also been shown to have an influence on drug abuse (Otieno & Ofulla, 2009). 19 During this period also majority of students are adolescents, a stage of transition from childhood to adulthood. It is a momentous period of life filled with changes, difficulties and special problems. It is described as a period of self-discovery and self-assertion and youth tend to experiment a lot. If therefore parents do not advice and take care of them, chances of getting lost are very high (Oketch, 1997).

A study by Mbatia et al. (2009) on hazardous drinking and drug abuse in urban Tanzania, age range 15-59, found that both men and women who were employed, were household heads, and were between the ages of 25 to 34 reported hazardous drinking since they had greater access to money which enabled them to purchase alcohol. Ward et al. (2008) carried out a study on prevalence of substance abuse between both men and women South African primary care clinic patients, age range 18-25+, which found that being employed was cited as a reason for abuse since it made it possible for individuals to buy alcohol and other drugs. In Kasundu, et al. (2012) study on factors contributing to drug abuse among the youths in Bamburi location, Kenya, the study findings indicated that economic factors such as unemployment, poverty and low cost of drugs in the area have contributed to drug abuse in the area. Though all these factors seemed to be contributing to drug abuse in general, poverty rate in the region has been blamed for the rise of drug abuse in the area. In conclusion, the study revealed that all economic factors have a great influence on drug and substance use.

Theoretical Framework for the Study

The theory that was used to guide this study was the social cognitive theory by Bandura (1986). From the social cognitive perspective, Bandura contends that psychological functioning is a dynamic and reciprocal interaction between personal, behavioural, and environment determinants (Bandura, 1986). According to this theory, an individual's behaviour is uniquely determined by each of these three factors. However, all sources of influence are not of equal strength. The theory also accounts for pharmacological factors such as drug use and the influence they have on behaviour. Humans evoke different reactions from their social environment as a result of their physical characteristics such as age, size, race and sex. Moreover, expectations, beliefs, and cognitive competencies are developed and modified by social influences and physical structures within the environment. These social influences can convey information and initiate emotional reactions through such factors as modelling, instruction, and social persuasion. Applied to the current study, the

social cognitive theory indicates to what extent substance use among youths could be influenced by their gender, age and the social pressure they could be experiencing as they interact in the village. The final interaction occurs between behaviour and the environment. Bandura (1986) argues that people are products and producers of their environment. The behaviour of a person is a product of his or her environment. Humans select their similes to interact with. Inherent within the notion of reciprocal determinism is the fact that people are able to influence their destiny. Meanwhile they recognize that they are conditioned, meaning that they are not free agents to exercise their will. Applied to this study, the aspect of interaction indicates that youths choose to engage in activities that are risky making them vulnerable to substance use. Youths may have knowledge about the altering moods and behaviour by drugs, yet they go ahead abusing them.

The Social Cognitive Theory also explains that the external influences affect the behaviour through cognitive processes. Human beings are capable of forming symbols, which they can use to guide their future behaviour. Through this process, a person is able to model observed behaviour. It is through understanding of the processes involved in ones' construction of reality that will enable a human behaviour be understood, predicted and changed. To apply this knowledge in the current study, the social cognitive theory indicates that behaviour that youths have acquired over time interact with their current secondary school environment to determine their substance use trend.

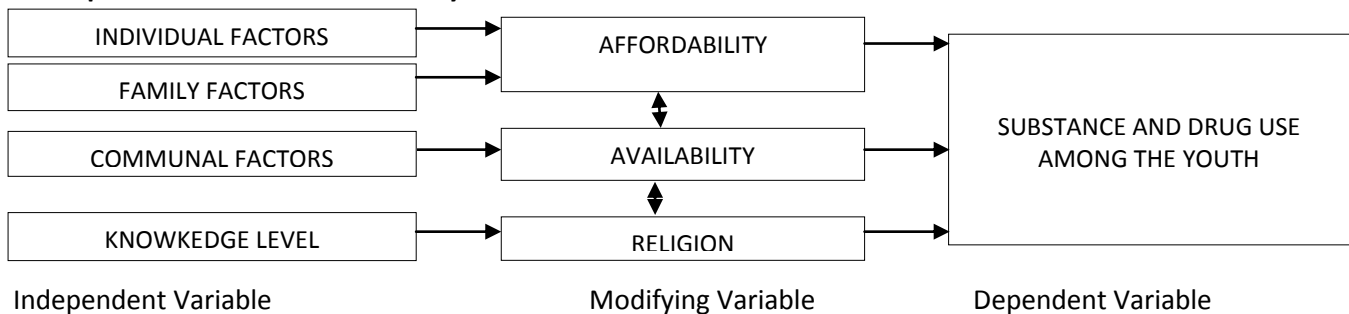**Conceptual Framework for the Study**

Independent Variable   Modifying Variable   Dependent Variable

Figure 1: Conceptual framework
Source: Author (2018)

METHODOLOGY

This study used a cross-sectional study design to collect both quantitative and qualitative data. The study was carried out in Nyamira Sub-County, which fall South of Nyamira County. According to Coalter (2010) Nyamira Sub-County is located 5Km North East of Nyamira County (-0.559838, 34.928308). It is believed to be one of the oldest and largest Sub Counties in Nyamira. The Sub-County is divided into five administrative wards where the sampling was carried out namely, Nyamaiya ward, Township ward, Bonyamatuta Ward, Bogichora Ward and Bosamaro Ward. The population was estimated to be 190,000 living in an area of 3 square kilometers (National census, 2009). The target population of the study comprised of all youths in Nyamira Sub County, aged 12-35 years who were residents of Nyamira Sub-County for the last 12 months. The age group coincides with the adolescent stage in which teenagers are usually curious and want to experiment with everything from sex to drugs. The data was entered in excel spreadsheets and transferred to SPSS version 15 (SPSS Inc, Chicago, IL, USA) software program for analysis. Data was cleaned to check for missing values or double entries.

RESULTS

Prevalence of drugs and substances used

Table 1 showed the prevalence of substances used.

Table 1: Prevalence of substances used

Substance used	% Of cases
Alcohol (beer)	51.27
Tobacco	20.05
Narcotic drugs (Opium morphine, heroin codeine)	4.31
Cannabis (charas, bhang, cocaine, marijuana, hashish)	15.23
Hallucinogens (L.S.D, P.C.P, Mescaline, barbiturates)	0.25
Inhalants (Aerosol, gasoline, petrol sprays, glue)	7.11
Stimulants (Miraa)	16.75
Caffeine beverages (coffee, tea, cocoa)	89.09
Sex enhancement drugs (vega, Viagra, cialis, enzoy, target bullet)	6.6
Antiretroviral drugs	2.28

Table 2 showed the reasons why the study participants used drugs.

Table 2: Reason for drug use

Reason for drug use	% Of cases
To relax	32.58
To relieve stress	49.77
To be accepted by peers (peer pressure)	28.96
Excess pocket money	4.52
Desire to experiment	28.05
They are easily available	0
To enhance academic performance	2.26
To cope with problems	14.48

Table 3 illustrated the problems attributed to the use of drugs among the youth in Nyamira.

Table 3: problems attributed to drug use

Problem attributed to drugs	% Of cases
Quarrel or argument	54.08
Scuffle or fight	3.57
Accident or injury	27.04
Loss of money or other valuable items	36.73
Damage to objects or clothing	0
Problems with in your relationships with your parents	2.55
Problems with your relationships with your teachers	20.41
Perform poorly are school or at work	7.14
Victimized by robbery or theft	2.55
Trouble with the police	4.59
Hospitalized	4.08
Engaging in unprotected sex	8.16
Medical problems	1.53

On variation of drug/alcohol consumption with socio-demographic characteristics, Table 4 displayed lifetime and past-year/month prevalence of drug/alcohol use by gender.

Table 4: Substance use by Socio-demographic characteristics

	Ever taken drugs/alcohol		Drugs/alcohol use past 12 months		Drugs/alcohol use past 30 days	
Variables	Prevalence n(%)	*p* value	Prevalence n(%)	*p* value	Prevalence n(%)	*p* value
Gender		<0.0001		<0.0001		<0.0001
Male	186(60.39)		161(52.27)		152(49.35)	
Female	36(28.57)		30(23.81)		33(26.19)	
Not Applicable	24(10.67)		7(3.11)		6(2.67)	
Parents Marital Status		0.383		0.075		0.104
Single	25(56.82)		23(52.27)		22(50.00)	
Married	152(48.56)		130(41.53)		124(39.62)	
Divorced/Separated/Widowed	39(58.21)		36(53.73)		36(53.73)	
None	6(60.00)		2(20.00)		3(30.00)	
Fathers Education Level		0.209		0.352		0.294
Primary	68(53.97)		62(49.21)		59(46.83)	
Secondary	82(54.67)		66(44.00)		67(44.67)	
Post-Secondary	48(42.48)		43(38.05)		40(35.40)	
Mothers Education Level		0.002		0.007		0.003
None	26(72.22)		20(55.56)		20(55.56)	
Primary	96(57.49)		87(52.10)		85(50.90)	
Secondary	69(44.52)		59(38.06)		57(36.77)	
Post-Secondary	31(41.33)		25(33.33)		23(30.67)	
All the data was analysed using Pearson's Chi-Square test						

Table 5 summarized the variation of drug/alcohol consumption with parent, sibling or friend use of drug/alcohol.

Table 5: Substance use by Socio-demographic characteristics

	Parents Current use of drug/alcohol		Sibling Current use of drug/alcohol		Friends Current use of drug/alcohol	
Variables	prevalence n(%)	*p* value	prevalence n(%)	*p* value	prevalence n(%)	*p* value
Gender		0.044		0.007		<0.0001
Male	229(74.35)		230(74.68)		109(35.39)	
Female	105(83.33)		109(86.51)		90(71.43)	
Fathers Education Level		0.261		0.16		0.326
None	25(75.76)		22(66.67)		13(39.39)	
Primary	90(71.43)		96(76.19)		52(41.27)	
Secondary	116(77.33)		116(77.33)		69(46.00)	
Post-Secondary	93(82.30)		95(84.07)		59(52.21)	
Mothers Education Level		0.009		0.006		<0.0001
None	20(55.56)		21(58.33)		8(22.22)	
Primary	128(78.71)		129(77.25)		64(38.32)	
Secondary	122(78.71)		122(78.71)		81(52.26)	
All the data was analysed using Pearson's Chi-Square test						

Table 6 displayed behavioral characteristics by gender.

Table 6: behavioural characteristics by gender

Variable	Gender n (%)		p value
	Male	Female	
How often drugs/alcohol used			**<0.001**
None	155(50.32)	96(76.19)	
Daily	74(24.03)	14(11.11)	
Weekly	56(18.18)	10(7.94)	
Monthly	16(5.19)	3(2.38)	
Less than monthly	7(2.27)	3(2.38)	
Source of money			**<0.0001**
Salary	33(10.71)	5(3.97)	
Business	54(17.53)	10(7.94)	
Friends	30(9.74)	8(6.35)	
Pocket money	4(1.30)	0(0.00)	
Stealing	6(1.95)	4(3.17)	
Farming	18(5.84)	0(0.00)	
All the data was analyzed using Pearson's Chi-Square test			

Socio-demographic and behavioral correlates assumed to be associated with drug or alcohol use among the study participants were assessed using logistic regression as shown in table 7.

Table 7: logistic regression analyses

Variable	Ever used Alcohol/Drug		Present use of drugs/alcohol	
	OR[95%CI]	p value	OR[95%CI]	p value
Age (y)		**<0.0001**		**0.0003**
< 20	ref.		ref.	
20-25	2.42[1.49-3.94]	<0.0001	1.99[1.20-3.27]	0.007
26-30	3.89[2.26-6.71]	<0.0001	2.80[1.64-4.80]	<0.0001
> 30	3.79[1.94-7.14]	<0.0001	2.93[1.54-5.57]	0.001
Employed		**0.3057**		**0.6484**
Yes	ref.		ref.	
No	0.78[0.50-1.24]		0.90[0.57-1.43]	
Age of Drugs/ Alcohol use debut		**<0.0001**		**<0.0001**
< 20	ref.		ref.	
20 – 25	150.75[68.17-333.34]	<0.0001	1308.16[175.35-9759.52]	<0.0001
26 – 30	251.25[32.77-1926.15]	<0.0001	3248[285.53-36946.06]	<0.001
> 30	33.5[3.60-312.11]	0.002	-	
Not Applicable	-		-	
Parents Marital Status		**0.3816**		**0.0837**
Single	ref.		ref.	

Married	0.72[0.38-1.36]	0.307	0.63[0.34-1.20]	0.165
Divorced/Separated/Widowed	1.06[0.49-2.28]	0.885	1.16[0.54-2.49]	0.7
None	1.14[0.28-4.61]	0.854	0.43[0.10-1.88]	0.261
All the data was analyzed using logistic regression analysis				

DISCUSSION

This study found a lifetime substance use prevalence rate (60.3%) among males and (28.57%) among females. Although the life time prevalence reported among males in the current study is similar to prevalence reported among University students in Eldoret (Atwoli, 2011) and higher than the 41% rate reported among high school students in Kenya (Kuria, 1996), this study also shows that a majority of the study participants with high lifetime substance/drug use were between age ranges of 20-25 years and 26-30 years. These data indicate the drug and substance use rates increases with increasing age and therefore interventions and policy strategies should target the younger age groups (Atwoli, 2011). Of significance is that a majority of the study participants had their drug and alcohol use debut before 20 years, these data thus indicate that preventing early substance-related problems would reduce the risk of these problems in later adulthood when the magnitude of life stresses is greater.

Based on the analysis of this study the most commonly used drugs and substances in the study area are caffeine beverages, alcohol, tobacco and stimulants mostly Khat. Of note is that alcohol drinking was more prevalent than tobacco smoking and this finding were consistent with previous observations in Nyanza region (GOK,2007 &KNBS, 2010 &Lo, 2013). However, data from this study revealed that the prevalence of alcohol drinking was higher than those previously reported for rural population in Kenya (GOK, 2007) but similar to findings in a study focusing on drug and substance abuse among University students in Eldoret (Atwoli, 2011). This study further revealed a higher

prevalence of drug/alcohol use over the past one-month and one year among 26-30-year age range. These data indicated that in this region alcohol drinking among the youth was still fashionable and there were no social restrictions existed to discourage this behavior possible due to the fact that in this region after circumcision the youth considered themselves adults. Indeed, previous studies had reported that African cultural practices such as circumcision were seen as a rite of passage to adulthood allowing the youth to start using substance and drugs (Kandel and Chen, 1995 & Embleton, 2013) and the study region was an area where circumcision was widely practiced as a rite of passage and this may account for the high prevalence of drug and substance use as the youths considered themselves adults after initiation. Moreover, the youth in resource constrained settings engaged in drug or substance use due to abject poverty, child abuse, neglect, family dysfunction, death of parents, war and socio-cultural and religious beliefs (Embleton, 2013). Together these data indicated that alcohol drinking was becoming a serious problem in among the youth with chances of transition from use to abuse and dependence were high especially considering the early debut and high frequency of use. Hence there was need of developing and implementing intervention targeting alcohol consumption among the youth in this region.

Apart from tobacco and alcohol the other drugs/substances that were widely used included cannabis and stimulants (miraa). This prevalence was similar to findings of cannabis use among University students in Kenya (Odek-Ogunde, 1999) but lower than 21% reported among inmates in Eldoret (Kinyanjui and Atwoli, 2013). But these previous

studies had indicated that cannabis use was associated with being male, unmarried, living in urban centers and being a student (Odek-Ogunde, 1999 &Kinyanjui and Atwoli, 2013). These differences might be partly due to the study participants coming from rural set up and being of younger age relative to previous studies involving inmates (Kinyanjui and Atwoli, 2013). Cannabis was associated with a lot of psychological dependence and mental illness (Bruga, 2005 & Kinyanjui and Atwoli, 2013). Therefore, this finding indicated that there was need to formulate policies and interventions that target cannabis especially in mental health promotion campaigns in rural settings. Moreover, this study reported that other psychoactive substance that was widely used was Khat or miraa and although the prevalence reported in this study was lower than that reported in studies from Ethiopia, Somalia and Saudi Arabia (Odenwald, 2005 &Reda, 2012 & Gebreslassie, 2013), where it was widely used for stimulation and social recreation. Therefore, these data indicated that in the study region Khat use was becoming common as a stimulant or for recreational purposes. Furthermore, studies had indicated that the types of substance and drug use differed geographically due to differences in socioeconomic status (Miller, 2009 & Dressa and Azazh, 2013). Hence there was need to understand the types of substances and drugs used in different geographical settings. In addition, this study further showed that a majority of participants used these drugs and substances due to peer pressure, family background and due to availability of these drugs. Thus, any interventions strategies targeting the youth in poor rural settings must address these three issues during formulation of policies and development of intervention strategies. Significantly earlier studies had indicated that availability of drugs and having family members using these drugs and substance and peer pressure influences the usage of cannabis and Khat (Oshodi, 2010 &Grossbard, 2010 & Kinyanjui and Atwoli, 2013 &Gebreslassie,2013).

This study also reported low prevalence of narcotic drugs and sex enhancement drugs. However, these findings were in line with previous observations that have shown that the use of narcotic drugs such cocaine and morphine is relatively higher in urban centers relative rural set up (Ndetei, 2004 &Beckerleg, 2006 & Kinyanjui and Atwoli, 2013 & Tun, 2015). In addition, previous studies have shown that hard drugs such as heroin and cocaine are rarely used in Africa (Deressa, 2011 &Gebreslassie, 2013). However, the increase in use even in rural settings indicated that these drugs were becoming a common problem among the youths in rural set up. Of note was the increased use of sex enhancement drugs reported in this study this was in agreement with recent reports of increased use of sex enhancement drugs such as erectile dysfunction medications among the youths (Harte and Metson, 2012 &Yu, 2015), this increase in use was compounded by the fact that most of these drugs were bought over the counter without prescription and they were used without taking into consideration their overall impact on the overall health of the youth. Moreover, these drugs and substances were associated with increased risk of sexually transmitted infections like Human Immunodeficiency virus (Yu, 2015). More importantly, even after getting HIV infection, studies showed that there was increased use of antiretroviral drugs as recreational drugs among the youths (Grelotti, 2014 &Rough, 2014 &Hardon and Idrus, 2015). Although these studies reported 2.8% usage of ARV this study did not determine if they were being used for recreational activities. More importantly, even after getting HIV infection, studies have shown that there is increased use of antiretroviral drugs as recreational drugs among the youths (Grelotti, 2014 & Rough, 2014 &Hardon and Idrus, 2015). Therefore, these data indicated that there was increased use of ARV among the youth in the study set up but whether it is used rightly for HIV chemotherapy or for recreational purposes was not studied in the current study.

Most of the study participants in the study were introduced to drug and substance use by friends, similar findings reported by previous studies (Kinyanjui and Atwoli, 2013 & Birhanu, 2014). In addition, most of drug and substance users in this population reported that the main reason for use of drugs and substances was due to peer pressure, parents using the drugs and substances, easy availability of drugs and substance, frustrations or stress at home and joblessness. These data thus suggested that social norms and learned behaviors impacted on the usage of drug and substances among the youth (Birhanu, 2014). Overall these data indicated that the use of substances and drugs among the youth was influenced by a multiplicity of factors and the substance and drug awareness campaigns should take into consideration and incorporate all these factors. Indeed, previous studies had shown that African cultural practices such as circumcision were seen as a rite of passage to adulthood allowing the youth to start using substance and drugs (Kandel and Chen, 1995 & Embleton, 2013). Although this study did not look at the role of cultural norms in influencing use of substance and drugs these data suggested that for effective mitigation of drug and substance use and abuse there was need to understand cultural aspects that promoted it.

This study revealed that drug and substance use had several negative effects among the youth including engaging in quarrel and arguments, causing accidents or injury, loss of money or other valuables, having problems in relating to teachers and parents, having trouble with police, engaging in unprotected sex, having medical problems and being hospitalized. These findings are in line with previous findings (Kinyanjui and Atwoli, 2013 & Birhanu, 2014). Moreover, other studies reported that early debut of drug and substance abuse is associated with mental illnesses and hospitalization (Rohde, 2007 & WHO, 2012 & Kinyanjui and Atwoli, 2013 & Birhanu, 2014). Early debut of substance and drug use has also been

associated with a lot of body injuries resulting from interpersonal violence or car accidents, involvement in unprotected sex, youth suicides, homicides and fatal injuries (Bukstein,2005). Together these data indicate that drug and substance use among the youth is a serious public health problem that needs to be tackled in a holistic manner in order to reduce the morbidity and mortality associated with it. Therefore, assessment of risk and protective factors for youth substance abuse is critical in designing effective intervention measures.

The risk factors associated with drug and alcohol use among the youth in this study included residing in urban centers this was similar to findings from previous studies a study among inmates in Kenya (Kinyanjui and Atwoli, 2013). These data therefore indicated that there were context-specific factors in urban centers that encouraged drug and substance use among the youth. The other predictors included parents being businessmen and this may be partly due to the youth having enough money to buy the drugs and substances. This is in contrast to previous findings that had shown that low socioeconomic status and low family as predictors of drug and substance use (Deressa and Azzah, 2011 &Parikh, 2015). The differences in these findings might be due to inclusion is of broad spectrum of drug and substance usage including even the usage of narcotic drugs and sex enhancing drugs. The increased use of sex enhancement drugs such as erectile dysfunction medications and antiretroviral drugs among the youths as recreational drugs (Harte and Metson, 2012 &Yu, 2015), indicated that other factors such as the health status like erectile dysfunctions can lead the youths to use drugs. Of significance increased drug and substance use had been reported among the men who have sex with men due to stigmatization, (Hardon and Idrus, 2015) suggesting that cultural values are important determinants of substance and drug use. In deed cultural stigmatization due to history of incest, problems in romantic relationships,

and being single parenthood doubles the youth's chances of engaging in heavy alcohol drinking and drug use (Snyder and Rubenstein, 2014). Overall these data indicated that there are unique context-specific factors that influence drug and substance use among the youths (Embleton, 2013 & Kinyanjui and Atwoli, 2013 &Yu, 2015). The other important predictors was having primary education, marital status especially being divorced/separated, employment status with those employed being less likely to engage in use drugs and substances, age of debut of using alcohol and drugs, parent marital status with those with divorced/separated and widowed being more likely to use drugs and substances. These findings were in line with previous observations (Kinyanjui and Atwoli, 2013 & Birhanu, 2014, Parikh, 2015). Together these studies indicated the drug and substance usage among the youths was influenced by a multiplicity of factors. Of note was that family problems especially marital problems might be influencing usage of drugs and substances among the youth. Further analysis revealed that religiosity was an important determinant with Muslims being more likely to use drugs and substances. Religiosity had also been found to be one of the predictor of drug and substance use among the youths (Silva, 2006). In fact studies had revealed that being a Muslim youth was strongly and positively associated with khat use while Christianity was strongly and positively associated with alcohol use (Deressa and Azzah, 2011) similar to the findings of this study. In addition, another study revealed that being religious was a protective factor against the use of psychoactive substance (Silva, 2006) and in line with these findings, this study also found that those who were non-religious were more likely to use drugs and substances further supporting the hypothesis that being religious is a protective factor against drug and substance use. Of note, a recent survey in Nyamira county found that religion was a major determinant of drug or substance use among the youths, with Seventh day Adventist being less likely to use alcohol and tobacco relative to Catholics (Kostelny, 2014).

CONCLUSION

This study found that there was high prevalence of drug and substance use among the youth in Nyamira sub County Nyamira County. There were more males relative to females using drugs and substances in Nyamira county. There was high prevalence in the use of alcohol, tobacco, stimulants like Khat, cannabis and even sex enhancement drugs. The usage of drugs and substances was mainly attributed to peer pressure, family frustrations, lack of jobs, parental or family history of using drugs and substances with the main reasons for using these drugs and substances being to relax, to relieve stress, to be accepted by peers and to experiment. Drugs and substance usage in Nyamira County was also associated with several negative effects including quarrels, accidents and injuries and hospitalization. The primary predictors for using drugs in this area included residing in urban area, parent being businessmen, being a Muslim, marital status with those divorced/separated/widowed being more likely to use drugs and substances. In addition, parental marital status was an independent predictor of drug and substance usage with those from divorced/separated or widowed parental more likely to use drugs and substances.

RECOMMENDATION

Overall, several factors contributed to drug and substance use and could be focused in education to decrease the same amongst the youth the focus should be more on males as the prevalence was higher in males. Multi-dimensional prevention programming fostering anti-substance use attitudes among individual's adolescents, parents and peers might be most effective in preventing and reducing substance use patterns among the youth by the government. Interventions to decrease use among the youth could be focused on leveraging on protective factors such as religion and social skills and

decreasing the negative influence of norms favorable to substance use in community. Public awareness campaigns to inform youth of the risk of substance use maybe introduced through diverse media formats. Education in primary and secondary schools could be integrated into curricula and strengthened with special focus on the adverse consequences of the drugs and substances.

Focus should also be put in policy addressing problems caused by alcohol, tobacco, khat, and sex enhancement drugs as this were the most widely used drugs in Nyamira county.

Recommendation for future research

Further research could be done to determine predictors and prevalence of the use of sex enhancement drugs among the youth and the elderly. This would shed more light on factors that influence the use of sex enhancement and its correlation with sexually transmitted infections. In addition, there should be studies on the influence of cultural norms and practices on drug and substance use among the youth.

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