

Original Article

Prevalence of smoking among school adolescents in Khartoum State

Yousif M. Gadalla (1), Adil Abo-mali (2), Babiker M. Mustafa (1), Hussein Abdo (1)

1) Department of Pediatrics and child health, Faculty of Medicine, The National Ribat University, Khartoum, Sudan

2) Department of Community Medicine, Faculty of Medicine, The National Ribat University, Khartoum, Sudan

ABSTRACT

Tobacco is the single most important cause of chronic morbidity in the Developed World. Tobacco use primarily begins in early adolescence, reportedly before the time of high school graduation. By 2015 tobacco use is projected to cause 50% more deaths than AIDS.

A cross sectional school based survey was conducted in primary and secondary school in Khartoum State. The study aimed to estimate the prevalence of smoking in school adolescents and associated personal and social factors.

A total of 910 students with complete questionnaires were included in the analysis, of whom 13.6% were found to be current cigarette smokers. Factors that played role in initiation of smoking included smoking among parents, other family members and close friends. School adolescents who have friends or parents who smoke should be the main target for tobacco control. Smoking should become public health priority in Sudan to educate adolescents and parents regarding its hazards.

Correspondence to:

Yousif Mokhtar Gadalla

Department of Pediatrics and child health
The National Ribat University,
Faculty of Medicine, Khartoum, Sudan
E-mail: yousif091@live.com

Key words:

Tobacco; Smoking; Cigarettes; School; Adolescence; Sudan.

INTRODUCTION

Tobacco is the single most important cause of chronic morbidity in the Developed World [1]. Although the bulk of morbidity and mortality in sub-Saharan Africa arises from communicable disease, overall the contribution of tobacco use to ill-health in Developing World has been growing.

Tobacco is a leading cause of cancer, chronic obstructive airway diseases and cardiovascular mortality [2]. Tobacco use primarily begins in early adolescence, reportedly before the time of high school graduation [3]; adolescent smokers are also likely to be truant from school, an experience that may further jeopardize their future life chances [4]. Factors that commonly play a role in initiation of smoking among adolescents include social factor, smoking among family members, peers, teachers, psychological relaxation and economic factors [5]. Smoking among adolescents has been

How to cite this article:

Gadalla YM, Abo-mali A, Mustafa BM, Abdo H. Prevalence of smoking among school adolescents in Khartoum State. Sudan J Paediatr 2012;12(2):44-48.

reported to be associated with other unhealthy life styles such as alcohol consumption and illicit drug use [4]. Since 1999, there has been growing interest in estimating the prevalence of adolescence tobacco use and associated social factors [6].

It is estimated that tobacco related deaths are projected to rise from 5.4million in 2005 to 8.3million in 2030. By 2015, tobacco use is projected to cause 50% more deaths than AIDS [7].

By 2030, if current trends continue, smoking will kill one in six people. Every eight seconds someone dies from tobacco use. Among teens, aged 13 – 15 years, about one in five smoke worldwide [8]. Studies in Malaysia showed about 30% of adolescent boys (age 12 – 18 years) smoke [8]. One third of Korean senior high school students were reported having smoked cigarettes. About 10million cigarettes are sold every minute worldwide. Smoking related diseases kill one in ten people globally or cause 4 million deaths. Nearly quarter of youth who live in Western Pacific Region die from smoking. Prevalence of smoking among school male adolescents in Karachi, Pakistan, was 13.7%, public school 18% and private 8.1% [9].

The main objectives of this research were:

- to estimate the prevalence of smoking among school adolescents between the ages 11 and 17 years in primary and secondary schools in Khartoum State.
- to determine factors associated with smoking habits among school adolescents.

MATERIALS AND METHODS

A cross sectional school-based survey was conducted in primary and secondary schools in Khartoum State in 3-month-period, from 29th of June to 29th of September 2011 .

The study aimed to estimate the prevalence of smoking in school adolescents and associated personal and social environmental factors. School

going adolescents were recruited using two stages probability sample technique. In the first stage of sampling, primary sampling units were schools which were included with probability of being selected proportional to their enrolment size. In the second stage, a sample of classes in the selected schools, 910 male from 19 schools (11 public and 8 private) were chosen, and eligibility was limited to the school adolescents between the ages 11 and 17 years.

University adolescents were excluded. A self administered questionnaire was used and included core GYTS (Global Youth Tobacco Survey) and other additional questions.

Response to questions was close ended with multiple choice style formats.

The current smoking was defined as having smoked, even a single puff in past 30 days preceding the day of questionnaire completion.

Permission to conduct the study was obtained from the director of school in which the study was performed. Data were analyzed using SPSS and Microsoft Excel (Office 2007).

RESULTS

A total of 910 students with complete questionnaires were included in the analysis.

Overall smoking prevalence was 124 (13.6%). Students in public school were more likely to be smokers: 97(10.7%) compared with those in private school: 27 (2.9%). Age of initiation was as early as 11 years old, smoking between 11-13 years of age was 29 (23.4%) and between 14-17 years 94(75.8%). There were fewer smokers in primary school 12 (9.7%) compared with smokers in secondary school: 111(89.5%). Forty three (34%) of smokers started smoking more than one year preceding the date of survey and 37 (29.8%) of them in more than one month. Majority of smokers: 85 (68.5%) smoked less than 5 cigarettes per day,

and only 9 (7.3%) smoked more than 10 cigarettes per day. Sixty five (52.4%) of smokers smoked outside home and 34 (27.4%) outside school, and there were a few smokers who smoked at school 3(2.4%), and only 1 (0.8%) smoked at home (Figure 1). The majority of school adolescents 107 (86.3%) were smoking with their closest friends. In this study, adolescents also reported family tobacco use: father 72 (58.1%), mother 5 (4%), and other family member 47(37.9%). Ninety (72.6%) of students get cigarette from school expenditure and only 7(5.6%) and 5(4%) get it directly from father and mother respectively (Figure 2). Twenty six (21%), 24 (19.4%) and 7 (5.6%) of smokers get cigarettes from their father and mother and

friends without their permission, respectively. Fifty nine (47.6%) of smoking students wanted to quit smoking. The majority of smokers were knowledgeable about lung cancer 69 (55.6%) and 94 (75.8%) of them knew that smoking causes lung cancer. Ninety six (77.4%) and 54 (43.5%) knew that smoking is related to lung diseases and heart diseases, respectively. Eighty eight (71%) and 91 (73.4%) of smokers, respectively, thought that the smoking relieves depression and stress, and 42 (34%) thought that smoking is a behavior of manhood and strength. However, nine (7.3%) of smoker students were below the poverty level, compared with 115 (92.7%) of those above the poverty level.

Figure 1- Place where adolescents smoke

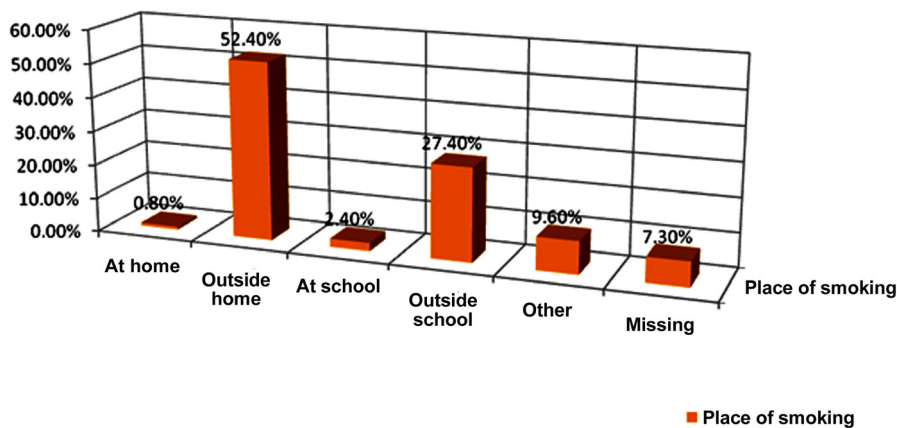
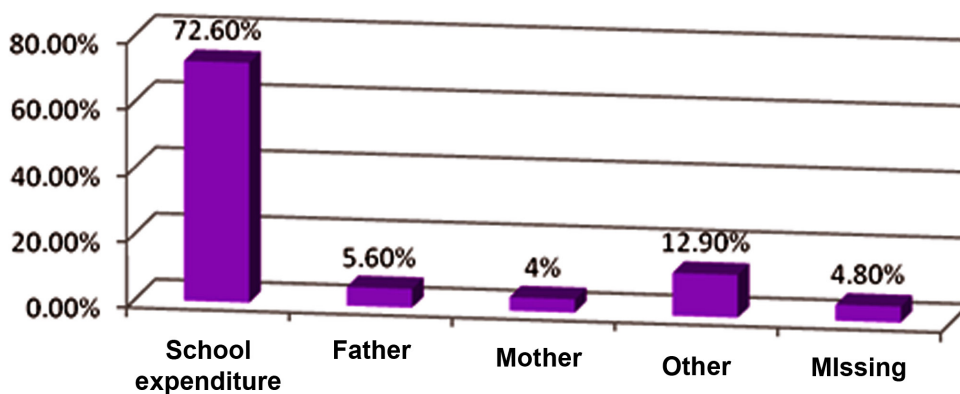


Figure 2- Sources of exposure to cigarette smoking



DISCUSSION

The study estimates that 13.6% of the total study participants were current cigarette smokers. This prevalence is higher than that reported in Kampala (5.3%) and South Africa (9.1%) and less than prevalence of smokers among school adolescents in Kuala Lumpur (17%), and consistent with a study conducted on smoking among school adolescents in Karachi, Pakistan (13.7%) [9]. Students in public schools were more likely to be smokers compared with those in private schools- perhaps because of improved information dissemination and greater stress on health education in private school compared with public schools. This finding is consistent with a study conducted on smoking among school adolescents in Pakistan [9]. We found that the majority of the cohort smoked either outside home or outside school. This suggests the potential influence of the outside home and outside school environmental factors in supporting adolescent smokers in Khartoum State, and that students who spent most of their time outside their home were prone to smoke cigarettes. Factors that commonly play role in initiation of smoking among adolescents in this study included smoking among parents, other family members and closest friends. Constant exposure to family member who smokes will expedite the process of behavior copying and this learning will influence individuals of same sex. This is illustrated in the finding that the majority of male smokers have a male sibling who smokes. Unger et al [10] reported similar finding among Chinese and Californian adolescents, and in spite of the culture dissimilarities between the two groups, the same factors affect both. School adolescents were more likely to be smokers if their closest friends were smokers. During adolescence, tobacco use by friends may create a positive image of smoking and create easy access to cigarettes, especially in the Developing Countries where there are no restrictive law on the sale of cigarettes to minors. It is not surprising that almost

half of smokers reported desire to stop smoking in this study since the majority of them know that smoking can cause lung cancer and is related to lung and heart disease. The other 50% of smokers do not wish to quit smoking and this can also be explained by the finding that 71% and 73.4%, respectively, thought that the smoking relieves depression and stress. In addition, 34% of the smokers considered it a behavior of manhood and strength. In the present study the prevalence of smoking is greatest among adolescents above the poverty level compared with study which was done in the United States in 2009 which found that there were nearly 17 million poor current smokers aged up to 17 years [11]. This study shows that the smoking habits might in future become a major public health and social problem that the public will face. It's reasonable for health systems in Sudan to concentrate on communicable conditions, but it is also important to recognize the growing epidemic of tobacco use among school adolescents in Khartoum State. The present study has several limitations, firstly the study recruited only school going adolescents in the study area. The findings may be representative of the school adolescents in Khartoum State but not those out of school adolescents. Also, data were collected via a self reported questionnaire. Like all questionnaires, the possibility of misreporting both intentional and unintentional threatens the validity and reliability of findings. We did not validate the self reports with biomarkers such as exhaled carbon monoxide or blood nicotine level to assess exposure to cigarettes.

In conclusion, this study has found that the prevalence of cigarette smoking among adolescent students in Khartoum State was 13.6%. Having friends or parents who smoke was associated with cigarette smoking. School adolescents who have friends or parents who smoke should be the main target for tobacco control.

Smoking should become a public health priority in Sudan to educate adolescents and parents regarding the hazards of smoking. The control of tobacco regulations

should prohibit the sale of tobacco products to those who are below 18 years. Law enforcement needs to be upheld and tightened to prevent smoking among youth and delay their initial age of smoking, and hopefully they would be more mature in any decision on their chosen behavior. Interventions to prevent adolescents smoking should seriously consider the location at which adolescents smoke.

ACKNOWLEDGEMENT

We acknowledge the efforts by the research team (Dr Aysha Dawod, Dr Nesreen Rashid and Dr Lama Asaad). We would like to express thanks to Dr Mawada Abd-Allah and Dr Hind Abd-Allah for helping with data analysis, and to the students for their participation.

REFERENCES

1. Lopez AD, Mathers CD, Ezzati M, Jamison DT, Murray CJ. Global and regional burden of disease and risk factors, 2001: systemic analysis of population health data. *Lancet* 2006; 367: 1747-57.
2. Greenwald P. A favorable view: prognosis in cancer and screening. *Recent result cancer*. 2007; 174: 3-17
3. Tobacco use among school personal in Bihar, India. *Tobacco control* 2002; 11: 82-85
4. Myers MG, Kelly JF. Cigarette smoking among adolescents with alcohol and other drugs problem. *Alcohol Res Health* 2006; 29: 221-227
5. Avenevoli S, Merikangas KR. Familial influences on adolescents smoking, addiction 2003; 98(suppl 1.1): 1-20
6. Global youth Tobacco survey collaborating group: finding from the global youth Tobacco survey. *J sch health* 2003; 73: 207-215.
7. Mathers CD, Loncar D: projections of global mortality and burden of disease from 2002 to 2030. *Pols Med* 2006; 3: 442
8. WHO, WPRO, smoking statistics world health organization regional office for western pacific home, 2005-2011
9. Shafquat R, Saeed A. smoking among a high school adolescents in karachi, Pakistan. *Int J Epidemiol* 2004; 33(3): 613-614
10. Unger JB, Yan L, Shakib S, Rohrbach LA, Chen X, Qian G, et al. Peer influences and access to cigarettes as correlates of adolescent smoking. Cross-cultural comparison of Wuhan, China and California. *Preventive medicine* 2002; 34(4): 476-484
11. Pleis JR, Ward B.W, Lucas JW. Summary health statistics for U.S. Adult National Health interview survey 2009 vital health stat 2010; 249: 1-259