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Patterns of Drug Abuse in Public Secondary Schools in Kenya

David M. Ndetei, MBChB, DPM, MRCPsych, FRCPsych, MD, Certificate in
Psychotherapy (Lond)

Lincoln I. Khasakhala, MBChB, MS

Victoria Mutiso, BA

Francisca A. Ongecha-Owuor, MBChB, MMed Psych

Donald A. Kokonya, MBChB, MMed Psych

ABSTRACT. The objective of this study was to establish the association between substance abuse and the sociodemographic characteristics of secondary school students. All the students of 17 randomly stratified public secondary schools in Nairobi were required to complete self-administered sociodemographic and the School Toolkit questionnaires in a cross-sectional descriptive survey. Nearly all (96.6%; 1252/1296) the students, comprising more males (62.5%) than females, completed all the items on the questionnaires. Their mean age was 17 years. Alcohol and cigarette use were common and began as early as before age 11. No significant correlation was found between fathers' education and substance abuse. Mothers' education had a significant but negative correlation. There were increased rates of substance abuse compared to past surveys. Campaigns against drug use should include those aged 11 years and should focus on education on the dangers of alcohol and tobacco use, as these are gateways to use of other drugs.

KEYWORDS. Kenya, public schools, substance abuse

David M. Ndetei is Professor of Psychiatry, University of Nairobi, and Director, Africa Mental Health Foundation (AMHF), Nairobi, Kenya.

Lincoln I. Khasakhala is Research Associate, AMHF, Nairobi, Kenya.

Victoria Mutiso is Project Administrator and Research Associate, AMHF, Nairobi, Kenya.

Francisca A. Ongecha-Owuor is Consultant Psychiatrist, Meru Hospital; Hon. Lecturer, Department of Psychiatry, University of Nairobi; and Research Associate, AMHF, Nairobi, Kenya.

Donald A. Kokonya is Registrar in Psychiatry, Department of Psychiatry, University of Nairobi, and Research Associate, AMHF, Nairobi, Kenya.

Address correspondence to: Dr. David M. Ndetei, Professor of Psychiatry, University of Nairobi, and Director, Africa Mental Health Foundation (AMHF), P.O. Box 48423, Nairobi, Kenya (E-mail: dmndetei@mentalhealthafrica.com or dmndetei@uonbi.ac.ke).

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INTRODUCTION

The documentation of drug abuse in the country can be traced back to 1930 when Gordon (1) reported the first documented substance abuse-related problems in Mathari Mental Hospital. These were alcohol and *miraa*-induced psychoses. The use of intoxicants has traditionally been part of the lifestyle of Kenyans and fermented alcohol made from millet, sorghum, or maize, mixed with other ingredients or tapped from palm trees, was the most popular intoxicant. Alcohol was consumed in its natural form, or it was first distilled into a spirit and different communities had different names for their spirits. Popular names today include *changaa*, *toivo*, *tornado*, or *piwa* and these spirits usually have greater than 70% ethanol content. The use and consumption of drugs and alcohol was done according to a community's culture and most of these communities had rules and values that strictly prescribed the circumstances under which these drugs and intoxicants could be obtained, used, and consumed. In general, drinking of alcohol was restricted to elders, and more often than not, to males. The youth were restricted from using tobacco but both male and female elders could engage in its use (2). From the late 1970s, when the phenomenon began to draw more attention, various studies on specific types of drugs involved and the scope and extent of drug abuse were conducted (3–15).

In a first admission sample of 178 patients at Mathari Hospital, multiple substance use of cannabis, *khat*, amphetamines, and opiates was found among all grades of alcohol drinkers (16). Alcoholic psychoses were noted in 7% of the patients, dependent cannabis use was recorded in 5.3% and 1.6% of the total sample had amphetamine-like drug-dependent use. Recently, there have been five school surveys in Kenya that specifically addressed drug use and abuse (17–20). Two of the earliest surveys in both rural and urban schools noted that illicit drug use among Kenyan secondary school students was concentrated in urban/ periurban areas and that the most commonly abused drugs were social drugs (alcohol, tobacco) and inhalants (17,18). In a study conducted in 952 students (males = 606, females = 346), using both

the World Health Organisation (WHO) and the Youth survey questionnaires, similar findings on the types of drugs used were recorded (21).

A study conducted in Kenya in 1995 attempted to assess the drug situation in the country using a Rapid Situational Assessment (RSA) (22). An upward trend was seen in the abuse of social (alcohol, tobacco, *khat*) and illicit drugs (cannabis) and this was attributed to rapid social change, economic factors, lack of knowledge about the dangers of drug abuse, and easy availability of drugs that induced dependence. Those interviewed had been using drugs for between one and 20 years and were purportedly introduced to drugs by their friends, schoolmates, parents, or relatives. Some (50/383) reported they were influenced by the mass media. These results compared very well with findings of another study 9 years later in which it was found that brothers, fathers, and sisters were most frequently reported as family members also using drugs (23).

The National Agency for the Campaign Against Drug Abuse (NACADA) (20) reported the findings of a national survey on the use of alcohol, tobacco, *bhang* (cannabis), *khat* (*catha edulis*), and inhalants in schooling and non-schooling youth (aged between 10 and 24 years). The study provided data on lifetime and current (within the past 30 days) use and the trends revealed that there was an astronomical rise in the use of drugs among the students.

None of the aforementioned studies have, however, looked at the probable associations between the use of different drugs and especially the social and hard drugs. This study therefore aimed to establish if there was any association between the use of these drugs and to identify possible evidence-based entry points for intervention. The study also sought to replicate epidemiological surveillance data to monitor changing and emerging trends.

METHODS

This survey was done in June 2004, half way through the second term of a three-term school year in the Kenyan school calendar. This period was selected to minimize the disruptions

associated with the excitement of students settling down at the beginning of a new school year or the anxiety experienced during the end-of-year school or national examinations. This study was one out of eight studies on mental health and well-being of students that were taking place concurrently in all the sampled schools. The School Toolkit (24) was being used for the first time in Kenya.

Out of the 49 registered public secondary schools in Nairobi, 17 (34.7% of the schools) were selected through a stratified random sampling method designed to reflect the following representations:

1. National and provincial schools (the only two categories of public secondary schools in the Nairobi province, unlike in other provinces where they have also district public secondary schools;
2. Boys only, girls only, and mixed schools;
3. Boarding only, day only, and combined boarding and day schools;
4. Geographical location—central, western, northern, southern, and eastern parts of the city;
5. Environmental location—slums, middle class, and upper class areas; and,
6. Urban and semiurban/semirural areas.

The principal investigator (PI) (D.M.N.) visited the school heads with prior arrangements, and explained the nature of the study to them. Ethical issues, including informed consent/assent, confidentiality, and voluntary participation were also discussed. Clearance to conduct the study was obtained from the Ministry of Education. One or two teachers in each school were nominated by the head teachers to coordinate the exercise in their schools. These teachers were trained by the PI on how to sample the students for this particular questionnaire and how to ensure informed consent and assent and confidential voluntary participation. The exercise was to be conducted at a time when it would be least disruptive to the school activities and on a day when all the students in the school were in class at the same time. The training was conducted at the Africa Mental Health Foundation offices.

All the classes participated at the same time as arranged by the teachers. Starting with the first student, the distribution pattern was designed such that the questionnaires for this study were given out to every eighth student sequentially according to their normal seating arrangements. The students were not aware that they were answering different sets of questionnaires. (A total of 10,081 students participated in all the eight studies and it was expected that a proportionate number would participate in each of the studies.) The class teachers explained the purpose and nature of the study to the students. All the questionnaires were designed to be completed in approximately 15 to 20 minutes in order to avoid fatigue in the students and therefore increase reliability. The students simply indicated their choices. The completed questionnaires were folded and deposited into a “ballot” box placed at the exit of the class. This method of collecting questionnaires on school studies of substance abuse has been shown to be cost-effective and allows for confidentiality (8). The ballot boxes were collected by one of the researchers at the end of the exercise.

One of the authors (V.N.M.) who was the research administrator coded the schools and indicated the appropriate code for each of the schools on all the questionnaires and then locked up the code. The data were then entered, cleaned, and analyzed using SPSS version 11.1. The code was revealed to the PI only after completion of data analysis; during the write-up, only the school code was revealed.

RESULTS

Sociodemographic Characteristics

A total of 1296 (96.6%) students in the 17 schools returned fully completed questionnaires. There were more male (62.5%) than female students and 77% of all the students were boarders. The students were aged between 13 and 24 years and the mean age was 17 years. Although the distribution of students across the classes was proportionate, there was a slightly higher percentage of Form 1 students (28.3%). There were a few students in Forms 5 and 6 (1.1%). A greater

TABLE 1. Parental Education and Living Arrangements of the Students

	Father	Mother
What is your parents' education level?		
Completed primary school or less	5.2	6.9
Some secondary	3.2	5.5
Completed secondary	11.5	14.1
Some college or university	6.7	8.7
Completed college or university	64.2	53.0
Don't know or doesn't apply	9.2	9.0
Whom do you live with?	Yes	No
Alone	2.2	97.8
Father	66.7	33.3
Stepmother	2.5	97.5
Mother	76.3	23.7
Stepmother	2.2	97.8
Brothers/sisters	78.9	21.1
Other relatives	8.3	97.1
Nonrelatives	2.4	97.6

Note. Data are percent.

percentage of the students' parents had attained education up to university level. The level of education of the parents was skewed (but not significantly) towards college (post-school) and university education, with the fathers educated to these levels more than the mothers, and the mothers more to secondary school or less. There were identical proportions of those students who did not know about the level of education of either the mother or the father. Most students lived with their fathers, mothers, and siblings (Table 1). Significant numbers among the students, both boarders and day scholars, had their parents living and working in Nairobi.

Cigarette Smoking and Alcohol Use

Alcohol (beer, wine, and spirits) and cigarettes were the most commonly used substances and age at first use was as low as 11 years or less (Table 2). There was a gradual decline in the percentage of students reporting first use with increasing age. When the students were specifically asked to consider the past 30 days, 92.6% had never smoked, whereas up to 3.9% had smoked at least once per week. A total of 3.6% of the students were active daily smokers, with the number of cigarettes smoked every day ranging from 1 up to 20 or more per day. The

correlations between drug habits and patterns and sociodemographics of the students are summarized in Table 3. There were no significant differences in use of alcohol or other drugs by boys and girls, whereas the use of tobacco was significantly higher in boys than in girls ($P < .01$). There were significant differences ($P < .05$) across the classes, with the most problems in Form 4 and the least in Form 1, again a reflection of cumulative effect. There were significant differences ($P < .01$) in accessibility. There were no differences in awareness according to class levels. There were no sex differences in drug-related problems and accessibility between boys and girls. However, girls were significantly more aware of the dangers of drugs than boys ($P < .05$).

Table 4 displays the details of significant correlations. Students between the ages of 19 and 20 (corresponding to Form 4) reported the highest frequency of having ever used drugs, followed by successively younger age groups ($P < .01$). A quarter of those aged above 21 years reported that they had occasionally used alcohol and had never used cigarettes and other drugs. There was no significant difference in alcohol or tobacco use in boarders and day scholars. However, use of illicit drugs was reported in a greater proportion of day scholars than in boarders ($P < .01$). Higher proportions of students reported use of alcohol and tobacco with advancing class levels ($P < .01$). However, in the case of other drug use, there were inconsistent variations ($P < .01$) between the class levels rather than an upward progression. Living with male relatives such as a father or a stepfather increased the tendency for lifetime drug use ($P = .04$) and so did living with brothers and sisters ($P = .021$). The reverse was true for those students living with grandparents/nonrelatives ($P = .003$). Smoking and alcohol use were also associated with living with brothers and sisters ($P = .003$ and $.03$), respectively. Mothers' education was significantly associated with use and nonuse of alcohol ($P < .01$), with the percentage of students who used alcohol increasing with higher levels of mothers' education. Boarding students had experienced significantly more problems related to alcohol than day scholars ($P < .01$). The reproduced results numerically illustrated the pattern

TABLE 2. Age at First Use of Alcohol, Tobacco, or Other Drugs

Substance used	Never	Age at first use (years)						
		<11	11	12	13	14	15	16
Drank at least one glass of beer	66.4	1.9	11.2	4.6	4.6	4.6	3.6	3.0
Drank wine	61.2	2.0	11.2	5.6	5.7	5.4	4.4	4.5
Drank spirits	73.0	2.2	4.1	2.4	3.3	5.3	4.4	5.4
Got drunk (alcohol)	80.4	2.0	3.4	2.7	1.9	3.1	3.6	3.0
Smoked first cigarette	74.7	1.8	10.2	4.5	4.1	2.4	1.3	1.1
Smoke daily	91.8	1.6	1.5	1.8	0.7	1.3	1.0	0.3
Tried amphetamines	81.7	1.3	5.6	2.7	2.6	2.9	2.2	1.1
Tried tranquilisers	93.0	1.4	1.7	1.4	1.1	0.4	0.3	0.5
Tried marijuana or hashish	92.9	1.5	1.2	1.2	1.0	1.0	0.3	0.8
Tried LSD/hallucinogen	95.9	1.6	0.4	0.7	0.8	0.3	0.3	0.1
Tried crack	96.0	1.6	0.4	0.2	0.8	0.5	0.4	0.3
Tried cocaine	95.8	1.6	0.4	0.2	0.8	0.5	0.4	0.3
Tried mandrax	96.0	1.6	0.3	0.5	0.6	0.4	0.5	0.1
Tried ecstasy	96.0	1.8	0.2	0.2	0.8	0.3	0.4	0.3
Tried heroin	96.0	1.4	0.3	0.4	0.5	0.3	0.6	0.3
Tried solvents or inhalants to get high	93.4	1.4	2.0	1.3	0.3	0.4	0.8	0.3

Note. Data are percent.

TABLE 3. Correlations^a Between Students' Demographic Information and Drug/Alcohol Use

	Boarder or day scholar	Gender	Age	Form	Fathers' education	Mothers' education
Cigarette use						
Lifetime	NS	0.005	0.000	0.000	NS	NS
Past 12 months	NS	NS	0.000	0.000	NS	NS
Past 30 days	NS	0.023	0.001	0.000	NS	NS
Smoking frequency	NS	NS	0.000	0.000	NS	NS
Alcohol use						
Lifetime	NS	NS	0.000	0.000	NS	0.007
Past 30 days	NS	NS	0.001	0.000	NS	0.019
Age at first use	0.001		0.002	0.004	NS	NS
Drug use						
Awareness	0.000	0.000	NS	0.001	NS	NS
Lifetime	NS	NS	NS	0.006	NS	NS
Awareness of risks	NS	NS	NS	0.029	NS	0.003
Accessibility	NS	0.001	NS	0.000	0.02 ^b	0.023
Problems	NS	0.000	NS	0.001	NS	0.001

Note. Only *P* values^a for significant correlations are shown.

^aNS = nonsignificant.

^bFor alcohol use only.

of significance, with the highest number illustrating the most important factors/variables in the statistical significance.

Within the 30 days preceding the study, 1.6% of the students had smoked up to twice and 3.9% had smoked less than once in a week. At least 5.1% of the students reported that they had consumed alcohol once or twice within the past 30

days (Table 5). Table 6 summarizes the percent coexistence of smoking, drug, and alcohol use. There was a very high significant coexistence between use of cigarettes, alcohol, and other drugs ($P = .000$). Smoking and alcohol use, each considered on their own, had significant associations ($P = .000$) with lifetime drug use. On average, 22.3% of the students admitted having tried a

TABLE 4. Correlations^a Between Students' Demographics and Substance Use, Consequences, Awareness, and Accessibility

Variables	Alcohol (%)		Tobacco (%)		Drugs (%)	
	Users	Nonusers	Users	Nonusers	Users	Nonusers
Gender**						
Male	NS	NS	30.7	69.3	NS	NS
Female	NS	NS	23.1	76.9	NS	NS
Age (years)**						
13–14	29.0	71.0	21.7	78.3	10.1	89.9
15–16	34.1	65.9	22.5	77.5	11.4	88.6
17–18	42.7	57.3	31.4	68.6	13.2	86.8
19–20	49.5	50.5	39.8	60.2	25.8	74.2
21+	25.0	75.0	0	100	0	100
Boarder/day*						
Boarding	NS	NS	NS	NS	8.7	
Day scholar	NS	NS	NS	NS	12.7	
Form**						
One	28.6	71.4	17.9	82.1	11.5	88.5
Two	37.2	62.8	31.1	68.9	9.4	90.6
Three	45.3	54.7	30.4	69.6	17.7	82.3
Four	45.3	54.7	33.0	67.0	15.9	84.1
Mothers' education**						
Some secondary education	29.6	70.4	NS	NS	NS	NS
Completed secondary	33.3	66.7	NS	NS	NS	NS
Completed high school	23.6	76.4	NS	NS	NS	NS
Some college or university	35.4	64.6	NS	NS	NS	NS
Completed university	43.4	56.6	NS	NS	NS	NS
Not known/applicable	38.5	61.5	NS	NS	NS	NS
		Consequences	Awareness	Accessibility		
Status:**						
Boarding	87.3					
Day	81.7					
Forms:*						
One	83.0		85.7			
Two	85.4		91.9			
Three	87.3		90.1			
Four	88.4		91.7			
Gender:*						
Male		73.1				
Female		80.6				

^aCorrelations significant at * $P < .005$ and ** $P < .01$.

drug, whether or not they knew what it was, whereas 1.4% did not know exactly what it was that they tried. The majority of those who knew what drugs they had tried said they were amphetamines (*mira*) and marijuana.

Significant differences between the 17 schools were found particularly in the areas of problems related to drugs ($P = .004$) and relationships with teachers ($P = .003$) even when the data were pooled together. However,

when differences in individual questions for each school were analyzed, significant variations were found across all the variables and for all the 17 schools.

DISCUSSION

This is the first study in Kenya that reports the results of substance abuse using the School Toolkit. The United Nations Office on Drugs and

TABLE 5. Frequency of Alcohol and Cigarette Use

	Lifetime	Past 12 months	Past 30 days
Cigarette use (%)			
Number of cigarettes			
None	72.9	88.9	94.7
1–2	14.9	5.3	1.6
3–5	4.1	1.1	1.1
6–9	2.0	0.9	0.8
10–19	1.2	1.1	0.6
20–39	1.4	0.9	0.3
40+	3.5	1.8	0.9
Alcohol consumption (%)			
Number of drinks			
None	61.4	76.0	90.7
1–2	15.3	11.8	5.1
3–5	7.8	4.2	2.0
6–9	4.7	2.8	1.1
10–19	3.3	2.6	0.6
20–39	2.0	1.3	0.2
40+	5.5	1.2	0.4

Crime (UNODC) developed the School Toolkit for Rapid Situational Analysis and Surveillance on Drug Abuse specifically in schools (24). This study was conducted in Nairobi, which is a cosmopolitan city, and the students included into the study came from socioculturally, geographically, and environmentally diverse backgrounds. It was likely therefore that the drug use patterns

TABLE 6. Codependence^a of Smoking and Drug and Alcohol Use

Smoking	Alcohol use <i>n</i> (%)	
	No	Yes
No		
Lifetime drug use		
No	642 (79.9)	162 (20.1)
Yes	75 (56.0)	59 (44.0)
Total	717 (76.4)	221 (23.6)
Yes		
Lifetime drug use		
No	60 (28.3)	152 (71.7)
Yes	18 (12.3)	128 (87.7)
Total	78 (21.8)	280 (78.2)

^a*P* = .00.

reported in the results were a national representation of the actual situation.

Sociodemographics

There are more boarding than day schools and more national schools for boys than for girls in Nairobi and, therefore, the greater number of boarders and of boys recruited into the study was as expected. This ratio, however, does not necessarily reflect countrywide trends. Some of the students who participated in the study were aged 24 years as some schools had postsecondary school programmes. The equitable distribution of students from all classes demonstrated the proportionate sampling of all the schools. The disparity in the gender distribution of parental education with males tending to be more educated than females, reflected the national pattern, as in the past, education for boys was given priority over that of girls. Overall levels of parental education in Nairobi, however, remain higher than those of parents in other parts of the country.

Cigarette Smoking

Only 5.3% of the students were active smokers (defined as those who had smoked more than one cigarette within the 30 days preceding the study period). This percentage was higher than the 3.1% national average reported by the NACADA (20). Assuming that there was a 2- to 3-year intervening period between the NACADA study and this one, it could be deduced that the percent increase of tobacco use over the years was 71%. The data from the NACADA study, however, do not allow any further comparison except on lifetime use, which will also be less than optimal because of the indeterminate sample structure for the NACADA study.

The number of students declined as the frequency of smoking (defined as the number of occasions the student smoked cigarettes in the previous 30 days) increased and this pattern was repeated when the smoking trends within the past 12 months and of lifetime use were looked at. Compared with the NACADA study, lifetime smoking prevalence was reported at much higher levels in this study (19.5% versus

27.1%), again confirming increasing tobacco use over the years. The results of this study alluded to the fact that smoking is on the increase in the youth. At least half of the students used single sticks rather than full packets of cigarettes and this finding has implications for formulation of policies that prohibit selling of single sticks of cigarettes to the youth.

Alcohol Use

Within the past 30 days of this study, at least 9.3% of the students had consumed some alcoholic beverage, which when compared with the 8.6% prevalence rate reported in the NACADA study (20) represented an 8.1% increase over the intervening period. However, the percentage found in this study could be an underestimation of the real prevalence rates given that the study did not inquire for the use of traditional alcoholic drinks like with the NACADA study.

Like with cigarette smoking, the number of those who consumed alcoholic beverages decreased with increasing frequency of alcohol use. It is, however, noteworthy that 0.4% had 40 or more drinks per month. These results reflect a phenomenal increase in drinking over the years. The lifetime use of alcohol was 38.6%, which was very similar to the 40.9% rates found in the NACADA study. At least 1.3% of the students had taken five drinks in one sitting on 10 or more occasions within the past 30 days and this showed an increase in the frequency of alcohol use and quantities consumed.

Age at Onset of Use of Alcohol and Other Drugs

The finding that a greater percentage of students had taken wine suggested a preference of wine over beer, although the differences were not statistically significant. Although onset of use of spirits was recorded during later years, it is a new phenomenon that is being reported with increasing frequency. This trend may be a reflection of the easy availability of spirits to students. The percentages of those students drinking to get drunk were equally distributed across the ages and these figures implied an addiction to alcohol or abnormal drinking at younger ages. Loss of control is associated with dependence on alcohol

and studies such as this one cannot predict those who will get dependent. In most cases, genetic make-up and environmental and psychological factors determine later development of substance dependence. The risks of getting involved in the first place are therefore evident.

Like alcohol, cigarette smoking started early and the frequency of those reporting first-ever use decreased with increasing age. However, addiction to smoking did not seem to depend on age at initial use and this addiction, which seems to be a biological phenomenon, is usually only detected when it has already become ingrained. The finding that students reported first use of other drugs across all the ages was similar to an observation made by Ndetei and colleagues (19).

The use of tranquillisers together with amphetamines (*miraa*) suggested that students sought relief for emotional problems, rather than out of peer pressure or curiosity. Indeed, Ndetei and colleagues (19) observed that psychological factors were important causes for drug abuse in the youth.

Correlations

Earlier studies in Kenya reported greater alcohol use in boys than in girls (1–4). This study demonstrated, like other studies (18,19), that the level of use by both boys and girls was nearly similar. The frequency of students using substances increased with advancing class level but the decline in frequencies among those who were aged above 21 years was a positive finding, as substance use tended to begin after 11 years, when the students joined secondary schools. Perhaps those students aged above 21 years had initiated alcohol use before they joined secondary school, a finding that suggested that education on dangers of substance use should begin during the earlier rather than the later years. Greater use of illicit drugs by day scholars than by boarders could be attributed to the fact that day scholars spent a lot of time, including weekends, outside school and were therefore under less supervision by adults.

The findings of this study showed increasing alcohol use by students whose mothers were more highly educated and it could be inferred

that these mothers were more involved in their work and careers and were therefore less available to their children. When children attain the age of 11 years, they join secondary schools, which more likely than not are boarding schools, and these children were therefore away from parental supervision. These circumstances may lead to a situation where children are more prone to risky behaviors (25). Apparently, there was active recruitment into drug use of students in Form 1 as they probably formed easy targets for drug peddlers. The policy implication is that drug education sessions are mandatory for all Form 1 students joining the class, but this should be continued throughout all the class levels.

That a greater percentage of boarders suffered consequences of drug abuse did not necessarily reflect higher rates of abuse of drugs by boarders. There are several speculative explanations for this observation. The boarding environment may have rendered students more susceptible to group scrutiny and control and their behavior was censured by the group. The school boarding community or groups were therefore more likely to detect and react to nonconformity in behaviors that threatened their cohesiveness than the less controlled and more flexible "individualized" day scholar.

Coexistence of Smoking and Drug and Alcohol Use

Both smoking and alcohol use were probably gateways to drug use. The policy implication is evident. The campaign against drugs in the youth should begin with the fight against use of alcohol and smoking in order to deter the youth from trying stronger drugs in the future.

CONCLUSION

There are several policy implications of the findings of this study and these can be summarized as follows:

- 1 Day schooling students seemed to be at higher risk of exposure to drug use and special programmes that target them specifically should be initiated.
- 2 Education on the dangers of drug use should begin early, while students are still in primary school and before they attain the age of 11 years. This education should be offered continuously across all age groups.
- 3 The sale of wines and spirits to under-age youth should be strictly prohibited and use of plastic packaging materials, which makes these products available cheaply, should be discouraged.
- 4 There is need to target attitude change in students so as to bridge the gap between knowledge and practice.
- 5 Parents, especially mothers, should be targeted in the campaign against drug use so that they are made aware of the risks that their children are exposed to while in school and educated on how to deal with use of drugs. Mothers are more emotionally attached to their children and are more likely than fathers to spend quality time with their children.
- 6 A more aggressive approach should be adapted in the fight against drug use with schools forming linkages with parents.

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