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PREVALENCE OF SUBSTANCE USE AMONG RURAL HIGH SCHOOL STUDENTS IN LIMPOPO PROVINCE, SOUTH AFRICA

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ABSTRACT

This study documents the prevalence rates for use of cigarette, alcohol, methylated spirit, cannabis, mandrax and cannabis together, glue or thinners among rural high school students in Mankweng, Limpopo Province, South Africa. A multistage sampling procedure produced a sample of 1600 students in grades 9 and 11 who completed a self-administered questionnaire. The prevalence rates for previous mouth (recent) use of alcohol, cigarettes, cannabis glue and spirits were 6.4%, 10.5%, 1.4%, 1.2% and 0,8% respectively. For all substances, males had higher prevalence rates than females. Developing alcohol and drug programme for high school students that are more gender specific may improve the effectiveness of intervention efforts at high schools.

KEY WORDS: substance use, rural high school students, South Africa

INTRODUCTION

Globally, cannabis is the most widely consumed illicit drug, with an estimated 114 million people using cannabis annually. Although cannabis is not the principal problem drug of abuse in Europe, the Americas, Australia or Asia, it is the main problem drug of abuse in Africa (UN, 2000). The results of the analysis of the changes in cigarette use among high school students in the United States indicated that although 1) the prevalence of life-time cigarette use was stable among high school students during 1990s and 2) the prevalence of both life-time and current frequent cigarette use increased into the 1990s, these behaviours had declined significantly by 2003. The average age of the onset of alcohol use among high school students in the United States in 1995 was 14 years (Escobedo et al, 1995). There has been a trend of decreasing alcohol consumption in most developed countries, in many developing countries, levels of alcohol consumption have increased in recent years (Flisher, 2003; Gurije, 2000; Obot, Karuri & Ibanga, 2003; Parry, 2000; Peden, van Der Spuy, Smith & Bantz, 2000; Rehm & Room, 2003).

Studies addressing alcohol, tobacco and other drugs (ATOD) use from Africa have focused on questions such as prevalence rates, opinions, influence of the media on use and interventions such

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as impact of peer led education. Some of these studies have demonstrated a change in drinking pattern in that traditional and socioculturally integrated modes of drinking have been replaced by socially disruptive drinking, and rates have increased substantially among adolescents and women (Adelakan & Ndom, 1997; Department of Health, 2002; Eide & Acuda 1995; Flisher, Parry, Evans, Muller & Lombard 1998, 2003; Henry J. Kaiser family Foundation, 2001; Karim, Mohammed, Ahmed & Mohammed 1998; Khan & Arnott, 1996; Kuria, 1996; May, Brook, Gossage, Oxford, Adnams, Jones, Robinson & Viljoen, 2000; Parry, 1994; Peltzer & Cherian, 2000; Rocha-Silva, De Miranda & Erasmus, 1996) Other studies have concluded that among adolescents, boys are generally speaking at higher risk for substance use than girls (Escobedo, Chorba, & Wexmeiler, 1995; Flisher et al 2003; Peltzer, Cherian & Cherian, 1999; Rosenberg, Kasl, & Berberian, 1974; Smart & Fejer, 1971; Wildgoose, 1997). Age correlates positively with alcohol use and abuse among adolescents (Escobedo, et al, 1995; Wildgoose, 1997).

In Limpopo Province of South Africa where this study was undertaken, Peltzer (1999) found that among urban secondary school pupils, the majority of both boys and girls first used any substance at the age of 16 years or less. Use of tobacco and inhalants was particularly likely to commence at such an early age. One other study in the area that provided data on substance use by adolescents in Limpopo was that conducted by Madu & Malta in 2003. The study reported prevalence rates of 12.0%, for substance use, (cigarette smoking 10.6%, and alcohol use 39.1%). Cannabis was the most used substance and the mean age for first time users was 14.89 years, 14.54 years, 15.25 years for substance, cigarette and alcohol respectively. These findings apply to the Capricorn district as a whole and included urban, private and semi-urban, farm and a few rural schools combined and had small sample size (n=62, n=32, n=19 for drug use, cigarette smoking and alcohol use).

There has been no published study with a representative sample that has documented the prevalence of substance use among exclusively rural black high school students of specific ethnic group (The Pedi ethnic group) living in a specific district in South Africa. This current study used similar methodology that was used in the Cape Town study referred to above (Flisher et al, 2003) and had a representative sample of high school students of Pedi origin. The main aim was to document substance use behaviour of these students and to determine whether this differ in any way from "Black" high school students that were studied in Cape Town and high school student in some other parts of sub-Saharan Africa. There are reasons to believe that the understanding of the pattern of behaviour of a specific group of people towards substance use or abuse, will better inform the development of culture- and area-specific interventions on substances use or abuse that will be effective. This study aims to fill this gap.

METHOD

Study Population and Sampling

This study population comprised of all students attending high schools in Mankweng Dristict in Limpopo Province. The province has a population of 5.4 million. Of these, 97.1% are black, 2.7% are white, and 0.1% coloured and Indian/Asian each; 45.7% of them are male; and 16.1% are teenagers. Many of the population live under poor economic

conditions and have a low level of access to health facilities (Health Systems Trust and the Department of Health, 1997; Statistics South Africa, 2000).

There are 63 high schools in Mankweng District, all of which are public. Twenty schools were randomly selected from the 63 schools for the study, such that the probability of selection of a school was directly proportional to the number of students in the school. A total of 80 students were selected from each school; 40 were randomly selected from each of grade nine and grade eleven. According to the school records, only a total number of 25 (1.5%) students absented themselves from school on the day of the research without any genuine reason or permission. A total of 1600 students took part in the study.

Instrument

The instrument in this study was previously used in surveys of adolescent substance use in urban settings (Flisher, Ziervogel, Chalton & Robertson, 1993; Flisher et al, 2003). Students provided self-report data on a variety of health-related risk behaviours, including substance use. The questionnaire included 15 items on the socioeconomic background. In addition the questionnaire contained items about whether the student had used various substances. The questions involving substances referred to use of alcohol; drinking methylated spirit; smoking a whole cigarette; smoking "dagga"/marijuana; smoking Mandrax (methaqualone) and dagga together; sniffing glue or thinners; using crack cocaine; using ecstasy; using any illegal drug such as heroine, stimulants, halucinationgenics such as LSD, Nexus, MMDA, injected drugs; and using any other drug. There was also an item that asked how old students were when they used the substance for the first time. Students were asked if they had used a fictitious substance (Derbisol), and the eight students that responded positively to this item were excluded.

Bilingual speakers translated the instrument into Northern Sotho/Pedi (the local language) and back translated the Northern Sotho version into English. In addition, the appropriateness of the questions for rural South African adolescents and young adults was established through focus group discussion with similar aged students at a randomly selected school from the same administrative province (i.e. Limpopo Province). The focus group discussions confirmed that these drugs are the ones used in Mankweng with the exemption of crack cocaine; ecstasy; illegal drug such as heroine, stimulants, halucinationgenics such as LSD, Nexus, MMDA and injected drugs.

Procedure

The instrument was administered during a normal class period by two research assistants. The research assistants, both of whom have Northern Sotho as home language, administered the measure under conditions approximating those of examinations. To preserve the privacy of the students, the teachers were not present during the administration of the questionnaires. Anonymity and confidentiality were stressed. Each question was read to the students and the students answered each question simultaneously. Permission for the students to take part in the study was granted by the Department of Education and Culture of Limpopo Province.

Analysis

Each substance had 3 questions associated with it. The first question was whether the substance had ever been used before (lifetime use), followed by

questions on recent use and current (i.e. whether it had been used in the past year and in the past month respectively). If the first question involving lifetime use was omitted, and the subsequent question has a positive response indicating that the student had used the substance in the previous year or month, we took this as indicating that the student has in fact used the substance in the previous year or month.

Observations with missing values were excluded from the calculation of that particular prevalence rate, except in the case where a student answered negatively to the first question and left out the 2 recent use questions. In these cases negative answers for the following 2 questions were assumed to be negative even though they contained missing values. Those who had given a positive response for recent use over the past month along with a negative response (or missing value) for the past year question, had their value for the past year question changed to be positive i.e. it is not possible to have used a substance during the past month but not during the past year.

All prevalence rates were expressed as percentages. If the lower bound of a particular 95% confidence interval is negative it has been presented as a zero since a negative prevalence rate is meaningless. We compared the results for each gender (within each grade) and for each grade (within each gender). In comparing two groups, if the 95% CI's do not overlap, there is a significant ($p<0.025$) difference between the groups. If the CI's overlapped but not to the extent that the point estimate of one group is contained within the CI of the other group, there is a significant ($p<0.05$) difference between the groups. If they overlap to the extent that the point estimate of one group is contained within the CI of the other group, we cannot draw any conclusions as to whether there is a significant difference between the groups (Fisher, 1959).

RESULTS

The total sample size was 1600. Of these, 740 (46.2 %) were male, 795 (49.6%) were female and 65 (4.2%) did not report their gender. The age range was 11-29 years (mean age 16.4 years; Standard deviation = 2.79). The ages of 663 (41.4%) were between 1 and 15 years, 790 (49.4%) were between 16 and –20 years, 117 (7.3%) between 21 and 25 years; and 8 (0.5%) were 25 years of age or older. 22 (1.4) did not report their ages. There were 800 respondents each in grade 9 and grade 11. Of the total sample size of 1600. A further 22 did not report their gender and were also excluded. The analysis was confined to 1570 students. Table 1 indicates lifetime, past year and past mouth (recent) prevalence rates (with their 95% CIs) respectively of most commonly used substances. For lifetime, past year and past month use alcohol, cigarettes, dagga, glue and spirits were, in descending order, the most prevalent substances used.

Prevalence rates for Ecstasy, crack, Mandrax, illegal drug such as heroine, stimulants, hallucinogenics such as LSD, Nexus, MMDA, injected drugs and other drugs (salicyte analgesics, stimulants, antibiotics, hypo-sedatives, and organic solvents) were generally very low (below 1%) or not reported at all. For all substances, males had higher prevalence rates than females. Alcohol was the most used drug for both boys (52, 7%) and girls (13, 4%) in grade 11. For both grades 9 and 11 combined, the prevalence rates for alcohol are 36, 2% for males and 10, 9% for female. There was a trend for the rates to increase from grade 9 to grade 11 for all the substances. No student reported ever using mandrax, crack and ecstasy.

Table 1. Prevalence rates by gender and grade among Grade 9 and 11 students in Mankweng, Limpopo Province (n=1570)

			GRADE 9	GRADE 11	Total
BOYS	Cigarettes	Lifetime	6,9 (4,4 – 9,4)	28,5 (20,1 – 37)	18,2 (12,6 – 23,7)
		Past year	4,5 (2,5 – 6,6)	23,1 (16 – 30,1)	14,2 (9,4 - 18,9)
		Past month	4,1 (2,1 – 6,1)	21,3 (14 – 28,7)	12,9 (8,2 – 17,5)
	Alcohol	Lifetime	17,5 (9,2 – 25,8)	52,7 (45,2 – 60,2)	36,2 (30,9 – 41,5)
		Past year	8,5 (2,4 – 14,6)	36,9 (31,1 – 42,7)	23,5 (19,1 – 27,9)
		Past month	6,1 (2,5 – 9,8)	30,1 (23,1 – 37,1)	18 (13,4 – 22,5)
	Spirits	Lifetime	0,9 (0 - 2)	3,4 (1,2 – 5,5)	2,2 (1 – 3,4)
		Past year	0,5 (0 – 1,6)	1,1 (0 – 2,2)	0,9 (0,2 – 1,6)
		Past month	0.5 (0 – 1,6)	1,2 (0 – 2,3)	0,9 (0,2 – 1,6)
	Cannabis	Lifetime	1 (0 – 2,4)	10,5 (5,7 – 15,4)	6,1 (3,1 – 9,1)
		Past year	0,5 (0 – 1,3)	6,2 (3,3 – 9,2)	3,6 (2 – 5,2)
		Past month	0,3 (0 – 0,8)	5 (2,4 – 7,7)	2,7 (1,4 – 4,1)
GIRLS	Cigarettes	Lifetime	2,1 (0,5 – 3,7)	1,7 (0,5 – 2,9)	1,9 (1 – 2,8)
		Past year	0,5 (0 – 1,3)	0,5 (0 – 1,3)	0,5 (0 - 1)
		Past month	0,5 (0 – 1,3)	0.5 (0 – 1,3)	0,5 (0 - 1)
	Alcohol	Lifetime	8,1 (3,9 – 12,3)	13,4 (9,9 – 16,9)	10,9 (8,2 - 13,7)
		Past year	3,7 (1 – 6,5)	7 (4,3 – 9,7)	5,5 (3,6 – 7,4)
		Past month	2,7 (0,9 – 4,5)	5,3 (3,1 – 7,5)	4,1 (2,7 – 5,5)
	Spirits	Lifetime	1,4 (0 – 2,8)	1,7 (0,4 – 2,9)	1,5 (0,5 – 2,6)
		Past year	0,8 (0 - 2)	0,8 (0 – 1,6)	0,8 (0,1 – 1,4)
		Past month	0,8 (0 – 2)	0,8 (0 – 1,6)	0,8 (0,1 – 1,4)
	Cannabis	Lifetime	1 (0 – 2,3)	0,8 (0 – 1,8)	0,9 (0 – 1,8)
		Past year	0,5 (0 – 1,4)	0,4 (0 – 1,1)	0,4 (0 – 1,3)
		Past month	0,5 (0 – 1,4)	0	0,2 (0 – 0,7)

For students in both grades 9 and 11, the CIs for boys and girls did not overlap in any case. There was a trend for the rates to increase from grade 9 to grade 11 for boys, with the 95% CIs not overlapping in all the cases. For girls, the CIs for the two grades overlapped in all cases. The CIs for boys and girls did not overlap for alcohol, cigarette and cannabis for grade 11 recent users. The prevalence rate for the use of sprits and cannabis for girls in both grades 9 and 11 were below 1% for girls and the CIs for both grades overlapped.

DISCUSSION

This study found a lower prevalence of substance use among black Pedi high school students compared to other studies. Prevalence rates for ecstasy, crack cocaine, heroine, mandrax and glue or thinners were not reported at all for the total population. Boys used more substances than girls. Boys' substance use seems to increase with grade. For girls, the reverse is the case expect for alcohol that increases with grade as well. Girls are less likely to use spirit, "dagga"/marijuana, cigarette and even alcohol than boys regardless of grade.

Specifically, the prevalence rates of various substances (cigarette, alcohol, methylated spirit; dagga mandrax and dagga together glue or thinners, crack cocaine, ecstasy, illegal drug such as heroine, stimulants, halucinationgenics such as LSD, Nexus, MMDA, injected drugs) use were lower in this study compared to other studies (Flisher et al,

1993, 2003; Madu & Matla, 2003; Obot, Karuri, & Ibanga, 2003; Peltzer et al., 1999; UN, 2000). The lower rates in rural schools in Limpopo Province may be accounted for by the fact that most of the inhabitants are likely to be affected by the traditional African values that discourage the use of drugs by children. According to these values, it would be unmannered, uncultured, and a sign of parental irresponsibility for a typical black African Child to use drugs (Madu & Matla, 2003). They may be less likely to be influenced by other cultural and economic, media and globalization factors.

This study found a lower past month prevalence rate for alcohol use among girls than that of boys in the same grades as was found among black high school students in Cape Town (Flisher et al, 2003). It was also lower than that reported for adolescents in Urban, Peri-urban and rural high schools combined, in Limpopo (Madu 2003), and for grade 11 urban high school students in Limpopo (Peltzer, 1999). The rates were eleven times higher than that of white female students in grade 11 in Cape Town compared to female students in grade 11 in rural Limpopo high Schools. However, the findings of low prevalence rates for black females in Cape Town (Flisher et. al, 1998, 2003), South Africa (Rocha – Silva, 1996) and Limpopo (Peltzer, 1999; Peltzer & Phaswane, 1999; Madu 2003) compared with black males is in line with this study. Culture, access, opportunities, role modelling and other community constructs may account for this trend as there are great disparities in these conditions in urban areas like Cape Town compared to those in rural areas such as Mankweng.

In this study, the prevalence rates of cigarettes use were higher for boys than girls in grades 9 and 11. These low prevalence rates for girls may lie in the character of Mankweng (the study site) which is entirely inhabited by blacks, and substance use, especially cigarette smoking, is culturally a predominantly male activity and often not acceptable among females (Madu & Matla, 2003). Females that smoke cigarette is generally regarded to be wayward and some even relate them to sex work .The same explanation goes for cannabis smoking among grade 11. No rates were reported for grade 9 boys and girls for both dagga and glue use. However, the thirteen years of democracy in South Africa has resulted in policy and legislative reforms that seem to be changing the social and economic circumstances of rural communities including Mankweng in Limpopo province. The effect is that Mankwneg is becoming urbanised, poverty is being alleviated, more families are being empowered economically, basic infrastructure is improving, more and more adolescents are attending schools, and women and children are becoming aware of their "rights". At the same time, development efforts appear to be eroding traditional values. For example, the impact of legislation and social roles of traditional leaders in the preservation of traditional African culture is competing seriously with the western culture. Western cultures seem to be influencing traditional ways of the life of people in Mankweng. If this trend continues, adolescent risk behaviours, including the use of substances, is likely to increase and the current prevalence rates of substance use among adolescents in Limpopo province may increase in the near future.

The prevalence rates for Mandrax, crack and ecstasy were generally low (below 1%) for both males and females in the population. This is not in line with the

findings reported among urban, peri-urban and rural adolescents studied together in Limpopo (Madu and Malta 2003) which found a prevalence rates of crack cocaine of 8.1% (n = 435) for boys and 8, 3% for girls and Peltzer, (1999) that reported prevalence rates of crack of 8.1% for boys and 6, 7% for girls (n=191). These differences may be because both studies included urban high schools and had small and unrepresentative samples of high schools students in Mankweng or the Province as a whole. For example, schools were excluded because the roads leading to them were not accessible (Madu & Malta 2003, page 406). In other words, the sample was not representative of the population in which they were drawn. This unrepresentativeness may limit generalisation of their findings in Mankweng. The present study was carried on in only rural schools in Mankweng and had a representative sample of black Northern Sotho speaking students. Another possible reason for this may be related to the fact that many families in the Limpopo rural (94.6%) communities live under very poor economic and medical conditions (Health Systems Trust and the Department of Health (1997). As a result many children have no money or access to alcohol and other substances. In addition, the black population (97.1%) in Limpopo Province are to a great extent, sturdy holders of their culture and tradition. In the Pedi culture, use of any of the substances mentioned above by adolescents is an unacceptable antisocial behaviour and as a result, adolescents are not expected to use substances. This cultural attribute combined with poverty may have prevented substance peddlers from urban areas from finding market for their business.

Unlike high school students in Cape Town (Flisher et al 2003) this sample did not report taking drugs like ecstasy or crack. This is consistent with the finding of Peltzer and Cherian (1999). A reason for this may be that these substances are more readily available in major urban centres like Cape Town and Durban than in rural Mankweng. The finding that, generally, male students had higher rates of substance use than female students is congruent with other studies.

We are inclined to belief that the pattern of substance use for males and females among high school students of the Pedi ethnic group in Limpopo Province of South Africa could be described to be similar to that of their black counterparts that were studied in Cape Town study (Flisher, 2003) and other studies from Sub-Saharan African countries for alcohol, tobacco, cannabis, mandrax and glue. However, the prevalence rates seem to be lower for all the substances mentioned above. In other words Pedi adolescents attending rural high school appear to use less substance than their urban counterparts in other parts of Sub-Saharan Africa.

This study has some limitations. It relied exclusively on self-reports which are subject to distortion and social desirability effects. The design effect was not taken into account in the analysis. This sample was completely homogeneous in terms of race, and schooling is high school students aged 11-29 years. Given this, external validity of these findings may limit generalisation to Limpopo province as a whole. A proportion of those who tend to exaggerate their substance use may have been excluded from the study by the omission of those (eight students) who answered positively to use of a fictitious drug. The sample included the Pedi ethnic group only and did not account for the two other black ethic groups (Venda and Shangan) that make up the

97% of black people living in the Limpopo Province. Excluding these two distinct ethnic groups may have produced different prevalence rates of substances use among black high school students in Limpopo Province. The alcohol and other drugs users were not asked to indicate the quantity of alcohol or drugs taken or time of consumption in a day. There was no way of assessing underreporting of substance use. The above limitations should be noted by researchers.

CONCLUSION

To achieve maximum impact on substance use prevention efforts among high school students, educational efforts should not attempt single, nation-wide programmes. Developing substance sue programme for high school students that are more gender specific may improve the effectiveness of intervention efforts at high schools. This study supports a call for carefully targeted gender-responsive interventions. This could decrease future substance use problems and set the stage for this high school generation to provide a healthier environment for future generations

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AN EPIDEMIOLOGIC STUDY OF DRUG ABUSE AND HIV AND AIDS IN MALAWI

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ABSTRACT

In this study we examine the prevalence of HIV among drug abusers in Malawi. A purposive sample of 200 drug abusers was invited to provide urine and blood samples. The subjects were selected from self-presenting drug abusers who visited a district hospital in Malawi. The urine samples from both men and women were tested for Gonorrhea and Chlamydia. Urine samples from women were also tested for pregnancy. The blood samples were tested for HIV. The study found a higher prevalence of HIV among non-injecting drug abusers, with those who abused alcohol being more likely to be HIV positive as compared to cannabis abusers. Prevalence of sexually transmitted infections (STIs) was, however, low. The main conclusion from this study is that drug abuse is a risk factor for HIV and not as much for STIs, even in non-injecting drug abusers.

KEY WORDS: Malawi, drug abuse, cannabis, HIV epidemiology, non injecting drug use, sexually transmitted infection

INTRODUCTION

More than 40 million people are living with HIV worldwide, including 5 million new cases in 2005 alone, with Africa contributing about 25 million (UNAIDS, 2006). Malawi is one of the countries worst hit by the HIV and AIDS epidemic with an infection rate among the childbearing age group of 16.4%. Youth aged 15-24 claim 46% of new HIV infections of which 60% occur among girls. It is estimated that about 735,000 people are sero-positive of which 265,000 have already developed AIDS (Malawi National AIDS Commission, 2003).

There are three main drugs of abuse in Malawi, namely alcohol, cannabis and tobacco (cigarettes). The most common drug of abuse in Malawi is cannabis. Its consumption is growing and production had increased from 170,000 hectares in 1999 to 175,000 in 2000. Cannabis use in Malawi is still encouraged by traditional beliefs, such as women's belief that cannabis can cure measles, some students believe that it can make them intelligent and some men think that cannabis can improve their sexual potency. There has been an increase in drug abuse cases in Malawi, from 15% in 1995 to 21% in 1999. It has also been observed that the problem of drug abuse, especially cannabis is increasing among the youth resulting in an annual average of 20% of registered mental illness cases

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and other related diseases (Bisika et al, 2004).

Drug abuse and addiction have been linked with HIV and AIDS since the beginning of the epidemic. Although injection drug use is well known in this regard, the role that non-injection drug abuse plays in the spread of HIV is less recognized. Drugs have addictive and intoxicating effects, which can alter judgment and inhibition and lead people to engage in impulsive and unsafe behaviors. Studies in several countries have shown an association between harmful consumption of alcohol and health and social consequences, including death from road traffic accidents, domestic violence, HIV infection, and disorders requiring demand for treatment (Obot, 2006).

People typically associate drug abuse and HIV and AIDS with injection drug use and needle sharing. When injection drug users (IDUs) share equipment, such as needles, syringes, and other drug injection paraphernalia, HIV can be transmitted between users. Other infections, such as hepatitis C, can also be spread this way. Hepatitis C can cause liver disease and permanent liver damage. Studies have observed that HIV rates are higher among Aboriginal IDUs as compared to the aboriginal general population (Remis, 2000) and that IDUs have been pivotal in the dynamics of the HIV epidemic (Bastos et al, 2002). Studies have also documented a serious concentrated HIV epidemic among IDUs in countries like Mauritius (Abdool et al, 2006). There are, however, studies that show that HIV rates obtained for IDUs and non injection drug users (NIDUs) are fairly similar (Adelekan, 2006).

Behaviors associated with drug abuse are among the main factors in the spread of HIV infection. Drugs can change the way the brain works through disrupting the parts of the brain that people use to weigh risks and benefits when making decisions (National Institute on Drug Abuse, 2007). Poor judgment and risky behavior also predisposes drug abusers to HIV. Drug abuse by any route (not just injection) can put a person at risk for contracting HIV because drug and alcohol intoxication affect judgment and can lead to unsafe sexual practices, which put people at risk for contracting HIV or transmitting it to others. Studies elsewhere have shown that women who use crack-cocaine risk HIV transmission through unprotected sexual exchange (Lichtenstein, 1997). Moreover, many women believe that crack-cocaine and heroin enhance a man's sexual desire, performance and pleasure and that the same drugs are responsible for their partner's abusive and coercive behaviour (El-Bassel et al, 2003).

Biological effects of drug abuse and addiction can affect a person's overall health, thereby altering susceptibility to HIV and progression of AIDS. Drugs of abuse and HIV both affect the brain. Research has shown that HIV causes greater injury to cells in the brain and cognitive impairment among methamphetamine abusers than among HIV patients who do not abuse drugs. In animal studies, methamphetamine has been shown to increase the amount of HIV in brain cells (National Institute on Drug Abuse, 2007). However, there are some studies that have demonstrated that cannabis does not harm the health of the consumers (The Lancet Editorial, 1995) while others have concentrated on the medical use of cannabis among AIDS patients and its potential to improve quality of life and health care outcomes among patients with HIV and AIDS(Prentiss et al, 2004; Ware et al, 2003).

The main objective of this study was to document the nature and extent of the HIV epidemic among drug abusers in

Malawi. The specific objectives were to identify the actual drugs of abuse and the associated method of use, determine the prevalence of HIV among drug abusers, measure the magnitude of the STI problem in drug abusers and document the prevalence of pregnancy among female drug abusers.

METHOD

Sampling

As part of a larger HIV and AIDS and Drug Abuse assessment study which was conducted by the Centre for Social Research of the University of Malawi in collaboration with the Ministries of Health and Home Affairs with funding from United Nations Office for Drug Control (UNODC), a sample of 200 drug abusers was invited to provide urine and blood samples. These were selected from self-presenting drug abusers who visited a district hospital in Malawi in June 2004. All the biological specimens were collected in Thyolo district located in the Southern Region of Malawi. For the purposes of this study, besides narcotic drugs, cannabis, tobacco and alcohol were also included as drugs of abuse and drug abuse was defined as the use of any drug of abuse at least on a monthly basis.

Procedures and measurement

Field workers who were undergraduate students were supplied with a shoulder cooler bag, specimen containers, plastic bag and gloves for collection of urine. These field workers underwent a one week training which was facilitated by a laboratory assistant and a registered nurse/midwife. Two of the fieldworkers were male while one was female. For women, first-voided morning specimens were preferred for pregnancy testing of maximal hCG concentration, but those collected any other time were still tested. Each specimen was labeled with the subject's identification number to ensure confidentiality. A short questionnaire was used to collect drug use, social and demographic data. The drugs listed on the questionnaire included cannabis, alcohol, cocaine, Mandrax, Valium and tobacco. The study subjects were asked if they had used any drug of abuse in the 30 days preceding the survey. Drugs of abuse were captured as a multiple-response variable which means that a drug abuser could mention more than one drug of abuse.

The urine samples for both men and women were tested for Gonorrhea and Chlamydia (for women, they were also tested for pregnancy). The blood samples were tested for HIV. The urine samples were sent to University of North Carolina (UNC) Laboratory in Lilongwe, Malawi where a technician tested them for Gonorrhea and Chlamydia using a PCR-based test. The urine samples from female subjects were tested for pregnancy. The Betatex Direct Plus Kit, a direct latex agglutination test produced by Omega Diagnostics Ltd., was used for in-vitro detection of hCG in urine. Physical condition of pregnancy was indicated by positive agglutination with hCG concentration of 0.2 IU/ml or higher. A rapid diagnostic test called Determine was used for HIV testing on the spot. The HIV testing was done using the existing HIV testing guideline which requires that study subjects under the influence of drugs should be excluded.

Data Analysis

Tabulation of the data and further analysis was done using the Statistical Package for Social Scientists (SPSS) and Epi-info.

Ethical Consideration

All biological specimens were collected with full privacy along with the

interviews. Bio-specimens did not have names indicated, they were labeled by a respondent identification number and all information collected during the interviews was treated as confidential all the time. The purpose of the study was explained to the participants and the use of biological specimens was also clarified to the respondents before obtaining a verbal informed consent which was preferred due to the sensitivity of the topic that was being studied. Urine and blood was only collected from those respondents who agreed. Respondents who were under the influence of drugs at the time of specimen collection were excluded from the study.

All respondents with STIs were treated with a single dose of Ciproflaxin (for Gonorrhea in males) and 100 mg of Doxycycline taken twice daily for 7 days for male Chlamydia cases. All infected women were supplied with 500 mg of Erythromycin taken 4 times daily for 7 days. All non-infected individuals were given a dose of Vitamin C of 500 mg for 7 days in order to cover those who were infected from being identified. The District Health Office was given the authority to treat the patients with STIs using Malawi government approved protocols as an option. Those who tested positive for HIV were offered post-test counseling and linked to existing AIDS service organizations for on-going counseling and treatment. The proposal was submitted to National Health Sciences Research Committee for ethical review. An approval was received on December 29, 2003 (Ref: 05/5G).

RESULTS

Socio-demographic background

Out of the 200 participants recruited, 191 were male. With respect to age, most of the study subjects were in their twenties. The dominant tribe was Lomwe (56.0%) followed by Mang'anja (20.5%). Most of the participants had only primary education (129 out of the 200) while 30% had secondary education. Only 6 participants out of the 200 (3%) had tertiary education. The study subjects were mainly migrant tea estate workers (43%) and self employed (28%) and the most predominant religion was protestant (69%) followed by Catholic (21%). Islam accounted for 8% only (Table 1).

Table 1. Social and demographic characteristics of the sample (N=200)

Attribute		Percentage
Gender		
	Male	95.5
	Female	4.5
Age		
	Under 20	3.1
	20-28 years	46.9
	29-39 years	27.1
	40-49	14.2
	Over 50 years	7.7
Tribe		
	Lomwe	56.0
	Mang'anja	20.5
	Yao	7.0
	Ngoni	5.0
	Chewa	4.0
Religion		
	Protestant	69.3
	Catholic	20.9
	Islam	8.4
Education		
	None	2.3
	Primary	64.5
	Secondary	30.2
	Tertiary	3.0
Occupation		
	Employed	43.2
	Business	27.7
	Farmer	11.3
	Unemployed	9.8

HIV and STI epidemiology

The overall prevalence rate for HIV was 25.5% which was three times higher than both the district (7.7%) and almost twice national (14.4%) prevalence. The drugs of abuse mentioned by the participants were cannabis (chamba) (81.3%) and alcohol (18.3%). (N=246). Methods of use included smoking (78.9%), drinking (19.9%) and sniffing (1.2%). (N=251). A close look at the HIV prevalence rate by type of drug abuse revealed that more than a quarter of the respondents (25.5%, 95% CI = 20.5-31.5%) who abused cannabis were sero-positive while close to a third (31.1%, 95% CI = 25.2-36.8%) of alcohol abusers were positive. This difference was not statistically significant using either a 1-tail or 2-tail Z-test.

With respect to the method of use, more than two thirds (66.7%, N=3) of those who reported sniffing were sero-positive, about a third of those who reported drinking as a method of use were also sero-positive. More than a quarter of those who cited smoking as their mode of use were HIV positive. There were no injection drug users in the sample. (Table 2).

Table 2. HIV prevalence among drug abusers

Category	%Prevalence (95% CI)
Overall	25.5 (19.5-31.5)
Cannabis abusers	25.5 (20.5-31.5)
Alcohol abusers	31.1 (25.2-36.8)
Method of use	
Sniffing (N=3)	66.7 (Undefined)*
Drinking	30.4 (24.3-35.7)
Smoking	25.3 (19.6-30.4)

*Only three cases reported sniffing

Although HIV and AIDS awareness is almost universal in Malawi, most of the drug abusers recruited in this study did not know the relationship between drug abuse and HIV and AIDS (57.8%).

With respect to STIs, there was only one case of Gonorrhea. This case was male and was also an HIV case. Less than 10% (1 in 9) of the women in the sample were pregnant (N=9).

DISCUSSION

Cannabis (chamba) was the most common drug of abuse while smoking was the commonest method of use. Although there were no injection drug users among the study subjects, HIV prevalence was much higher among drug abusers than in the corresponding general population. This means that there was indeed an ecological relationship between HIV and AIDS and drug abuse, that is, HIV and drug abuse thrive in the same environment. This is consistent with what was found by other researchers in South America (Olukoga, 2004).

Alcohol abusers had an excess risk for HIV as compared to Cannabis *(chamba)* abusers. This could be due to the fact that alcohol is imbibed in places where prostitutes transact their business. It must be noted, however, that both alcohol and Cannabis (chamba) abusers had a heightened risk for HIV and AIDS. Most of the participants did not know the relationship between HIV and AIDS and drug abuse. It is, therefore, very important to highlight the ecological relationship between drug abuse and HIV infection in national HIV and AIDS prevention and sensitization campaigns.

No injecting drug abusers were in the sample. This shows that high sero-prevalence is not only associated with injecting drugs use. Thus drug abuse by any route (not just injection) can put a person at risk for getting HIV. This finding is not at variance with what was

concluded in a study conducted in Nigeria[8]. The results obtained on STI prevalence does not support the direct linkage of STIs and drug abuse but underscores the fact that drug abusers have a higher risk for HIV than STIs. This inverse relation was also observed in another study which concluded that higher socioeconomic status was a risk factor for HIV-1 infection but not for STIs (Dallabetta et al, 1993). Since our study was conducted at a health facility, further population based research is required to investigate the low prevalence of STIs among drug abusers as this might mean that most of them are not seeking treatment from hospitals.

The major limitation of this study was the small representation of women and youth which has implications on the representativeness of sample and hence external validity of the findings. The other problem was that data on marital status was not collected and it was, therefore, not possible to control for marital status as a confounding factor. Similarly the researchers did not collect information on risk factors and sexual behaviour. These could have helped to further explain the findings.

CONCLUSION

A higher HIV prevalence was observed among non injecting drug abusers as compared to the district and national prevalence. The prevalence of STIs was, however, low. This indicates that non injecting drug use is a risk factor for HIV but not STIs. While HIV and AIDS awareness remains high in the general population, the low knowledge regarding the linkage between drug abuse and HIV and AIDS requires an intervention of a public health nature including targeting drug abusers in VCT campaigns.

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INFLUENCES ON SMOKING BEHAVIOUR OF ADOLESCENTS AND YOUNG ADULTS IN A NIGERIAN UNIVERSITY

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ABSTRACT

The study investigated whether parenting style, parental level of education and smoking peers have any influence on the smoking behaviour of adolescents and young adults. The participants were students of Obafemi Awolowo University, Ile-Ife, Nigeria. Purposive sampling technique was adopted in the sample selection. Three hundred students who consented participated in the study. A self constructed questionnaire was used to collect the data. The validity of the instrument was determined. The reliability of the instrument was also determined using test retest method. Correlation co-efficient of 0.75 was obtained. This study revealed that there is a significant influence of parenting style on the smoking behaviour of students ($x2 = 36.03$, $df = 6$, $p \leq 0.05$). It also showed that there is a significant relationship between parents' educational attainment and students' smoking behaviour ($x2 = 60.40$, $df = 6$, $p \leq 0.05$). Finally, it was revealed that there was a significant influence of peers on smoking behaviour ($x2 = 19.97$, $df = 2$, $p \leq 0.05$).

KEY WORDS: Smoking, Behaviour, Parent, Adolescent, University

INTRODUCTION

The prevalence of smoking among adolescents and young adults has not declined in spite of all preventive efforts as acknowledged by Bothmer, Mattsson and Fridlund (2002). Smoking usually begins in the early teens and puts health at risk in every community. Cigarette advertising also lures adolescents and young adults to start smoking. Nearly all first use occurs in secondary school. It is common for adolescents to feel social pressure in many ways from clothing and music to risky areas such as drugs, sex, and smoking, and they tend to experiment and try out new experiences.

The period of experimentation is usually very dangerous because of accompanying risk, injury or death. Alcohol and cigarettes are gateway drugs because they are usually the first drugs that are used before other drugs are tried out Merril (1994). Furthermore, Blaze-Temple and Kai Lo (1992) asserted that alcohol and tobacco were important "gateway" drugs that lead to increased use of other illegal drugs. Most drug use starts during the period of adolescence especially for 'gateway' drugs. Nigerian adolescents have been identified as a major group involved in the use and abuse of drugs (FMOH, 2000).

So many factors have been put

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forward for adolescents' and young adults' engagement in smoking among which are for normal developmental changes, psychological factors, social environment and sexual factors. Under normal developmental changes, influence of peers, the need to conform and direct craving for cigarettes/alcohol use (gateway drugs) have been mentioned. For psychological factors, emotional problems such as low self-esteem, dissatisfaction with life, less social confidence, need for approval, anxiety, restlessness, promiscuity, antisocial and conduct symptoms were identified. Considering social environment, family influences (when adolescents have parents who are unstable and engage in smoking, drug use and drink), role of the media (for instance advertisements for cigarettes, alcohol, portray people who drink and smoke as sexy, manly and sophisticated) have also been mentioned. With respect to sexual factors, typically adolescents who are preoccupied with sex and sexual performance most frequently smoke and use psychoactive drugs. The earlier the age, the more likely dependence will occur.

Karen et. al. (1992) reviewed findings from 27 prospective studies of the onset of cigarette smoking conducted since 1980. Almost 300 measures of predictors of smoking onset were examined, and 74% of them provided multivariate support for predictors of onset derived from theory and previous empirical findings. Expected relationships were strongly supported for (a) socioeconomic status, with students with compromised status being more likely to try smoking; (b) social bonding variables, particularly peer and school bonding, with less support for family bonding; (c) social learning variables, especially peer smoking and approval, prevalence estimates, and offers/availability, with less consistent support for parent smoking and approval; (d) refusal skills self efficacy; (e) knowledge, attitudes and intentions, with the expected stronger predictions from intentions than from attitudes than from knowledge; and (f) broad indicators of self-esteem. The few investigators who analyzed their data separately by age, gender, or ethnicity found many differences by these factors, though there were too few of them to detect any pattern with confidence. Though the 27 studies are far from perfect, we believe that they confirm the importance of many well-accepted predictors and raise some questions about others. In particular, family smoking, bonding and approval each received unexpectedly low support, It is not clear whether this lack of support reflects reality as it has always been, is due to a changing reality, reflects developmental changes, either in the age of subjects or the stage of onset, or is due to poor measurement and too few tests.

According to Simons-Morton, Haynie, Crump, Eitel, Saylor (2001) social influences can promote or discourage adolescent substance use. The authors surveyed 4,263 sixth- to eighth-grade students to assess the effect of peer and parent influences on adolescent substance use. The authors conducted separate multiple logistic regression analyses for smoking and drinking, controlling for grade, sex, and race. Positive independent associations with smoking and drinking were found for direct peer pressure and associating with problem-behaving friends. Independent negative associations with smoking and drinking were also found for parent involvement, parent expectations, and parent regard. In an analysis of interactions, peer pressure was positively associated with drinking for girls but not for boys and problem-behaving friends

was positively associated with drinking for both boys and girls. The findings revealed that associating with deviant peers promotes smoking and drinking while authoritative parenting protects against smoking and drinking.

According to Karen (1992) the family unit is the primary source of transmission of basic social, cultural, genetic, and biological factors that may underlie individual differences in smoking. Past researches emphasised the important role that family related variables play in the prediction of various adolescent and young adults' risky behaviours (Hawkins et al., 1992; Kandel, 1996}. In a study by Borthmer et. al. (2002) investigating the influence of smoking habits of family members on tobacco use by adolescents, the results reveal that smoking habits by relatives, especially siblings influenced tobacco use by adolescents. They also found an association between smoking by adolescents and mother's employment and between the smoking status of girls and family status.

Also much importance is attached to the role that parents play in the behavioural development of their child. According to Darling and Steinberg (1993), parenting is a complex activity that include much specific behaviour that works individually and together to influence child's outcomes. Research on adolescent cigarette smoking has attempted to measure the role of parents in preventing smoking experimentation and uptake. However, aspects of parental influence have often been limited to parental smoking behaviour or antismoking socialization. Only a limited number of studies considered the hypothesis that the influence of parenting on adolescent current cigarette smoking may extend beyond parental behaviour and antismoking socialization to consider broader measures of the parent-child relationship, such as parenting style. (Chassin, Presson, Rose, Sherman, Davis and Gonzalez, 2005)

Parenting style is one of the primary determinants of a child's outcome because parents are the first contact of a child and also their primary role model. This view was supported by the U.S National centre for education statistics (1999) that stressful family environments as well as role modelling of inappropriate behaviour can contribute to the development of risky behaviour. O'Byrne, Haddock and Poston (2002) investigated whether parenting style is an independent risk factor of smoking initiation and experimentation among adolescents, and whether there is a relationship between parenting style and nicotine dependence among smokers. Results from two logistic regression models indicate that although parenting style is not a significant risk factor for smoking experimentation, it is a significant independent risk factor for smoking initiation. Smokers who were more ready to quit had higher parenting style scores than those who were not ready to quit, and smokers who had made a serious quit attempt (an indicator of nicotine addiction) had higher parenting style scores than those who had not made a quit attempt. Moreover, non smokers who reported they would smoke a cigarette if their best friend offered had significantly lower parenting style scores than those who reported they would not smoke a cigarette.

According to Baumrind (1989) four common group of parenting styles exist. They are authoritarian, permissive, authoritative and rejecting/neglecting. Huxley (2005) emphasized that these styles correspond to a balance of love and limits. Love and limits are terms that describe a parent's discipline orientation. Parents who use love as their primary

style can be described as permissive parents. They consider love to be more important than limits. They also use attachment and bond they share with their children to teach them right from wrong. A lot of time is spent communicating, negotiating and reasoning with the child. It can also be said that they value increasing the child's esteem thus making them to feel special. Parents who adopt limits to be their primary style can be described as authoritarian parent. Such parents consider limits to be more important than love relationship. The use of external control is adopted to teach right from wrong. These parents are also quick to act on a discipline problem. The result of this style of parenting is that the children are usually quick to react and rarely get their parents to negotiate. Such parents place their value on teaching respect and providing structure. Rejecting and neglecting parents have low limits and low love. Low attention is placed on the style of parenting and hence low value is placed on the child. An understanding of certain behaviour exhibited by adolescents is an indication of parental discipline and overall condition in the home.

There are variations in the level and methods adopted by parents in controlling or socializing their children but there is an assumption that the primary role of all parents is to influence, teach and control their children Darling (1999). Authoritative parents are both demanding and responsive. "They monitor and impart clear standards for their children's conduct. They are assertive, but not intrusive and restrictive. Their disciplinary methods are supportive, rather than punitive. They want their children to be assertive as well as socially responsible, and self-regulated as well as cooperative. One key difference between authoritarian and authoritative parenting is in the dimension of psychological control. Both authoritarian and authoritative parents place high demands on their children and expect their children to behave appropriately and obey parental rules. Authoritarian parents, however, also expect their children to accept their judgments, values, and goals without questioning. In contrast, authoritative parents are more open to give and take with their children and make greater use of explanations. Thus, although authoritative and authoritarian parents are equally high in behavioral control, authoritative parents tend to be low in psychological control, while authoritarian parents tend to be high.

While parenting style is widely believed to have significant direct influence on adolescents' decision about smoking, these influences are neither well documented nor well understood in this part of the world especially Nigeria, hence this study.

It has long been recognized that adolescents and young adults do not try cigarettes in a vacuum. Significant others such as friends, classmates, sibling or parents are the most important factors influencing smoking of adolescents and young adults in the society. Problems associated with smoking include failure to fulfil major roles at work, school, or home. Spear and Akers (1988) (e.g. repeated absences; expulsions from school and neglect of duties).Continued smoking and substance use can result in persistent or recurrent social or interpersonal problems (e.g., arguments with peers, siblings or physical fights). Acute intoxication also follows excessive smoking and ingestion of substance resulting in symptoms of disruption of cognitive processes, affect or behaviour. Medical problems are also related to smoking. Most of these medical effects are attributable to

nicotine chronic toxicity (Alfred et al., 1990). There are also consequences to the community such as economic loss, damage to machinery, ill health and pressure on public health institutions. There is also pressure on the legal, judicial and security services.

In this study it is assumed that peers, parenting style and some other variables like the education of the parents might influence adolescent and young adults smoking behaviour. Education of the parents possibly has bearing with parenting style which then reflects on the children's behaviour. Furthermore, parental level of education might determine the kind of lifestyles parents have and may likely influence adolescents lifestyles also in the mode of social and instrumental competence. Since cigarette is a gateway to other illicit drugs it appears as a good starting point for research and developing possible interventions. In the literature smoking behaviours has been found to be associated with many variables such as income and marital status (Fakuda, Nakamuk, Takano, 2005), work stress (Kouvonen, Kivinaki, Virtanen, and Vahtera, 2005), peer pressure ((Fergusson, Lynskey & Horwood, 1995), parent employment, parent attitude, ethnicity, household size and gender (Barbosa, Carlini-Coltrin & Silva-Filho, 1989; Muza et al., 1997; Horta, Calheiros, Pinheiro, Tomasi & Amaral, 2001; Malcon et al., 2003; Altobelli et al., 2005; Ivanovic, Castro & Ivanovic, 1997; Pinilla, González, Barber & Santana, 2002), age (Ahmed, Brown, Gary & Saadatmand, 1994; Barbosa et al., 1989; Ivanovic et al., 1997; Malcon et al., 2003; Muza et al., 1997), religiousity (Roff, Klemmack, Parker, Koening, Sawyer-Baker & Allman, 2005; Leigh, Bowen & Marlatt, 2005; Pirkle and Richter 2006) and schooling (Barbosa et al., 1989; Horta et al., 2001; Malcon et al., 2003; Pinilla et al. 2002; Leigh, et al. 2005).

Though smoking behaviour had been extensively examined in the western world as highlighted above, however it is important to find out what the situation is in other parts of the world. Western research had largely ignored other parts of the world especially events within the African setting thus justifying the need for this study.

In light of previous research and casual observations of the population under study, we hypothesized that smoking among young adults will be associated with (i) parenting styles, (ii) parental level of education, and (iii) influence of peers.

METHOD

Participants

The sample for this study was drawn from the student body of a large university in western Nigeria. All the 13 faculties in the university were represented in the survey due to the nature of the research. The sample consisted of 300 students in Part One. A total of 25 students each, identified by other students as smokers in their faculty and who consented to participate in the study were purposively selected for the study. Snowball sampling technique (whereby students help in the identification of student smokers) was adopted. This is because smoking openly is not done probably due to cultural and religious values. There are no written laws about this but it takes boldness for anyone to smoke openly during the day in the predominantly religious environment. Most smoking activities take place in the evenings, at parties and at certain places like drinking parlours, student union buildings and so on. This technique was therefore employed based on the above and the researchers' belief, that the student

can easily identify their colleagues who smoke.

Procedure and Instrument

The researchers moved to other faculties once 25 smokers have been found in a faculty. Out of the 375 questionnaires obtained in all, only 300 were found useable. A self constructed questionnaire titled 'parenting style and adolescent smoking behaviour' (PSASB) was used to collect data. The instrument is divided into three sections. Section A elicited responses on respondents' demographic data. Section B determined the parenting style of the participants. Section C present questions on peers influence and smoking behaviour. The validity of the instrument was determined using expert judgement in the faculty and the reliability of the instrument was also determined using test retest method. A correlation coefficient of 0.75 was obtained which was deemed adequate for use for the study.

Data collected was analysed using simple percentages and chi-square analysis. All hypotheses are tested at 0.05level of significance.

RESULTS

Two hundred and ten of the respondents were males while 90 were females, 70% and 30% respectively. One hundred and fifty nine of the respondents were between 16-19 years of age (53%); 95 were between 20-24 years (31.7%) and 46 were between 25 and 29 years (15.3%).

The first hypothesis stated that there would be a significant influence of parenting styles on smoking behaviour of adolescents and young adults. In testing this hypothesis, parenting style was classified into 4 categories, following Baumrind (1991): authoritarian, authoritative, permissive and uninvolved. The smoking behaviour was also determined according to smoking habits of low, moderate and high. Scores was then correlated with scores of respondents from parenting style scale. Table 2 presents the results. As the table indicates, 10, 15 and 18 students with low, moderate and high smoking habits respectively experienced authoritarian parenting style. There were 31 low, 19 moderate and 97 high smokers that experienced authoritative parenting styles. For permissive parenting style, 27, 42 and 33 were low, moderate and high smokers respectively. 1 low, 2 moderate and 5 high smokers experienced uninvolved parenting styles. The chi-square analysis yielded a statistically significant influence of parenting style on smoking behaviour of students X^2 (6) = 36.03, $p < 0.05$. The result showed that there is a significant influence of parenting style on smoking behaviour of students.

The second hypothesis stated that there would be a significant influence of parental level of education on smoking behaviour of students. To test this hypothesis parents were categorised into three groups which are no education, primary /secondary education and tertiary education. Chi-square analysis yielded a significant influence of parents' educational attainment on smoking behaviour X^2 (6) = 60.40, $p <$ .05. Table 3 presents the more detailed results.

As Table 3 indicates, two students with low smoking habits, 5 with moderate and 11 high smokers are from parents with no education at all. There were 21 students with low, 29 moderate and 114 high smokers with parents who have primary to secondary education only. Forty six students with low smoking habits, 44 moderate and 28 high smokers are from parents with tertiary education.

Table 1: Social and demographic characteristics of sample (N =300)

Variables		Number (n)	Percentage (%)
Sex	Male	210	70.0
	Female	90	30.0
Total		300	100.0
Age	16-19 years	159	53.0
	20-24 years	95	31.7
	25-29 years	46	15.3
Total		300	100.0
Fathers' Educational Attainment	None	-	-
	Primary	12	4.0
	Secondary	102	34.0
	NCE/OND	92	30.7
	B.SC/HND	84	28.0
	Postgraduate	10	3.3
Total		300	100.0
Mothers'Educational Attainment	None	18	6.0
	Primary	22	7.3
	Secondary	112	37.3
	*NCE/OND	92	31.0
	*B.SC/HND	53	17.0
	Postgraduate	2	0.7
Total		300	100.0

*NCE: National Certificate in Education, *OND: Ordinary National Diploma, *B.SC: Bachelor of Science degree, *HND: Higher National Diploma.

Table 2: Influence of parenting styles on smoking behaviour

Parenting style	Smoking Habits			Total	X^2 calc.	X^2 tab	df	P = value
	Low	Moderate	High					
Authoritarian	10 (9.9%)	15 (10.5%)	18 (21.9%)	43				
Authoritative	31 (33.8%)	19 (38.2%)	97 (75%)	147				
Permissive	27 (23.5%)	42 (26.5%)	33 (54%)	102	36.03	12.59	6	$P \leq 0.05$
Uninvolved	1 (8%)	2 (2.1%)	5 (4.1%)	8				
Total	69	78	153	300				

Table 3: Influence of parents' educational attainment and students' smoking behaviour

Parents' Educational Attainment	Smoking Habits			Total	X^2 cal	X^2 tab	df	P = value
	Low	Moderate	High					
No Education	2 (4.1%)	5 (4.7%)	11 (9.2%)	18				
Primary/ Secondary Education	21(37.7%)	29(42.6%)	114(83.6%)	164	60	12.59	6	P ≤ 0.05
Tertiary Education	46(27.1%)	44(30.7%)	28 (60.2%)	118				
Total	69	78	153	300				

The third hypothesis stated that there would be a significant influence of peers on smoking behaviour of adolescents and young adults. Chi-square analysis again yielded a significant effect of this variable X^2 (2) = 19.97, p < .05. As Table 4 indicates, students with low smoking habits had 24 smokers and 45 non smokers as peers. Smokers with moderate smoking habit had higher number of smokers as peers (46) while those with high smoking habits had 102 smokers as peers and only 51 peers as non smokers.

Table 4: Peers' influence on students' smoking behaviour

Students' Smoking Behaviour	Peers		Total	X^2 cal	X^2 tab	df	P = value
	Smokers	Non-Smokers					
Low	24(39.6%)	45(29.9%)	69				
Moderate	46(44.7%)	32(33.3%)	78				
High	102(87.7%0	51(65.3%)	153	19.97	5.99	2	P ≤ 0.05
Total	172	128	300				

DISCUSSION

The results revealed that there was significant influence of parenting styles on smoking behaviour of adolescents and young adults. The highest number of smokers experienced authoritative parenting styles, followed by permissive then authoritarian while the uninvolved had the least. This result is inconsistent with what was found in literature. For instance, Simons-Morton, Haynie, Crump, Eitel, and Saylor (2001) findings, revealed that authoritative parenting protects against smoking and drinking.

From literature it is usually the adolescents from uninvolved parenting style that usually engage in high smoking habits and the least percentage of smokers are from permissive parents. This finding might have cultural undertone as authoritative parents are usually disciplinarians in Africa. As established in literature, the result of this style of parenting is that the children are usually quick to react and rarely get their parents to negotiate. Probably the smoking habits exhibited by students with this kind of parenting style might be a reaction to some of such disciplines.

Furthermore this study revealed that parents' educational attainment has significant influence on smoking behaviour of the participants. The

findings reveal that the highest percentages of high smokers are from low educational attainment group of parents. This finding is consistent with the assertion of Shibata (1990), that parents with higher education who are in the upper class enjoyed affluent wealth and are able to brighten the educational frontiers of their children. So also those in middle class lived a moderate life while those who are poor could not meet up to the expectation of their children in terms of finances. Inadequate finances and low education are indices of social misbehaviour such as smoking.

The study also showed that adolescents and young adults can be influenced by their peers' smoking habits. This can be as a result of the flocking phenomenon where those who smoke can acquire friends that do smoke like them. A number of recommendations are emanating from this study. In the first instance, it is recommended that there should be increased parental enlightenment especially to parents with low educational attainment on how to help their children not to smoke. Secondly the influence of authoritative parenting styles on smoking need to be given wide publicity and parents encouraged to adopt appropriate parenting style. Other parents should be educated on appropriate parenting style to reduce the tendency of adolescents' and possibly young adults' engagement in smoking. Secondly, there should be school based prevention programmes and increased mass media public awareness. The programmes could include among others regular health talks about consequences and complications of smoking so that no matter the background children come from they are able to adopt healthy practices.

The findings of this research could have been influenced by the snowball sampling technique adopted in the methodology however this is not enough to invalidate the results as the use of this method is prompted by the prevailing cultural situation of the environment. Secondly some young adults included in the study might have implications for the results of this study. However they are still in part one and the information obtained from them can still be useful in designing intervention programmes for the level of students involved in the study. The age range of 25-29 years included in the study could be sources of the peer influence on the younger ones. This has not been determined therefore further studies would be needed in this area to confirm or refute this claim

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PATTERNS OF ALCOHOL USE ON A SOUTH AFRICAN UNIVERSITY CAMPUS: THE FINDINGS OF TWO ANNUAL DRINKING SURVEYS

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ABSTRACT

While alcohol continues to be abused on university campuses around the world, the precise situation on South African campuses is unknown. This paper attempts to address this gap by reporting the results of two annual surveys of alcohol consumption amongst students at Rhodes University, the smallest tertiary institution in South Africa, with an annual intake of approximately 6000 students. The results of a survey using the Alcohol Use Disorders Identification Test (AUDIT) suggests that alcohol consumption amongst these students is a public health concern, and likely to result in serious medical and social consequences.

KEY WORDS: Alcohol use, binge drinking, South Africa, university students, AUDIT

INTRODUCTION

It is probably uncontroversial to state that most university campuses struggle with containing and controlling alcohol consumption by their students, since the age at which students first enter such institutions is an age of freedom and experimentation, where young people have the opportunity to test the limits previously set by parents and schools. At Rhodes University, there has been a long history of efforts to control excessive alcohol use.

Rhodes is primarily a residential university, and it occupies a very prominent position in the small town of Grahamstown. Firstly, it is the primary employer and is very visible, situated as it is near the centre of town, and occupying a relatively large area; secondly, the annual influx of students has a very significant impact on the town in terms of sheer numbers, and the fact that approximately 3000 of them rent accommodation or "digs" from local inhabitants; thirdly, the students bring with them significant spending power for the nine months per year that they live in Grahamstown, and local shops and bars are very keen to make the best of this opportunity.

While the level of drinking at Rhodes University is possibly no higher than that at any other university in South Africa, it does have a rather undesirable reputation as the "drinking university", and the reason for this is twofold: firstly, the drinking behaviour is highly visible, because of the size of the town, and because of the location of many off-campus pubs and bars near to the university. This means that Rhodes students pursue their after-

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hours relaxation in a very concentrated, small area, whereas in a large city, university students are doing the same thing, but anonymously. Secondly, because of the small size of the university as a whole, students at Rhodes have very strong social networks, and many enjoy this aspect of their university experience.

That said, Rhodes University nonetheless regards the problem of drinking as a serious one, which deserves urgent attention. It has long been the topic of debate, and the survey which is the topic of this paper was one strategy aimed at changing this 'drinking culture'.

The consequences of excessive alcohol consumption on university campuses

Research from around the world, particularly in the US and UK, suggests that university drinking is characterised by excess (Karam, Kypri, & Salamoun, 2007). A UK survey involving ten universities, for example, reported that 61% of male students and 48% of female students exceed the safe drinking limits (Webb, Ashton, Kelly & Kamali, 1996). In the US, national surveys repeated four times between 1993 and 2001 reveal that more than 40% of college students binge drink (Wechsler & Nelson, 2008).

This level of alcohol misuse is associated with a range of a range of social, health and educational problems, and students are at particular risk of these alcohol-related harms (Wechsler, Davenpoort, Moeykens, & Castillo, 1994). In the US, binge drinking is reported to be the leading cause of death and injury among college students (Hingson, Heeren, Zakocs, Kopstein, & Wechsler, 2002). Alcohol misuse is also associated with unsafe sex (Wechsler, Lee, Kuo, Lee, 2000); absenteeism and academic failure (Powell, Williams, Wechsler, 2004; Wechsler, Lee, Kuo, et al., 2002); and antisocial behaviour and criminal justice problems (Wechsler, Lee, Kuo,et al., 2002).

Moreover, the deleterious effects of student drinking are not confined to those who drink: students living amongst high proportions of binge drinkers experience more incidences of verbal, physical and sexual assault, and frequently have their sleep and studies disturbed (Wechsler, Moeykens, Davenport, Castillo, & Hansen, 1995); while the neighbourhoods in the vicinity of university campuses where student drinking is problematic are affected by the noise and vandalism (Wechsler, Lee, Hall, Wagenaar, Lee, 2002).

Other studies have suggested that university and college students report a higher prevalence of alcohol disorders and harm than those young people not at college or university (Dawson, Grant, Stinson, & Chou, 2004; Kyrpi, Cronin, & Wright, 2005). It is clear that some aspect of the university or college experience predisposes students to overuse alcohol and makes them vulnerable to alcohol use disorders (though perhaps not necessarily for alcohol dependence (Slutske, 2005)).

It is evident that the drinking culture of an institution has a strong impact on the drinking behaviour of new students, where people in environments that sanction heavy drinking are much more likely to drink excessively themselves (Skog, 1980, 1985). Research in the US indicates that while the drinking behaviour varies greatly amongst different colleges, it remains fairly consistent within colleges (Wechsler, Lee, Kuo, et al., 2002), suggesting that the drinking cultures are not easily changed. In South Africa, the media and advertising undoubtedly promote the idea

that drinking is 'cool'. Combined with the sudden freedom from prohibitions on drinking which supposedly prevail at schools and at home, many first-year students are vulnerable to the strong peer pressure that is encountered at University. The sudden shift in influence from parents and guardians to peers, and the urgent need to make new friends, establish peer networks and develop an identity in this new social environment often involves alcohol (Martin & Hoffman, 1993). Borsari and Carey (2001) argue that this peer influence involves at least three different processes: direct peer influence, modelling and social norms.

According to these researchers, students exert different kinds of social pressure on those peers who drink less than they do, ranging from subtle and indirect remarks to more aggressive and confrontational approaches to encourage them to drink more. Research also indicates that students who are exposed to the example of more senior students who drink excessively are more likely themselves to drink heavily. Finally, the literature suggests that students are likely to overestimate the alcohol consumption of others, and that these perceived norms act as a significant influence on personal alcohol use. Since excessive alcohol consumption appears, to first-time entering students, to be common and acceptable, they are more likely to adopt similar practices.

So while much research suggests that alcohol is abused with serious consequences at many universities around the world (Karam et al., 2007), and media reports suggest that the situation in South Africa is not different (see, for example, Govender, 2007), the actual prevalence of alcohol misuse on South African campuses is not accurately known. What is evident is that as a country undergoing rapid socioeconomic change, South Africa has seen an increase in substance-related problems (Pluddermann et al., 2004), and of all the substances abused in South Africa, alcohol dominates (Parry et al., 2002). Given that drinking is a national problem, the situation amongst South African students is also likely to be a public health concern, particularly so in a country where the rampant crime, the high prevalence of HIV infection and poor educational resources exacerbate the harmful effects of alcohol misuse. It is clear that more accurate data are required before the prevalence of this abuse can be properly assessed, so that appropriate and effective public health interventions can follow.

Features of university / college environments associated with excessive drinking

A number of variables have been identified that are implicated in excessive drinking on campuses. The combination of these results in what Wechsler and Nelson (2008), and others, refer to as 'wet environments'.

Firstly, binge drinking is inversely correlated to the amount of supervision in the living environments (Harford, Wechsler & Muthen, 2002; Wechsler, Lee, Nelson, & Kuo, 2002). At Rhodes University approximately half the students live in university residences, while most of the others rent private accommodation in town. These private rentals are mostly unsupervised, while residence management attempt to limit drinking in the university halls. All are within fairly close proximity to a number of drinking outlets on campus and in town.

Another factor implicated in the levels of student drinking is to do with the demographic profile of the student body.

Lower drinking rates are associated with ethnically diverse student bodies (Wechsler & Kuo, 2003). The same is true of student demographics that include a high proportion of female and senior students. A comparison, therefore, of alcohol use amongst students according to gender, race and year of study is necessary to be able to better describe the distribution of drinking behaviour at Rhodes University.

Incidentally, there is debate in the social science literature about the appropriateness of using racial categories in survey research (see Bowman, Seedat, Duncan & Burrows (2006) for an outline of this debate). The consensus seems to be that while these are socially constructed terms, they continue to shape social relations in South Africa. The variable race was not collected in 2007 when the survey was first administered, but because race is a cultural reality for most South Africans and because attendance at many of the pubs and bars in Grahamstown appears to be along racial lines, this was rectified in 2008.

Categories of Alcohol Misuse

The World Health organisation defines different categories of alcohol consumption along the continuum of safe to dangerous drinking as 'hazardous', 'harmful' and 'dependent' (Babor, Campbell, Room, & Saunders, 1994).

Hazardous drinking is a pattern of alcohol use that increases the risk of harmful consequences for the drinker without having yet caused any alcohol-related harm. This category applies to men and women who exceed the Royal Colleges' (1995) recommended limits of 21 and 14 units of alcohol each week respectively (1 unit = 10mg of pure alcohol; a standard glass of wine = 2 units and a beer = 2 units).

Binge drinking, or heavy episodic drinking, is included in the hazardous category, even if the weekly limits are not exceeded, because it generally involves rapid and excessive drinking over a relatively short period of time, which intensifies the effects. Although a range of definitions exist (Gill, 2002; McAlaney & McMahon, 2007), a thorough review of alcohol treatments defines bingeing as drinking eight or more units in one session for men and six or more units for women (Raistrick, Heather, & Godfrey, 2006).

Harmful drinking is defined by the ICD-10 Classification of Mental and Behavioural Disorders (WHO, 1992) as a pattern of drinking that is already causing physical or mental health damage to the drinker, but without meeting the full clinical criteria of alcohol dependence.

Dependent drinking is a pattern of drinking characterised by moderate or severe dependence on alcohol. The ICD-10 (WHO, 1992) defines alcohol dependence as a cluster of symptoms that include a strong desire to use alcohol, impaired control over alcohol use, physiological withdrawal when alcohol consumption is reduced, greater tolerance of alcohol, neglect of alternative pleasures and interests, and persistence with drinking, despite clear evidence of harmful consequences.

METHOD

Participants

2049 students (1198 female and 851 males students, mean age = 21 years and 3 months) completed the survey in 2007, representing slightly more than one third of all registered students, while 1119 (644 female and 475 male students, mean age = 21 years and 1 month) completed the survey in 2008.

The Measure

The Alcohol Use Disorders Identification Test (AUDIT) is a reliable and valid measure developed by the World Health Organisation (WHO) (Allen, Litten, Fertig, & Babor, 1997; Saunders, Aasland, Babor, De La Fuente, & Grant, 1993). AUDIT is reported to have a sensitivity of 92% and specificity of 94% in detecting hazardous or harmful alcohol use (Saunders et al., 1993). Moreover, the test has been translated into numerous languages, appears to be cross-culturally valid, is quick to complete and easily scored, and, as a result, is widely used in research and practical settings (Allen et al., 1997; Babor, Higgins-Biddle, Saunders, & Monteiro, 2001).

A further advantage is that AUDIT has been used in several studies involving university settings (see, for example, Andersson, Johnsson, Berglund, & Ojehagen, 2007; Fleming, Barry, & MacDonald, 1991; Granville-Chapman, Yu, & White, 2001; Kypri, Langley, McGee, Saunders, & Williams, 2002; McShane & Cunningham, 2003; O'Hare & Sherrer, 1999; Shields, Guttmannova, & Caruso, 2004). For this reason it was selected as a suitable measure to ascertain levels of usage in this survey.

The measure consists of ten items: three on alcohol consumption, four on alcohol related problems and adverse reactions, and three on dependence symptoms. Each item has a score ranging from 0 to 4 and the maximum score is 40; the higher the total score, the more dangerous the drinking. AUDIT is a useful predictor of alcohol-related social and medical problems (Conigrave & Saunders, 1995), with a score of eight or more being associated with future problems. In general, a score of 8 to 15 is regarded as hazardous drinking, 16 to 19 as harmful drinking, and 20 or more as alcohol dependence.

Procedure

The purpose of this study was to determine the prevalence and distribution of safe, hazardous, harmful and dependent drinking amongst students of Rhodes University. A number of important variables are considered, including sex, race, year of study and living arrangements. An ad hoc sample survey was used to obtain these data. The AUDIT Test was incorporated into the Rhodes University StudentZone website in such a way that all registered students would have the opportunity to complete the test only once. The University and students are increasingly using the internet to post announcements and other information, and this was deemed to be the most effective way of reaching the entire student population.

The data were collected over two weeks in October 2007 and 2008. The test took only a few minutes to complete, and all students who submitted responses were assured of anonymity.

Statistical Analysis

ANOVA and chi-square are used to describe differences between populations. Since the data are subjected to a number of statistical analyses, alpha is set at 0.01 rather than the usual 0.05 to reduce the family-wise error rate.

RESULTS

Table 1 presents this data according to the different categories of drinking.

Total Scores

The average AUDIT scores for the total sample in 2007 and 2008 are 8.94 and 8.84 respectively. The difference is

small and not statistically significant (t = -0.38, df = 3166, p = 0.70).

Table 2 presents the overall descriptive statistics.

Table 1. Categories of Drinking for 2007 and 2008

Characteristics	Safe		Hazardous		Harmful		Dependent	
2007	2007							
Female	689	57.5%	352	29.4%	75	6.3%	82	6.8%
Male	311	36.5%	320	37.6%	100	11.8%	120	14.1%
Total	1000	48.8%	672	32.8%	175	8.5%	202	9.9%
2008	2008							
Female	374	58.1%	192	29.8%	40	6.2%	38	5.9%
Male	183	38.5%	182	38.3%	47	9.9%	63	13.3%
Total	557	49.8%	374	33.4%	87	7.8%	101	9.0%
	2008							
White	290	43.2%	244	36.3%	65	9.7%	73	10.9%
Black	214	58.3%	106	28.9%	21	5.7%	26	7.1%
Coloured	16	57.1%	10	35.7%	0	0.0%	2	7.1%
Indian	37	71.2%	14	26.9%	1	1.9%	0	0.0%
	2007							
Undergraduate	859	49.1%	562	32.1%	148	8.5%	182	10.4%
Postgraduate	141	47.3%	110	36.9%	27	9.1%	20	6.7%
	2008							
Undergraduate	464	47.9%	332	34.3%	79	8.2%	93	9.6%
Postgraduate	93	61.6%	42	27.8%	8	5.3%	8	5.3%
	2007							
Res	622	49.8%	418	33.4%	98	7.8%	112	9.0%
Digs	350	46.7%	242	32.3%	74	9.9%	84	11.2%
Parental	28	57.1%	12	24.5%	3	6.1%	6	12.2%
	2008							
Residence	365	49.8%	253	34.5%	58	7.9%	57	7.8%
Digs	175	48.9%	114	31.8%	29	8.1%	40	11.2%
Parental home	17	60.7%	7	25.0%	0	0.0%	4	14.3%

Table 2. Overall Descriptive Statistics for the AUDIT Survey

Characteristics	2007 Total	%	Average AUDIT Score	SD	2008 Total	%	Average AUDIT Score	SD
Gender								
Male	851	41.5	10.9	7.67	475	42.4	10.56	7.24
Female	1198	58.5	7.56	6.48	644	57.6	7.58	6.35
Total	2049	100	8.94	7.2	1119	100	8.84	6.90
Level of education								

Undergraduate	1751	85.5	8.97	7.32	968	86.5	9.05	7.02
Postgraduate	298	14.5	8.79	6.38	151	13.5	7.56	5.92
Year of study								
1st	627	30.6	8.49	7.16	425	38.0	8.87	7.02
2nd	568	27.7	9.13	7.33	284	25.4	8.94	6.72
3rd	486	23.7	9.13	7.36	215	19.2	9.09	7.14
4th	257	12.5	9.35	7.19	135	12.1	8.41	6.78
5th	111	5.4	8.77	5.73	60	5.4	8.27	6.43
Accommodation								
Residence	1250	61.0	8.59	7.13	733	65.5	8.56	6.69
Digs	750	36.6	9.55	7.23	358	32.0	9.47	7.28
Parental home	49	2.4	8.57	7.57	28	2.5	8.21	7.17
Race								
White	-	-	-	-	672	60.1	10.02	6.63
Indian	-	-	-	-	52	4.6	5.19	4.84
Coloured	-	-	-	-	28	2.5	5.98	5.98
Black	-	-	-	-	367	32.8	7.31	7.22

The distribution in 2007 for the total scores is very similar to that obtained in 2008 with no statistically significant differences (χ^2 = 1.43, df = 3, p = 0.490). Both sets of results suggest that half of the students who completed the questionnaire exceed the clinical cut-off score of eight and therefore risk alcohol-related harm. About one third of all students who completed the questionnaire fall into the hazardous drinking category, while the remainder are drinking harmfully or are dependent on alcohol.

Gender

The AUDIT scores for men are statistically significantly higher than they are for women for both years ($F_{(1, 3164)}$=147.673, p=0.000). There was no significant interaction between sex and year ($F_{(1, 3164)}$=0.447, p= 0.504). Also, the proportions in the different categories of drinking differ according to sex for both years, with men being more likely to be located in the hazardous, harmful and dependent categories (2007: χ^2 = 99.2, df = 3, p = 0.000; 2008: χ^2 = 48.1, df = 3, p = 0.000).

Race

The variable race was included in the survey questionnaire in 2008 only. The data reveal that white students drink more than any of the other groups on campus, a difference that is statistically significant ($F_{(3, 1115)}$ = 18.594, p = 0.000). Moreover, white students are more likely than black, Indian and coloured students to occupy the hazardous, harmful and dependent drinking categories (χ^2 = 33.1, df = 3, p = 0.000).

To get an indication of whether this might be related to academic performance, the 2007 pass rates for male and female students were obtained from the Rhodes University Data Processing Unit and are described in Table 3 below. The Table reveals that a greater proportion of female than male students pass all their subjects in each year of study (a phenomenon that is repeated yearly since 2004). The differences between the total number of female and male students who pass all their subjects compared to those who do not pass all their subjects is statistically significant (χ^2 = 26.4, df = 1, p = 0.000).

Table 3. Proportions of Students who passed all Subjects by Gender in 2007

Gender	1st Year n	1st Year %	2nd Year n	2nd Year %	3rd Year n	3rd Year %	4th Year n	4th Year %
Male	233	45.4	203	46.4	286	67.9	12	54.6
Female	386	55.9	328	56.5	392	73.3	34	79.1

Undergraduate and postgraduate students

Though there is a greater difference in mean AUDIT scores between undergraduates and postgraduates in 2008 compared to 2009, the differences are not statistically significant ($F_{(1, 3164)}$ = 4.784, p = 0.029). A comparison of the proportions in each of the four drinking categories for undergraduate and postgraduate students suggests that neither difference is statistically significant (2007: χ^2 = 5.57, df = 3, p = 0.134; 2008: χ^2 = 10.6, df = 3, p = 0.014).

Also, the differences according to the year of study, are not statistically significant ($F_{(4, 3158)}$ = 0.551, p = 0.698); nor was there a significant interaction between year of study and the year of data collection ($F_{(4, 3158)}$=0.628, p= 0.642).

Accommodation

The mean AUDIT scores differ according to accommodation, with students living in private, rented accommodation, referred to as digs, reporting higher scores than those living in residence or in the family home. These differences are statistically significant ($F_{(2, 3162)}$ = 57.282, p = 0.003).

However, if we collapse the three groups into two groups of supervised (parental home and residence) and unsupervised (digs), the relationship between level of supervision and drinking category is not statistically significantly related for either year (2007: χ^2 = 5.80, df = 3, p = 0.122; 2008: χ^2 = 3.24, df = 3, p = 0.356).

DISCUSSION

It is of great concern that half of the respondents to this survey report drinking patterns that are either hazardous, harmful or alcohol dependent and that this drinking culture remains stable across at least the 12 months between collecting the two samples. Apart from the inevitable deleterious effects on health, social functioning and safety, such heavy drinking is also associated with absenteeism and poor academic performance. Thus, it is always in the best interests of institutions of higher learning to take note of the levels of alcohol consumption amongst their students, and devise strategies to counteract excessive drinking.

The matter is of particular concern because the already high prevalence of excessive drinking at a university is likely to influence the drinking behaviour of new students when they first arrive (Borsari & Carey, 2001; Skog, 1980, 1985). First-time entering students who observe the excessive drinking of others in the social group are more likely to drink excessively themselves. In order to prevent universities from being places where people develop alcohol disorders, university administrations are under considerable pressure, if not obligation, to curtail excessive student drinking where this is possible. However, the data obtained in this study, like in other studies, suggests the university drinking cultures are resilient.

Male students, in particular, appear to be at risk of alcohol abuse, although one needs to be cautious about interpreting this to mean that women are drinking safely, as there is research evidence to suggest that after an equivalent dose of alcohol, women have higher blood ethanol levels than men do. This is not only because men are usually larger than women, but also because the body composition of women per kilogram of body weight contains less water than men and because decreased gastric alcohol dehydrogenase activity in women means that a greater proportion of the alcohol passes into the bloodstream (Frezza et al., 1990; Lieber, 1997).

The AUDIT measure, though, is not simply a measure of how much a person drinks, but also a measure of the consequences of drinking. Female students, therefore, appear not to be experiencing the same degree of alcohol-related harm as male students.

It is noteworthy that male students are less likely to pass all their subjects than female students, suggesting that men are being outperformed by women. However, although the connection between excessive consumption and poor academic performance is very plausible and supported by some research, if for no other reason than because heavy drinkers are more likely to miss lectures, one cannot assume that the discrepancy in academic performance between male and female students is caused by the differences in drinking behaviour. It may be that students who perform poorly are more likely to turn to alcohol. It is also likely that there are gender differences in the subject and degree choices that may have some bearing on academic performance. The intersection between gender, alcohol consumption and academic performance is certainly an issue that warrants further investigation.

Furthermore, there is a large and statistically significant difference between the mean AUDIT scores of black and white students. White students are more likely to occupy the hazardous, harmful and dependent categories than black students. Given the economic disparities that persist in South Africa, this may have something to do with the spending power of the relatively wealthy white students. Combined with the observation that the choice of drinking venue differs largely along racial lines, this finding suggests that the problematic drinking culture on campus involves white male students.

This dangerous drinking does not appear to decrease as students progress from one year of study to the next, or even as they progress from undergraduate to postgraduate studies. The drinking culture that students encounter as they enter university appears to persist throughout their university studies. A more precise tracking of the drinking behaviour of a sample of students from the start to the end of their studies would, however, be useful.

Finally, while students living in digs report higher AUDIT scores than those living in the university residences or who live in their family homes, the difference is small. There are restrictions on where and when students can consume alcohol in residence but these are difficult to enforce and obviously residence students are free to drink with little restriction in the various drinking outlets in town.

Given these findings, the university management will continue to intervene to counter the drinking culture that exists at Rhodes University. A number of measures are already in place, including annual alcohol awareness campaigns; a new Responsible Drinking Policy; the training of residence management and student governance to combat excessive drinking in the residences; changes to the

student discipline procedures to ensure that alcohol-related offences are appropriately punished; the public dissemination and discussion of the results of this survey; the involvement of the off-campus publicans in discussions to contain drinking on and around campus; a get-home-safe project; and numerous alcohol-free social and sporting events to break the association between drinking and pleasure. The publication of this paper will hopefully prepare the way for a coordinated effort amongst South African universities to share data and strategies to contain alcohol abuse on our campuses.

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HIV PREVENTION AMONG DRUG AND ALCOHOL USERS: MODELS OF INTERVENTION IN KENYA

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ABSTRACT

The spread of HIV among drug and alcohol users, as a high-risk group, is a significant problem in Africa, as in other parts of the world. Few programs have been implemented in Africa to deal specifically with this issue. Since November 2006, the AED Capable Partners Program in Kenya project has provided technical direction to eight Kenyan NGOs to design and implement programs to reduce the spread of HIV among this population. Programs were developed utilizing conventional outreach models modified for application in Kenya and various other community-based interventions geared to reduce HIV among substance abusers. In addition to outreach, programs also provide components of recovery services, VCT and general HIV education in varying degrees. The effectiveness of these programs is reviewed in this paper along with the need to develop advanced technical skills of NGOs to deliver more effective services.

KEY WORDS: Alcohol, drug, community outreach, HIV and AIDS, Kenya

INTRODUCTION

The abuse of drugs and alcohol in Kenya and its relationship to the spread of HIV has been an issue of growing concern. Excessive or problem alcohol consumption has been identified in many parts of Kenya, including the rural areas where many local brews are produced. Alcohol is reported to be the most commonly abused substance, with a national abuse rate of 36.3% (Ndetei et al. 2006). A study of individuals who attended medical clinics in western Kenya revealed that 54% of the patients reported hazardous drinking behavior as measured by the Alcohol Use Disorders Identification Test (AUDIT) (Shaffer et al. 2004). Another study indicated that 66% of all alcohol drinkers were hazardous drinkers (Mackenzie & Karusa, 2007). Like alcohol, the abuse of drugs in Kenya has increased in recent years. The abuse of heroin became common in the 1980s in larger coastal towns. Since then, heroin abuse has spread to other parts of Kenya, including smaller towns and villages, along with a growth in heroin injection (Beckerleg, Tekfer, & Hundt, 2005).

Drug and alcohol abuse play a significant role in the spread of HIV. Substance abuse in terms of HIV risk is defined here as any recurrent consumption of alcohol or drugs that would lead to HIV risk behaviors. The

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link between HIV and injecting drug users has been clearly demonstrated: a study in Kenya revealed that 49.5% of injecting drug users (IDUs) tested HIV positive (Ndetei et al. 2006). Various studies also have indicated that alcohol is a significant risk factor for HIV (Assefa et al, 2005; Bryant, 2006, Weiser el al, 2006). Alcohol use has been linked to a greater risk of acquiring the HIV virus because of its disinhibiting effect (Zablotska et al. 2006). In addition to the increased risk of acquiring HIV, problem drug and alcohol users also are at greater risk of transmitting HIV to the general population. In an operations research study of clients attending VCT centers in Kenya, it was found that 60% percent of individuals who drank alcohol had multiple sexual partners (Mackenzie & Karusa, 2007).

With the increase in drug and alcohol abuse and the link to HIV, it has become even more critical to identify both HIV risk-reduction programs among substance abusers as a high risk population and recovery treatment strategies for drug and alcohol abuse. Unfortunately, limited resources have been available to treat alcohol and drug addiction in many African countries. Furthermore, targeting substance abusers as a high risk population in HIV reduction strategies has emerged as a critical area of concern only recently. Kenya is fortunate to have some resources, although many treatment centers have limited knowledge and training in providing addiction recovery treatment services and almost no experience in integrating HIV reduction programs. This article describes various models implemented through eight NGO groups as part of the AED Capable Partners Program in Kenya to address HIV among substance abusers. Programs began operation as early as October 2006.

DEVELOPING AND IMPLEMENTING COMMUNITY BASED HIV REDUCTION PROGRAMS AMONG SUBSTANCE ABUSERS IN KENYA

The AED Capable Partners Program in Kenya has worked with NGOs based in five urban areas of Kenya specifically focused on reducing the spread of HIV among the substance abusing population. The NGOs were: Asumbi Project, Catholic Diocese of Homa Bay, Nairobi; Family Health Options Kenya, Kisumu & Nakuru; Kisumu Urban Apostolate Programmes – Pandipieri, Kisumu; The Omari Project, Malindi; The Raphaelites, Tuangamize Ulevi Na Ukimwi (TUNU) Project, Kiambu District, Nairobi; Reachout Centre Trust, Mombasa; Support for Addictions Prevention and Treatment in Africa (SAPTA), Nairobi, Mombasa, Kisumu; Impact Research & Development Organization (Impact-RDO), Tuungane Project, Kisumu.

These programs were designed to address the needs specific to each community. Historically, the coastal region and Nairobi have been the main centers for the distribution and use of heroin. Alcohol abuse has been the focus of programs in western Kenya, as well as generally throughout all other parts of Kenya. The basic program designs borrowed from internationally-accepted best practice models. In addition, each program incorporated various types of interventions to which it felt the community would best respond. The NGOs' current knowledge and strengths in the area of HIV and substance abuse were assessed so as to develop even more effective target-specific programs for substance abusers.

The initial challenge was to identify, through a selection process, organizations that have sufficient experience in HIV

and substance abuse. No single NGO had significant expertise in both HIV and substance abuse. Some were primarily focused on addictions treatment rehabilitation with some HIV knowledge; others were focused on HIV with some limited knowledge of substance abuse. The approach was to help each of the NGO groups to develop strengths in the areas in which they had less expertise and to design effective programs to deal with HIV among the substance abusing population

Seven of the eight NGOs implemented community-based HIV-reduction programs among substance abusers at risk of infection and transmission. The eighth NGO focused primarily on training in addiction and HIV. They developed the capacity of twenty addictions treatment centers throughout Kenya to provide more effective recovery treatment services and integrate HIV-reduction programs. This NGO's second concentration was training existing VCT counselors throughout Kenya to screen VCT clients for substance abuse using both the AUDIT and CAGE alcohol assessement tools, and then to provide those clients with brief interventions and referrals.

HIV programs designed to deal with substance abusers traditionally have been focused primarily on IDUs and to employ risk reduction strategies concentrating on the HIV risk behaviors of injecting and sexual transmission. Most of these interventions have utilized conventional outreach models. However, several different models emerged through the process described above. These include: Outreach, Community education/sensitization, HIV testing, HIV case management for the HIV positive, addictions recovery treatment, programs and services located within HIV treatment centers.

MODELS/INTERVENTIONS TO REDUCE HIV AMONG SUBSTANCE ABUSERS

Outreach

Outreach was clearly the most common method used and was implemented by all the NGOs. For the purposes of this paper, outreach is defined as activities occurring directly in the community that engaged substance-abusing clients in one-on-one or small group behavior change. However, the NGOs' approaches to outreach varied significantly, as did the success or effectiveness of each NGO's outreach work.

Most programs employed outreach workers as either full-time or part-time staff, although some programs used volunteers and some of these volunteers received stipends. Staff usually included both recovering alcohol or drug users and non-recovering individuals.

Outreach work focused primarily on HIV-risk reduction with clients, including: information and education on sexual risk behavior, appropriate use of condoms, choice of partners, sharing of injecting equipment, etc. The outreach strategy was not only informational but focused on engaging clients in order to achieve a behavior change associated with HIV risk behaviors. Workers engaged clients in repeated or follow-up sessions to assist them in creating individually specific risk-reduction plans and to help them adhere to those plans once they were developed. The majority of the work took place in the community, in drug using dens, formal and informal drinking establishments, local hang outs, and users' homes.

All outreach programs referred clients to HIV testing, primarily VCT. However, the management of and referrals for HIV testing varied significantly among the

different organizations, as did follow-up services after the testing. In addition to VCT referrals, all outreach programs provided referrals for addictions recovery treatment services, although the level of follow-up and management of referrals again varied greatly among the NGOs. An actual diagnosis meeting the DSM-IV-TR (Diagnostic and statistical manual of mental disorders) criteria of substance abuse or dependency was not made by the outreach workers, although, recurrent use of a substance which leads to risky sexual behavior could possibly meet the criteria for DSM-IV-TR substance abuse criteria 2 or 4, depending on other clinical history. (American Psychiatric Association, 2000). Most outreach programs also had integrated recovery treatment services available.

Outreach programs provided the most effective, measurable behavior change, a result supported by the literature (Needle, R.H. et al, 2005; WHO, 2004). One-on-one outreach approaches that followed clients over time allowed for better outcomes in producing behavior change associated with HIV risk than one-time contacts with clients. Since outreach programs provided the best outcomes in terms of behavior change among substance abusers, it is helpful to compare elements that contributed to the success of certain outreach programs. For example, outreach programs that relied solely on volunteer outreach workers had the poorest outcomes in terms of work performance and client behavior change.

Table 1 compares three NGOs doing outreach work, one using volunteer outreach workers and two using paid outreach workers.

Table 1. Comparison of NGOs doing outreach work

Outreach information	NGO A	NBO B	NGO C
Type of outreach workers	All volunteer outreach workers including 2 stipend volunteers	Six full-time outreach workers	Six full-time outreach workers
Total trained to do outreach	51	6	6
Actual number of outreach workers doing outreach contacts	16	6	6
Total number of clients reached through outreach contacts	515	2286	4551
Average number of outreach clients per worker providing outreach	32 (515/16)	381 (2286/6)	159 (4551/6)

The concept of community volunteers doing outreach work was not as successful. More than eight times the number of volunteers were trained and the program reached a significantly smaller number of clients as compared to the other two NGOs. In addition, 33% (171/515) of the volunteer contacts were made by the two stipend volunteers. Given the level of training and motivation required to provide professional outreach services to substance abusers, using volunteers as outreach workers may have its limitations.

Providing volunteer outreach workers with a stipend was of some benefit when

tying the stipend to minimum performance targets. While all of the volunteer outreach workers attended trainings, only a small percentage actually engaged in the work. Volunteer outreach workers performed better when they were part of an experienced team of full or part-time outreach workers.

Another characteristic of the outreach programs that provided mixed results was the use of recovering drug and alcohol users as outreach workers. Recovering users require many supports to prevent relapse. Unfortunately, there was an extremely high relapse rate among recovering users who were often terminated due to poor performance and relapse issues. However, recovering addicts were valuable in identifying using sites and personally knew many of the users, making them vital in providing non-users with a bridge to the using population. A mix of both recovering users and non-users is perhaps the best composition for an outreach team.

As identified earlier, the seven NGO's provided outreach services, among other services, in each of their respective communities. Table 2 shows the number of substance abusing individuals reached through community outreach from February 2007 to May 2009.

Table 2. Number of substance abusing individuals in different facilities

Facility	**N**
Asumbi Project	1944
Family Health Options Kenya	7709
Kisumu Urban Apostolate Programmes	1063
The Omari Project	2588
The Raphaelites	990
Reachout Centre Trust	6636
Impact Research & Development	7089
TOTAL	**28019**

These organizations provided varying levels of outreach with some NGOs placing a greater emphasis on other programs such as general Community Education/Sensitization. The table above reports only the outreach activities of each organization. Although limited outcome data is available, a significant number of substance abusers at risk of HIV were reached.

As part of measuring program outcome and effectiveness, outreach data were collected on baseline HIV risk behaviors during initial contact and during the subsequent follow-up contacts, providing an indication of the level of behavior change over time that could possibly be attributed to the outreach intervention. Obtaining reliable data was a challenge although one NGO had data that could be used for reporting purposes. Table 3 provides some information on baseline sexual risk behavior in terms of number of sexual partners and the utilization of condoms from initial contact and follow up contacts. These data were collected by The OMARI Project from February 2007 to May 2008, covering the areas of Malindi, Lamu and Kilifi.

Table 3. Sexual risk behaviours at initial contact and follow-up

Sexual risk behaviours	Initial Contact	Follow up or Repeat Contacts
Average number of sexual Partners for all clients in last 30 days	1.7 N= 4519/2623	1.2 N= 1276/1104
Average number of sexual Partners for all clients in last 6 Months	3.9 N= 10127/2623	2.4 N= 2622/1104
Frequency of condom usage during vaginal or anal intercourse in past week reported by clients	18.9% (N=2085/11024)	55.0% (N=1332/2423)
Percentage of individuals using condoms at least 50% of the time during vaginal or anal intercourse in the past week.	11.2% (N=293/2623)	23.4% (N=258/1104)

These data reflect behavior changes among the substance abusing clients, primarily in terms of their sexual risk. These outreached clients reported an overall decrease in the average number of sexual partners as well as an increase in the frequency and consistency of condom usage. The Kenya Demographic and Health Survey 2003 reported that 23.5% of males in urban areas used condoms during their last sexual intercourse (Central Bureau of Statistics, Kenya [CBS], 2004). Since the OMARI Project clients were primarily males, [89% (2341/2623)], the 18.9% usage of condoms among male substance abusers falls below the average from the Kenyan survey, but is an expected outcome among this high risk population.

Despite insufficiencies in the data collection methods of other NGOs, those NGOs also reported anecdotally similar experiences in terms of increased condom usage and reduction of sexual partners, attributing client behavior changes to a more extended process of engaging with clients in problem solving and decision-making approaches to reduce their health risks.

Community Education/Sensitization

Some NGOs placed greater emphasis on what they called *Community Education/Sensitization*. This was primarily an educational approach, which typically provided information/education to groups of people. This often involved assemblies of local people gathered together by the local chief in order to present information associated with HIV and substance abuse. Organizations that engaged in these types of activities tended to have long-established experience in HIV prevention through education and sensitization. Examples of some of these activities include: presentations in schools, prisons, local civic groups or clubs, area chiefs' gatherings, sports events, etc.

As part of specifically targeting substance abusers, most NGO groups identified drug and alcohol using sites as part of their educational outreach. These included the "shooting dens" where IDUs

inject. Other locations were areas where users smoke heroin or *cannabis*. Alcohol establishments were also targeted, including both the licit and illicit alcohol consuming areas.

Other NGO groups developed more focused educational sessions to better target substance-using groups in the drinking establishments, such as licensed bars and illicit drinking dens, and coupled with this, made immediate outreach follow up contacts after the presentation. Individuals who frequented the bar or den would listen to the presentation, which was primarily focused on HIV risk reduction strategies among the alcohol and drug users. The outreach workers or presenters would typically provide condoms and work with bar owners to maintain a supply of condoms. After completing the educational presentation, a team of outreach workers commenced the one-on-one outreach contacts with the participants.

Another NGO engaged clients during "moonlight outreaches". Outreach workers, in this case, went to discos and night clubs, meeting with clients in the establishments throughout the evening and providing them with condoms, educational pamphlets, and referral coupons to come to their drop in center for follow up services. On various occasions, they also provided mobile VCT clinics, pitching a tent in close proximity to the night club or disco where the outreach workers brought or referred clients for VCT testing. As part of this service, they also had an addictions counselor available to assess clients for further addictions treatment services and provide brief initial treatment interventions. The VCT testing and addictions screening typically occurred earlier in the evening, and both counselors assessed the client's ability to participate in services based on the amount of alcohol consumed and their ability to engage in either program.

These various education/sensitization strategies have limitations in being able to produce effective behavioral change among substance abusers. Since the first documented case of HIV in Kenya in 1984, many efforts have been made to disseminate information to educate the public about modes of transmission and prevention measures. As a result, most people have a basic knowledge and understanding of HIV transmission along with some knowledge of the role of drugs and alcohol in promoting risky behavior. Activities of education/sensitization among drug and alcohol users provide some benefit in reinforcing health education messages and risk reduction strategies. However, evaluating behavior change as a result of these activities can be difficult.

Today, strategies that will positively affect HIV/AIDS need to go beyond education messages to promoting and supporting behavior change. Educational strategies that specifically target the substance abusing population and include an outreach intervention with follow-up contacts are likely to have a greater impact on behavior change than general educational messages. These educational outreaches draw upon the strengths of the outreach model and can include other interventions such as HIV testing, in order to more effectively produce behavior change. The epidemic of HIV transmission is less an issue of knowledge and more about translating that knowledge into sustained behavior change.

The concept of behavior change communication and its importance in reducing the spread of HIV was highlighted through the example of Uganda. Planning and implementing behavior change communication among

the general population and target groups was a primary factor in facilitating the decline of the HIV prevalence. The decrease in sexual partners, as a result of behavior change, was considered the most important determinant in the reduction of HIV and AIDS in the country. Additionally, behavior change cannot simply involve information and education, but must focus on fundamental behavior change approaches, which include communication methods and motivation strategies to produce changes in behavior (USAID, 2002). Sexual behavior is the preeminent area of risk in the spread of HIV. Sexual behavior change needs to be the major focus in preventing the spread of HIV. The extent of behavior change will determine the future path of the epidemic (Oster, 2007).

Substance abusers require more targeted strategies to produce behavior changes so targeting behavior change strategies among substance abusers is essential to reducing the spread of HIV among this high risk population. According to a WHO study, denial and neglect of risk were key patterns in the relationship between alcohol and sexual behavior. Denial and neglect of sexual risk were observed as a means of coping with life by the alcohol user (WHO Report, 2005).

Denial is considered part of the disease of alcoholism and drug abuse. Such denial plays a role to help users maintain and support their addiction, which effectively makes behavior change among the substance abusing population much more challenging. As a result, general educational messages are not likely to produce lasting change in risk behavior of this population.

HIV Testing

All NGOs incorporated HIV testing as an integral part of their services to clients. HIV testing services included: outreach referrals of substance abusers to existing VCTs for HIV testing; conducting mobile VCTs for HIV testing in the community; and developing specialized, on-site VCTs that could better target and test the substance-abusing population.

The demand for mobile VCT testing increased throughout the course of the program interventions. This is primarily because many substance users chose, for multiple reasons, not to go to VCT centers. The mobile VCT brought the service directly to the clients. This typically occurred after outreach workers had already identified clients for testing. A mobile VCT was scheduled on a particular day, and outreach workers sought out the users in the area to provide them easy access to VCT testing.

In the cases where the NGOs specialized in substance abuse, some chose to supplement HIV testing services by developing specialized VCT centers located directly in their drop-in centers. They employed and trained VCT counselors who specialized in testing substance abusers. This addition to their existing program greatly facilitated the referral process between outreach and VCT.

There were variations in how referrals were made and how involved an outreach worker or staff person was in facilitating the HIV (VCT) referral. The substance abuser's level of attendance or participation in VCT was clearly affected by how much he/she was engaged by the outreach worker or other staff in the referral process.

In terms of VCT testing and reporting, two NGOs (OMARI and Reachout) gathered reliable VCT referral and testing information. These data were collected from February 2008 till June 2009.

Table 4. Utilization of VCT services

VCT services	N
Number of referrals for VCT testing	9385
Number VCT tests performed	4895
Number accompanied to VCT site by outreach worker	4607
Percent of referrals VCT tested that were accompanied by an outreach worker	94.1% (4607/4895)
Percent of referrals VCT tested who attended VCT on their own.	3.1% (288/9385)

From Table 4, of all the VCT tests performed 94.1% (4607/4895) occurred when an outreach worker accompanied the client. Even though the outreach workers provided clients with written VCT referrals, very few actually went on their own to be tested. Only 3% (288/9385) of those tested came on their own as a result of the referral from the outreach worker. It is possible that the number of persons tested who came on their own could be larger if the client refused to disclose to the VCT counselor that they had been referred by an outreach worker or if he/she did not provide the VCT counselor with the referral card provided by the outreach worker. Nonetheless these data are significant in that they indicate that substance abusers do not readily engage in services on their own without the support of the outreach worker.

Existing VCT centers can also be an effective entry point for screening clients who have drug and alcohol problems. One of the NGOs worked specifically with existing VCTs to provide them with the knowledge and skills to screen clients for substance abuse and provide brief intervention, as well as referrals for addiction treatment services. The inclusion of this brief intervention strategy provided clients with useful information they would otherwise not have received.

HIV testing has been a valuable tool in helping substance abusers identify their status. All programs utilized HIV testing, and VCT is the most common method because of its large scale availability and accessibility throughout Kenya. One of the challenges of VCT is incorporating more referrals to other health care providers. The orientation of VCT counselors strongly emphasizes a high degree of confidentially and subsequently, many VCT counselors are not comfortable engaging other non-medical providers. Training of VCT testing sites has helped to facilitate more referrals to the outreach teams in order to help HIV-positive substance abusers comply with HIV treatment. Likewise, referral to outreach programs of the HIV-negative substance abusers provides these individuals with additional supports and resources to maintain their HIV negative status. In addition, as identified in the VCT data above, it is important to engage substance abuse clients in the VCT testing process. These clients tend to respond to the support offered by the outreach workers in accompanying them to VCT, but when they are simply referred to VCT by the outreach worker, their participation in VCT testing is extremely poor.

HIV Case Management for the HIV Positive

Preventing the further spread of HIV among clients who test positive is of vital importance to curb the AIDS pandemic. HIV positive substance abusers present

unique challenges since they have a greater tendency to use substances to cope with life stressors, such as their HIV positive status. As a result of excessive alcohol use, users can often engage in risky sexual behavior (Weiser et al. 2006).

Case management for HIV positive substance abusers is one way to increase users' participation in HIV treatment and also help improve their engagement or participation in addiction recovery programs. Early intervention is critical for once the substance abuser is identified as HIV positive, the more time elapses after HIV testing, the less likely the patient will be to initiate HIV care services. Coordination by the case manager with the HIV testing sites is critical to facilitate immediate HIV care services. This is typically best done when the VCT counselor, the patient, and the case manager meet directly after testing to facilitate the care process. The case manager then tracks these clients to schedule and follow up HIV treatment services.

Outreach workers typically function as case managers, acting in this dual role since they know best how to access their clients in the community. Other NGO staff may take on this role as well, provided they know how to access these clients in the community. One NGO included, as part their regular program, the stipulation that their VCT counselors also manage the HIV care of the drug and alcohol using clients.

Case management for the HIV positive substance abusing client ensures that this vulnerable population, many of whom would not participate in HIV care services, receives necessary HIV treatment. VCT counselors and outreach workers doing follow ups on the HIV positive clients, report that approximately 80-90% of these clients will not initiate HIV care services without the support or accompaniment by the outreach worker or VCT counselor to the facility. Even with intensive case management services, one NGO (Reachout) reported that they were able to actively engage 52% (133/255) of all their known HIV positive clients in HIV treatment and care through the outreach case management program. If the VCT testing center is able to link the client with the case management service immediately, the likelihood of follow through with services is more promising. Ideally, the case manger will bring the client to the HIV treatment center the following day. With the client's consent, the case manger typically will go to the home of the client and accompany the client to his/her appointment. This usually will continue until all the major diagnostic work has been completed and a course of HIV treatment is in place. Without this level of intensive case management, substance abusing clients typically only initiate HIV treatment services when their condition has deteriorated and they are in need of acute medical care.

Addictions Recovery Treatment

Addictions recovery treatment services were typically part of the continuum of care within most of the NGOs' programs. Clients were identified by outreach workers, VCT counselors, and community members and then referred for recovery treatment. Most of these services were on an outpatient basis with referrals to residential programs as needed. These services were established relatively recently, with many of the staff being novices in addictions counseling. They conducted clinical intakes/ assessments, individual and group counseling, and intensive outpatient treatment. They also referred clients to medical practitioners for detoxification

services and facilitated referrals to residential rehabilitation services.

While addictions recovery treatment was offered as part of most programs, the quality varied greatly. Few people have been trained to provide addictions counseling. Many of the NGO staff do not have the knowledge and skill level necessary to administer good quality treatment programs. As a result, client engagement is limited and participation is poor. Clients have traditionally sought out these services expecting to be cured from their dependency so they tend to become quickly discouraged and drop out of services when provided only with information about recovery. However, clients are now becoming more aware of their need for on-going counseling services and are beginning to participate more actively in the services available to them.

Sustaining recovery is also a problem for clients who participate in both residential and non-residential services. Most clients cannot afford residential treatment and therefore they participate in whatever no-cost non-residential treatment is available. Relapse rates are high especially among opiate users.

Addiction recovery, on its own does not provide a good HIV risk reduction model because of its poor outcome to achieve and sustain recovery. However, addictions recovery services, as part of an integrated HIV program for substance abusers, can play a valuable role in reducing the spread of HIV. Substance abusers who have achieved abstinence are at lower risk of acquiring HIV as compared to active users. IDUs who do not participate in substance abuse treatment are up to six times more likely to become infected with HIV as compared to IDUs who participate in substance abuse treatment (CDC, 2002). Relapse seems to provide some benefit in that it helps the user understand how powerful his/her addiction is, and is often the basis for a stronger commitment to recovery. In this case, relapse in substance abusers gives the service provider an opportunity to emphasize the necessity of a full commitment of the abuser to a recovery program rather than the abuser seeking unrealistic curative fixes from treatment providers.

Increased training and improvement in professional practices should render more favorable recovery outcomes for clients. Amidst the challenges, training programs that have been underway for more than a year are witnessing improvements in the skill level of addictions counselors. There also seems to be an increasing recognition among users that active participation in recovery treatment services is essential in order to achieve sobriety. In addition, clients are more receptive to ongoing recovery programs, such as 12-step self-help, and therefore can achieve more sustained recovery.

Although addictions recovery treatment services cannot necessarily be seen as a highly effective HIV intervention from a community health perspective, it is still an essential component of an overall HIV reduction strategy.

Commercial Sex Workers and Alcohol

Licensed bars are often a popular venue for professional female commercial sex workers and illicit drinking dens are a common site for the low-end sex workers. These illicit drinking dens will include local women who frequent these establishments to exchange sex for money as their primary occupation and women who will present themselves when they become more desperate for money to feed their children, for example. The latter group engages in the activity on periodic

occasions, only when they are in need of money. This sex work tends to be unsophisticated, usually inexpensive, and often with limited protection.

Most of these women are involved in alcohol consumption, especially the commercial female sex workers. In a study of bar-based female sex workers, consumption of alcohol was associated with increased sexual risk taking. This also was demonstrated in the study which showed a higher sexually transmitted infection (STI) incidence among this population when consuming alcohol (Yadav et al, 2005). One NGO (The Raphaelites) has established a specialized four-week intensive outpatient alcohol/drug treatment program for these women and employs them as part-time outreach workers in their program, after completing treatment. They reported that the early successes of this program were due to ongoing participation in an alcohol/drug recovery program. They also stated that sustained alcohol recovery is the key factor in discontinuing sex work. Their observation is that relapse into alcohol or drugs leads to reengagement in the sex work.

Programs and Services Located Within HIV Treatment Centers

A pilot project by one of the NGOs was initiated to work with HIV positive substance abusers in an HIV treatment center. The project was developed to offer services to HIV positive substance abusers receiving HIV treatment at the center. These centers are often faced with many challenges in providing services to HIV positive substance abusers. For instance, many substance abusers conceal or deny their alcohol or drug abuse or they do not adhere to their ARVs thus compromising their treatment plan. The HIV care centers also lack the resources and skills to deal with these challenges and termination of ARV treatment often becomes the reality for these patients.

This NGO (The Raphaelites) provided specialized onsite services as part of an integrated service plan. Adherence and substance abuse classes were provided for clients on ARVs. Addictions recovery services were also provided on site and scheduled during the time when clients returned for ARVs. Case management was provided and coordinated with the health care professionals and HIV community health workers to follow the care of substance abusing clients. Outreach risk reduction services were provided as part of the organization's outreach program but identified for clients receiving HIV care at the treatment center.

This pilot project provided the most integrated approach to managing HIV care and treatment for the HIV positive substance abuser than the other models we have reviewed. Substance abusers received support services and became more engaged in their treatment plan, with the goal of this plan being to help sustain them on ARVs rather than terminating their treatment. Strategies such as recovery abstinence and, to the extent possible, managing the consumption of drugs and alcohol were also utilized.

Specific outcomes for this program are not yet available, although the medical staff reports that the case management of HIV positive substance abusers is beneficial in supporting ARV compliance for this population. This innovative approach provides hope for improving HIV treatment outcomes for substance abusing patients, while reducing the risk of possible transmission to others.

CONCLUSION

In reviewing each of the modalities utilized by the various NGOs, it becomes

clear that a multi-faceted approach is necessary. Although outreach demonstrated the most favorable results, it was clear from a review of the various programs that outreach programs should not be implemented in isolation. Other support services such as VCT testing, case management, and education/ sensitization campaigns are necessary for such programs to succeed.

The most effective outreach programs included teams made up of recovering and non recovering outreach workers. Recovering outreach workers, to be effective, needed to achieve a period of sobriety for at least one year and be engaged in some type of recovery program. Utilizing community volunteers for outreach can have some benefit, but it often made it difficult to obtain reliable outcomes. The most reliable data came from the more experienced NGOs who implemented outreach programs with full-time staff. Full and part-time outreach workers were able to demonstrate, through information and data collection, a tangible reduction had occurred in sexual risk behavior from first contact to repeated contacts in terms of number of sexual partners as well as an increase in condom usage. Observations and concrete data from the NGOs also reinforce the accepted notion that one-on-one types of outreach strategies were more effective in altering behavior in substance abusers than education/sensitization campaigns to community groups, even though the latter reported higher numbers of contacts in recorded data.

The more successful programs also demonstrated the necessity of engaging substance abusers over time in order to achieve the desirable behavior change. Follow up contacts helped to establish a rapport with the client necessary to sustaining them through the individual's ongoing change process.

It is also clear from the VCT referral data collected by NGOs that the substance abusing population does not respond well to traditional referrals for services. They require an added level of case management intervention in order to guide and support them through the process of HIV testing and subsequent HIV treatment services for the HIV positive client. Without such programs, participation by this high-risk population likely will be extremely limited.

Substance abusers require skilled interventions in order to produce sustained behavior change in HIV risk behaviors. Without sufficient training and skills, workers in outreach programs could exert only a limited impact for their efforts. To provide effective outreach services, behavior change strategies and individualized action plans need to be developed and followed through with clients. Without rigorous programming geared to the specific needs of such a population, few changes can be achieved among this hard-to-reach group.

One of the key findings was the importance of the outreach workers themselves, particularly those whose skills were further refined by training and experience. A well-managed outreach program that can provide the necessary support services is able to reach a significant number of substance abusers, and have a meaningful impact on HIV risk behaviors among this high-risk population.

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