

## Tobacco Use among High School Students in Kampala, Uganda: Questionnaire Study

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**Aim.** To determine the prevalence of tobacco-use and describe tobacco-related knowledge, perceptions, and behavior of high school students aged 13-15 years in Kampala, Uganda.

**Methods.** A cross-sectional questionnaire study was carried out among 2,789 students in 19 high schools in Kampala District, Uganda, in 2002. In each school, three classes from Senior One to Senior Three (average student age, 13 to 15 years, respectively) were randomly selected. All students who consented to participate in the study filled out a questionnaire consisting of 58 questions, with core items selected from the Global Youth Tobacco Survey. The questions were grouped into categories relating to tobacco use, knowledge and attitudes toward smoking, exposure to second-hand smoke, attitude toward cessation of smoking, exposure to tobacco-related advertisements in the media, and education on tobacco and smoking in school.

**Results.** Out of 2,789 students, 488 (17.5%) reported to have smoked tobacco, with 185 (37.9%) of them trying or starting smoking before the age of 10. There were 148 (5.3%) current smokers. More than two-thirds (77.9%) of current smokers expressed a desire to stop smoking, 76.9% had tried to stop, and 84.1% had received help or advice to stop smoking. At least two-thirds of the students reported seeing both anti-tobacco and pro-tobacco advertisements in the preceding month. About 15.7% of the students had an item with a cigarette brand logo, whereas 11.1% had been offered free cigarettes by a tobacco company representative. Current smokers usually smoked at home (30.2%), at a friend's place (29.3%), in public places (12.1%), at social events (10.4%), and at workplace (1.5%). Current smokers were also more likely than non-smokers to be exposed to passive smoking at home (56.4% vs at 15.9%, respectively;  $p < 0.001$ ).

**Conclusion.** Many high school students in Kampala are exposed to tobacco advertising, especially through the media. Efforts to control smoking in this age-group should also target their parents and other family members, by means of the media.

**Key words:** adolescent; smoking; tobacco; tobacco use cessation; Uganda

Tobacco use is one of the leading preventable causes of morbidity and mortality in the world (1). It is estimated that at least 4.9 million deaths occur annually due to tobacco, and the figure is expected to rise to about 10 million by 2030 (2). This means that tobacco will cause more deaths in the next 30 years than malaria, tuberculosis, maternal and major childhood diseases all together, and 70% of these tobacco-related deaths are expected to occur in the developing countries. Tobacco use usually starts in adolescence and continues into adult life, meaning that many tobacco's future victims are today's children. Murray and Lopez (3) estimated that if the current trend continues, 250 million children alive in 1996 will eventually be killed by tobacco and that 750 million children are exposed to secondhand smoke.

Uganda, an East African country with an estimated population of 23 million, is one of the develop-

ing countries that could face such a grim future regarding tobacco-related diseases and death. Tobacco farming is one of the main agricultural activities in Uganda. First introduced in the early 1920s by the British-American Tobacco (BAT), tobacco soon became the second most important crop in over 16 districts and a major source of revenue for 11 districts of Uganda. Overall, British-American Tobacco contributes by approximately 8% (US\$35 million) to annual government taxes and over 600,000 people make their living on the tobacco industry.

The Uganda Demographic and Health Survey 2000-2001 indicated that prevalence of smoking among adults was 25% for men and 3% for women (4). In Malawi, a major tobacco-growing country in Africa, the Demographic and Health Survey 2000 reported that only 2% of women aged 15-49 and nearly 20% of men were smokers (5).

There is a paucity of data on tobacco-related issues in majority of developing countries, possibly due to the perceived overriding importance of infectious diseases (6). Our aim was to determine the prevalence of smoking and tobacco use among high school students aged 13-15 years in Kampala District, Uganda, and to describe their knowledge, attitudes, and behavior related to tobacco use and its health impact.

## Participants and Methods

### Study Participants

Kampala is the capital of Uganda, located in the Central Uganda. The study was conducted in 19 high schools in the Kampala District area in 2002.

Out of 20 public and private high schools selected by using a two-stage cluster sampling technique, 19 were included in the study, whereas one school was excluded because it closed down during the study period. The participants were high school students aged 13-15 years, mostly in Senior One to Senior Three grades (according to Uganda School System). In the first stage of sampling, public and private high schools with Senior One to Senior Three grades were selected randomly with a probability proportional to their enrolment numbers. Enrollment data were obtained from the Ministry of Education and Sports. Schools with large enrolment number had a greater chance of being selected. In the selected schools, three classes from Senior One to Senior Three grade were randomly selected. All students from the selected classes were eligible. The questionnaire was anonymous and voluntary.

Out of a total of 3,284 students in the selected classes, 2,789 filled out the questionnaire, giving a response rate of 84.9%.

### Study Design

The self-report questionnaire used in this cross-sectional study consisted of 58 multiple choice questions with core items selected from the Global Youth Tobacco Survey (GYTS) Questionnaire developed by the World Health Organization/Tobacco Free Initiative and United Nations International Children's Emergency Fund (UNICEF) (7). The participants were inquired about the experience with tobacco smoking and environmental exposure to tobacco, access to tobacco, perception of tobacco smoking, exposure to tobacco advertising in the media, and attempts to stop smoking. The questionnaire was administered during classes by trained study assistants and in the absence of teacher. Study participants were instructed to choose only a single answer to each question. The questions were grouped into several categories related to tobacco use, knowledge and attitudes toward smoking, exposure to secondhand smoke, attitudes toward cessation of smoking, exposure to tobacco-related advertisements in the media, and whether they were taught in school about perils of tobacco use and smoking.

### Statistical Analysis

Data were analyzed with Epi Info: C-Sample and SUDAAN® software packages (Version 7.0, Research Triangle Institute, NC, USA) for statistical analysis for correlated data (8). A weighting factor was applied to each student's questionnaire to reflect the likelihood of sampling each student and to reduce bias by compensating for differing patterns of non-response. The weighting used for estimation was given by the following formula:

$$W = W_1 \times W_2 \times f_1 \times f_2 \times f_3 \times f_4,$$

where  $W_1$  = the inverse of the probability of selecting the school;

$W_2$  = the inverse of the probability of selecting classroom within the school;

$f_1$  = a school-level non-response adjustment factor calculated by school size category (small, medium, large);

$f_2$  = a class adjustment factor calculated by school;

$f_3$  = a student-level non-response adjustment factor calculated by class; and

$f_4$  = a post stratification adjustment factor calculated by sex and grade.

Quantitative results were presented as proportions (percentages).

## Results

### Prevalence of Tobacco Use

Out of 2,789 students, 488 (17.5%) reported to have smoked tobacco and 185 (37.9%) of them tried or started smoking before the age of 10. About 14.0% had tried other tobacco products, such as snuffs, cigarillos and cigars, pipes, and chewing tobacco. There were 148 (5.3%) current smokers, defined as those who smoked in the preceding month. However, 5.8% of those who had never smoked reported likelihood to start smoking within a year time.

### Perception of Smoking

About a third (30.6%) of the boys and 15.0% of girls thought that people who smoke had more friends than those who did not smoke. Around 9.4% of the boys and 6.0% of the girls thought that smokers were more attractive than non-smokers. Negative perceptions of smokers were that smokers lacked confidence, were stupid or losers. A female smoker was perceived as a prostitute. About two-thirds (67.4%) suggested that smoking makes one lose weight.

### Access to Tobacco

The study participants usually smoked at home, then at a friend's house and public places, such as parks, trading centers, shopping malls, street corners, markets, and discos, or other public social gatherings (Table 1). In the preceding month, 31.0% of the current smokers had purchased cigarettes in a shop or street vendor. Borrowing, stealing, giving money to someone else to buy cigarettes, or asking an older person for a cigarette were other ways to get cigarettes. Of those who had bought cigarettes in shops, 68.3% had never been refused by the sellers because of their age.

**Table 1.** Place of smoking cigarettes of high school students in Kampala, Uganda

Place	No. of students (%)
Home	45 (30.2)
Friend's house	43 (29.3)
Public place	18 (12.1)
Public social gathering	15 (10.4)
Workplace	2 (1.5)
Other	25 (16.5)
Total	148 (100.0)

### Exposure to Environmental Tobacco Smoke

Regarding exposure to environmental tobacco smoke, 56.4% of the current smokers had been exposed at home, 75.5% in public places, and 16.2% had one or both parents who smoked. Among non-smokers, 15.9% had been exposed to secondhand smoke at home and 44.8% in public places. Around 54.4% of current smokers and 64.9% of non-smokers supported the ban on smoking in public places (such as hotels, taxis, schools, markets, and playgrounds). Among our study participants, there were 84.2% of

non-smokers and 72.4% of smokers who thought passive smoking was definitely harmful.

#### *Media and Advertising*

About 80.9% of the study participants had seen an antismoking media message in the preceding 30 days, whereas 77.5% had seen an antismoking message at sports or other events. However, about 75.8% had seen a pro-tobacco message at sports or some other event. Pro-tobacco advertisements in newspapers and magazines had been seen by 70.8% of study participants, and 11.1% had been offered a free cigarette by a tobacco company. About 15.7% had an item with a cigarette brand logo.

#### *Cessation of Smoking and Education on Tobacco Use*

Majority of current smokers wanted or tried to stop smoking (Table 2). Even more of them had received help to stop smoking (Table 2). In the current school year, 65.2% had been taught at school about dangers of smoking and 65.5% had been taught about the effects of smoking (e.g., yellow teeth and bad smell), whereas 60.0% had discussed why youth of their age smoked.

**Table 2.** Attitudes of 148 high school students who smoked about cessation of smoking

Experience	No. of students (%)
Wanted to stop smoking	115 (77.9)
Tried to stop	114 (76.9)
Received help to stop smoking	124 (84.1)

## Discussion

This study showed a high rate of smoking among high school students aged 13-15 years in Kampala District, Uganda. However, the rate was about half that reported for Nairobi, Kenya, by Kwamanga et al (9), who established that 32.2% of adolescents aged 16.7 years smoked. It is rather interesting that participants in the Nairobi study were also of the view that smoking helped to maintain or achieve a lean figure, which is a desirable quality among the adolescents. A study among Massachusetts girls found that girls who perceived smoking as leading to leanness were more likely to smoke (10).

Since about 5.8% of our students were current smokers and 17.5% who had tried smoking had not made it a habit, we hope that many of the adolescents would stop smoking before adulthood. There is a need to follow-up this age group to determine trends of tobacco use, to adjust targeted tobacco prevention strategies (11,12). There is a need to describe the determinants of smoking cessation among young people to improve effectiveness of tobacco prevention programs.

Among the tobacco control initiative suggested elsewhere, increasing taxes against tobacco use have been suggested (13). It is important, however, to recognize the fact that interventions effective in one geographic area may not be as effective due to different political and economic environments (14). It is also important to note that some tobacco industry-sponsored youth smoking prevention programs may be

harmful (15). The exposure to pro-tobacco advertising in our study is particularly worrying. Lam et al (16) in a Hong Kong study determined that tobacco advertisements were among the strongest risk factors for smoking among students.

There are indications in this study that adult tolerance to tobacco use may be a feature of tobacco use among the age group studied. This is shown by a high proportion of student smokers exposed to second-hand smoking at home and quite a large number that smoked at home. As this study was limited to adolescents in schools, the findings cannot be generalized to boys and girls who do not attend school.

In conclusion, efforts to control tobacco use by high school students in Kampala, Uganda should be targeted at preventing tobacco advertisements in the media intended for young people. Parents should be informed about the harmful effects of exposing their children to tobacco smoke at home.

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