Cigarette smoking prevalence among school-going adolescents in two African capital cities: Kampala Uganda and Lilongwe Malawi.

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Abstract

Background: Non communicable diseases are a growing public health concern. Globally tobacco-related deaths surpass malaria deaths and yet developing countries' data are lacking.

Objectives: To compare prevalence of tobacco use and exposure to tobacco and tobacco-related issues among adolescents in Kampala, Uganda and Lilongwe, Malawi.

Methods: Cross sectional data from the Global Youth Tobacco Survey (GYTS) w used. Data were collected in 2001 in Lilongwe and in 2002 in Uganda using a standardized questionnaire tool. The study was aimed to enrolled schoolchildren aged 13-17 years.

Results: The prevalence of tobacco smoking in Kampala and Lilongwe among adolescents was 5.6% and 6.2% ($p > 0.05$) respectively. However, adolescents in Lilongwe were statistically significantly more likely to have ever smoked, use other tobacco products and perceived themselves as likely to initiate smoking in the coming year. Exposure to tobacco-related advertisements through billboards, newspapers and magazines was high in both settings.

Conclusions: Adolescents are increasingly being exposed to tobacco and tobacco-related advertisements in Lilongwe, Malawi and Kampala, Uganda. There is need to enhance tobacco prevention efforts in developing nations.

African Health Sciences 2007; 7(1):45-49

Introduction

Non-communicable diseases are a growing public health problem globally. It is estimated that tobacco-related deaths exceed 4 million annually, thus surpassing malaria as a cause of death. It has been estimated that by 2030, diarrhoeal diseases and lower respiratory infections will have been surpassed by chronic obstructive airways diseases as causes of mortality. [1,2] While the prevalence of tobacco use in many industrialised nations is reducing, there is a growing epidemic of smoking in the developing world. In many African countries, there is paucity of data on the epidemiology of tobacco and smoking. Based on the available data however, in African countries, it appears smoking among adults is more common among males and the poor. [3]

We have previously reported on the prevalence of smoking among adolescents in Kampala, and Arua (Uganda) from data obtained from the 2002 Global Youth Tobacco Survey (GYTS). [4,5] In the present paper however, we have used the 2002 GYTS Kampala data and the 2001 GYTS Lilongwe (Malawi) data to compare prevalence of tobacco use and exposure tobacco-related issues among adolescents in these two different African cities. We believe comparing the two African cities will better inform policy as to the determinants of adolescent tobacco use and exposure to tobacco-related issues may be better appreciated.

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Methods

Study participants

The study uses a cross sectional two-stage, cluster-sample design that produces probability samples of students in schools in grades associated with ages 13 to 15 years. The two stage sampling involves the following: a) selecting a school whose probability of being selected is proportional to the number of students enrolled in the specified grades; b) randomly selecting individual classes in the designated grades for students aged 13 to 15 years. In Uganda study participants were in Senior 1

to 3 while in Malawi, participants were from standard 7 to form 1. This was based on the expectation that adolescents aged 13 to 15 years were likely to be clustered in these classes. Students who were older or younger than 13 to 15 years were not excluded, as long as they belonged to the selected classes.

Study settings

Data were collected in Lilongwe, Malawi and Kampala, Uganda. The population of Lilongwe is about 650,000 which is about half the size of Kampala (1.2 million). Malawi's gross domestic product is US$ 600 per capita vs. US$ 1,800 per capita for Uganda.

Data collection

Using the standardized questionnaire, the GYTS aims to obtain the following information; prevalence of tobacco use, age at initiation of tobacco use, exposure to environmental tobacco smoke, exposure to tobacco-related advertisements and attitudes towards smoking and other facilitators and enablers toward smoking. For the current study however, the following information is of interest; prevalence of cigarette and other tobacco use; attitudes toward tobacco; access to tobacco products; exposure to secondhand smoke, school curricula on tobacco, media, and advertising; and smoking cessation. Study participants were asked to complete the questionnaires in either Chichewa or English in Malawi depending of participant preference while in Uganda, English only was used. Trained research staff was used in administration of questionnaires and class teachers were not present while data completion was being done.

Statistical Analysis

The analyses used in this study have been described before in Mpabulungi and Muula [4,5]. We used Epi Info and SUDAAN software packages (version 7.0 Research Triangle Institute, NC, USA). Weighting factor was used in order to reflect the probability of sampling each student and also to reduce bias regarding the differing patters on non-response. The weighting was done in the following manner:

W= W1*W2*f1*f2*f3*f4

Where,

W1 = the inverse of the probability of selecting a particular school

W2 = the inverse of the probability of selecting a class within the selected school

f1 = a school-level non-response adjustment factor calculated by school size category (small, medium, large)

f2 = a class adjustment factor calculated by school.

f3 = a student-level non-response adjustment factor calculated by class and,

f4 = a post stratification adjustment factor calculated by gender and grade.

Definitions of Key Terms

Standard GYTS terminology was used in the analysis of the data. Current cigarette smoker was defined as an individual who had smoked cigarettes on 1 or more days in the past 30 days (preceding date of survey). A 'never smoker' was an individual who had never tried or experimented with cigarette smoking even one or two puffs.

Results

Study Participants

1820 students participated in Lilongwe, Malawi of whom 869 (47.8%) were males, 856 (47.0%) were females and 95 (5.2%) were missing. In Kampala, 2789 students participated of whom 1295 (46.4%) were males, 1323 (47.4%) females and 171 (6.1%) were missing. For Lilongwe students were from standard 7 to Form 1 while in Kampala students were from senior 1 to 3 (form 1 to 3). The median age in both cities was 14 years.

Prevalence of Tobacco Use

Table 1: Prevalence of smoking by gender in Kampala and Lilongwe, 2001-2002

Characteristic		% of Students	
		Kampala	Lilongwe
Ever smoked:	Males	22.8	28.6
	Females	11.5	10.1
Current smoking:	Males	6.7	9.1
	Females	3.3	2.8
Ever used any other tobacco products:	Males	15.2	21.1
	Females	12.2	14.7

Table 2: Attitudes about smoking cessation

Attitude	Number of Students (%)		
	Kampala	Lilongwe	p value
Wanted to stop smoking	115 (77.9)	92 (82.0%)	0.4
Tried to stop	114 (76.9)	103 (92.1%)	<0.05
Received help to stop smoking	124 (84.1)	99 (88.2%)	0.2

Place where adolescents smoke

In order to get indication of venues where adolescents smoke, participants were asked where they smoke. In Kampala, 30.2% smokers smoked at home, 29.3% at a friend's house and 10.4% at a public social gathering. In Lilongwe, 26.5% smoked at home, 27.7% at a friends' house and 24.8% at a public social gathering.

Media and Advertising

Table 3: Exposure to Tobacco-Related Media

Experience	Kampala	Lilongwe
Saw anti-smoking messages	(2256)80.9%	1565 (86.0)
Saw Pro-smoking ads on billboards	1662 (59.6%)	1031 (56.7%)
Saw pro-cigarette ads in newspapers/magazines	1637 (58.7%)	1161 (63.8%)
Have item with cigarette brand logo	669 (24.0%)	331 (18.2%)
Offered Free cigarettes by Tobacco Company	600 (21.5)	342 (18.8%)

Health education on tobacco

In Kampala, 65.2% of the students had been taught about the dangers of smoking versus 69.5% in Lilongwe. 60% in Kampala had discussed in class about the reasons people smoke and a slightly higher proportion i.e.65.5% had discussed in Lilongwe.

Discussion

Using the GYTS in Kampala, Uganda and Lilongwe, Malawi, we have demonstrated that tobacco smoking in adolescents is not much different in the two at 5.6% and 6.2% respectively. This is not so different from smoking prevalence reported among secondary school grades 10 to 12 in Northern Province, South Africa by Peltzer. [6] However, the South African study had much older adolescents and 9.1% male smokers vs. 5.0% female smokers. Hublet et al [7] have studied and reported on daily cigarette smoking among adolescents in Europe. Daily cigarette smoking was 5.5% and 20.0% among boys in Sweden and Latvia respectively. Among girls, daily smoking was 8.9% and 24.7% in Poland and Austria respectively. As Hublet et al only reported on daily smoking habits, current smoking defines as any smoking in the past 30 days is likely to be much higher than reported.

Both Uganda and Malawi are large tobacco growing nations. In these countries, public health efforts to discourage smoking may be considered as not patriotic when the crop is a large foreign exchange earner for the country.[8-10]

In 1995, Uganda government banned advertisement of tobacco products on state media: Radio Uganda and Uganda Television, but left out the private broadcasting houses. BAT (British American Tobacco) later announced withdrawal from electronic media advertisement and billboards. Enforcement of good practice is however, problematic. There is still point of sale advertising, neon signs for restaurants, bars, shops, and road side posters.

While the two cities had similar current prevalence of cigarette smokers, Lilongwe had statistically significant proportion of students who had ever smoked, were current user of other tobacco products and those that perceived themselves as at risk of initiating tobacco use. The reasons for these differences between Lilongwe and Kampala are not known. However for Lilongwe, many more people who initiate cigarette smoking but do not continue doing so eventually. Except for seeing tobacco advertisements in magazines and newspaper which was reported for 63.8% in Lilon-

gwe vs. 58.7% for Kampala, exposure to tobacco related media was in general much more common in Kampala than in Lilongwe. This is likely a factor concerning regulations and commerce differences between the two cities.

Young school going adolescents are exposed to critical factors of smoking in both Kampala, Uganda and Lilongwe, Malawi. There is need to formulate and provide effective public health interventions to curb smoking in developing nations. The economic contribution of tobacco towards national economy and the minimal investments in non-communicable diseases control efforts are formidable challenges. This should include keeping the media interested in promoting the anti-tobacco initiative. [11] As has been suggested by Ovuga and Madrama with regard to alcohol related problems in Uganda, there is also need for services devoted for tobacco cessation.[12]

In both cities, adolescents are exposed to tobacco advertisement through various mass media channels. Interestingly also, anti-tobacco messages seem to be prevalent. It is probably difficult for young people to make informed choices when they are exposed to both pro-smoking and anti-smoking messages. It is also not surprising that the majority of smokers in both cities reported desire to stop smoking.

There are several limitations regarding the estimates obtained from the GYTS methodology as currently implemented. Firstly, the findings are as representative to the proportion of the adolescents in the community attending school in the area. This is because the primary sampling unit in the GYTS is the number of eligible schools in the area. The second limitation arises from the fact data are collected among students available on the particular day of the survey. Thus students who were not present on the day of the survey, for a variety of reasons, are automatically excluded from the study. If for instance, smokers are likely to be absent on any particular day, the prevalence of smoking would be under-estimated. On the other hand, if non-smokers are likely to be absent and therefore under-represented in the survey, the prevalence of estimates is likely to be biased upward. It is not possible however for us to determine in which direction the bias was in this study. It is plausible however to suggest that if there were biases in this regard it may be that smokers are likely to be absent and therefore the prevalence estimates obtained in our study are conservative.

Another limitation of the study is that data were self-reported by students, who may either underreport or over-report their use of tobacco. How far mis-report may have biased the results is difficult to know. In the United States however, Brenner et al [13] have reported acceptable test-retest reliability among responses given by adolescents using a methodology similar to the GYTS. It is possible, although expensive to estimate tobacco exposure quantitatively using blood, saliva or hair content of cotinine, a by-product of nicotine intake.[14-16] Assessment of current tobacco smoking can also be estimated by measuring exhaled carbon monoxide. [17-18] However, the use of biomarkers may not be able to delineate between environmental tobacco exposure as both smokers and people exposed to ETS may all test positive. However, for people who report smoking history, but do not test positive for cotinine, these may be considered as non-smokers.

While it is reasonable for health systems in Africa to concentrate on communicable conditions, it is also important to recognize the growing epidemic of tobacco use among adolescents in the developing world.

Acknowledgements

We are thankful to the following people for assistance in this study: Ms. Leane Riley, Dr. Wick Warren, Ms. Juliette Lee, Mr Curtis Blanton (CDC) Dr. Charles Maringo and Karen Klimowski (World Health Organisation, AFRO Region), Mr. Benjamin Sensai (WHO-Uganda) and Consumers Association of Malawi. We also thank the Parliament of the Republic of Uganda and the Ministry of Education and Sports in Uganda and the Ministry of Education, Science and Technology in Malawi for permission to conduct the study. The study would not have been possible without the cooperation of the students who volunteered to participate. None of the authors receives remuneration or is affiliated to the tobacco industry. The GYTS is a collaborative project of WHO/CDC/participating. Analyses of GYTS data are not necessarily endorsed by the WHO/CDC/ participating countries

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