Original Article

Knowledge, attitude and practice of tobacco consumption among Khartoum University medical students in the year 2010

Tarig H Merghani, MD, PhD, FCCP*, Abeer H Ibnaof, MBBS**, Azza O Alawad, MBBS, MSc***

Assistant professor, Department of Physiology, Faculty of Medicine, University of Khartoum*, Lecturer, Department of Physiology, Faculty of Medicine, University of Khartoum**, Faculty of Medicine, University of Khartoum***

Abstract

Background
Despite increasing information about the adverse effects of tobacco consumption, its use continued to increase especially in the developing countries. Health professionals, including medical students are supposed to play a major role in combating it in the community. The aim of this study is to evaluate attitudes and practices of medical students regarding tobacco consumption and to assess their knowledge about its complications.

Methods
A cross-sectional study was conducted among medical students of all classes in the Faculty of Medicine, Khartoum University. A total of 314 students (aged 15-28 years) completed an anonymous self-administered questionnaire requiring information about current tobacco use, reasons, attitude towards smoking and knowledge about its effects.

Results
About three quarters of the tobacco users have at least one close relative who consumes tobacco every day. Reasons that directed students to start tobacco consumption were friends (31%), social stress (19%) and academic stress (19%). About half of the users (52%) tried to stop tobacco consumption without success but declared that they will in the future. 25.8% were not accepting ban on smoking.

Corresponding author
Tarig Hakim Merghani
Department of Physiology, Faculty of Medicine, University of Khartoum, Khartoum, Sudan
Email: tarighm@gmail.com
Tobacco Tarig H Merghani

smoking in universities and 24.4% were neutral. Tobacco complications known to more than 85% of the students were lung and gum malignancies, tobacco addiction, impaired lung function and repeated infections.

**Conclusion**

There is a significant relation between tobacco consumption by a medical student and its use by a family member or a friend.

**Keywords:** Tobacco consumption, medical students, Khartoum University, knowledge

**Introduction**

Cigarette smoking is a known cause of lung cancer, chronic obstructive pulmonary disease, impaired lung function, heart disease, stroke, and many other cardiovascular, pulmonary and neurological diseases\(^{(1-6)}\). In addition, it is an independent risk factor in male impotence\(^{(7)}\). On average, it was calculated that someone who smokes a pack or more of cigarettes each day lives 7 years less than someone who never smoked\(^{(8)}\). Despite increasing information about the adverse effects of smoking and bans on smoking by some governments, the use of tobacco continued to increase\(^{(9)}\). More than one billion men and about 250 million women use tobacco every day\(^{(10)}\). It was estimated that since 1960 tobacco production has increased 300% in the developing countries while dropping more than 50% in the developed countries\(^{(10)}\). A 1988 WHO press release reported that while tobacco markets are decreasing in western, industrialized countries at the rate of 1% per year, tobacco consumption is increasing in the developing countries at an average rate of 2% per year\(^{(11)}\). The low and middle-income countries are of particular focus for the tobacco companies because they have ineffective health policies and fewer resources to curb smoking\(^{(10)}\).

In Sudan, nobody knows exactly where and how tobacco was introduced. The earliest recorded information described scattered small areas grown with varieties of tobacco for domestic consumption in the early nineteenth century\(^{(12)}\). In the twentieth century, smoking of imported and locally manufactured cigarettes became increasingly popular among many Sudanese subjects; however, there is paucity of data regarding the overall prevalence. In their cross sectional study in 1998 in the Nile State, Idris et al. found that 12% of adult males and 0.9% of adult females were cigarette smokers\(^{(13)}\). An earlier survey among medical students and doctors overestimated the prevalence. It showed that 34% of medical students, and 64% of doctors and university lecturers were smokers\(^{(14)}\). Recently, the Sudan-Global Health Professions Student Survey (GHPSS), a school based survey of 3\(^{rd}\) year medical students conducted in 2007, reported that 19.6% males and 1.3% females were cigarette smokers whereas 8.0% males and 0.4% females were users of other forms of tobacco at the time of the study\(^{(15)}\). However, prevalence among senior medical students was not estimated. Regional studies showed that smoking during the final years of medical training is significantly higher than smoking during the first years\(^{(16,17)}\). The overall prevalence of cigarette smoking is increasing among Arabian medical students in the developing countries in north Africa and the Middle East, with that of males is significantly higher than that of females\(^{(18)}\). In many studies, the reported prevalence ranges from 15 to 35\%\(^{(16,17,19,20)}\). A lower prevalence was reported among medical students in the well developed countries like the United States\(^{(21)}\).

Because they are supposed to play a leading role in combating smoking among community members, the attitude and behavior of medical students towards tobacco consumption and their knowledge about its adverse health effects should be evaluated. The information obtained can be used by medical faculties to develop curricula that address this important epidemic “the tobacco use”. This study was...
conducted with the objective of determining the current status of knowledge, attitude and practices of tobacco consumption among Khartoum University medical students.

Methods
This is a descriptive cross sectional study conducted in the Faculty of Medicine-University of Khartoum among undergraduate medical students of all classes, in March and April 2010. Using a stratified sampling, a total of 314 students were selected randomly out of 2113 students, the total number of students in the year 2010. Their ages range from 15 to 28 years old with a mean age of 20.5 ± 0.1 years. Inclusion criteria were undergraduate medical student, studying in the Faculty of Medicine, University of Khartoum, registered for the year 2009-2010. Non-registered students were excluded. An anonymous structured questionnaire was administered to each student. It was prepared, pilot tested and revised by the researchers. It included questions about socioeconomic profile, current tobacco use, reasons of tobacco consumption, attitude towards smoking and knowledge about its adverse health effects. Informed consent was obtained from each student before filling the questionnaire. Data obtained from the questionnaire was analyzed using the Statistical Package for the Social Sciences (SPSS). Statistical significance was accepted when P value is less than 0.05.

Results
Table 1 shows percentages of tobacco users among all medical students in the study group. Total number of students who used tobacco of any form was 62 students, representing 19.7% of all students in the study group.

The difference between males and females in all these results was statistically significant (P=0.002). Tobacco consumption by medical students in relation to their relatives is described in Table 2.
Table 2: Use of Tobacco by Students and their Relatives in the Study Group
n=315

<table>
<thead>
<tr>
<th>Relative</th>
<th>Tobacco Consumer</th>
<th>Non-consumer</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tobacco consumer</td>
<td>46 (74%)</td>
<td>129 (51%)</td>
<td>175 (55%)</td>
</tr>
<tr>
<td>Non-consumer</td>
<td>16 (26%)</td>
<td>124 (49%)</td>
<td>140 (45%)</td>
</tr>
<tr>
<td>Total</td>
<td>62 (100%)</td>
<td>253 (100%)</td>
<td>315 (100%)</td>
</tr>
</tbody>
</table>

P= 0.000

Relatives who consumed tobacco were fathers in 16.5% of the students, mothers in 0.3%, brothers/sisters in 11.4% and other relatives in 29.5%. Awareness of parents about tobacco use by the students is described in Table 3.

Table 3: Family Awareness about Students' Consumption of Tobacco
n= 62

<table>
<thead>
<tr>
<th>Family Awareness</th>
<th>Advised student to quit smoking</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Aware</td>
<td>17 (27.4%)</td>
<td>12 (19.4%)</td>
</tr>
<tr>
<td>Not-aware</td>
<td>2 (3.2%)</td>
<td>18 (29%)</td>
</tr>
<tr>
<td>No information</td>
<td>0 (0.0%)</td>
<td>13 (21%)</td>
</tr>
<tr>
<td>Total</td>
<td>19 (30.6%)</td>
<td>43 (69.4%)</td>
</tr>
</tbody>
</table>

P= 0.000

The most frequent causes that directed students to start smoking were friends (31%), social stress (19%) and academic stress (19%). About half of the tobacco users (52%) tried to stop tobacco consumption without success but declared that they will in the future, 26% said they will never quit and 22% were not sure. More than half (56.2%) of all students in them study group accepted ban on smoking in universities whereas 25.8% were not accepting and 24.4% were neutral. Complications of tobacco known to more than 85% of the medical students were lung and gum malignancies, tobacco addiction, impaired lung function and repeated infections. Other complications like ischemic heart disease, obstructive lung diseases and bowel malignancies were known to lesser proportions of the students. The least adverse effect known to them was polycythemia (known to only 54.6% of the students).

Discussion
Smoking related morbidity and mortality can be prevented by adequate knowledge and full awareness about its negative effects. This can be achieved through well organized educational programs, legislations and strict health policies. Health professionals, including medical students, are highly respected in our community. Their attitudes greatly influence others and their behaviors are immediately followed by the young generations. With adequate knowledge about the adverse health effects of tobacco consumption and with positive attitude towards anti-smoking legislations, they are expected to have a major role in combating it in the community. In this study, the prevalence of tobacco consumption among Khartoum University medical students was estimated and their attitudes and practices were investigated. These students joined the
medical faculty because of their excellent academic performance in the national higher secondary school examination. However, there is great contradiction in the relation between tobacco consumption and academic achievements. Many studies reported higher prevalence of tobacco consumption among students with poor academic records\(^{(17)}\); others described insignificant relation\(^{(16,22)}\) whereas others found that the prevalence is higher among those with outstanding academic performance who are more ambitious to gain the highest possible marks in their examinations\(^{(23)}\). In this study, we found that one in every five students was a tobacco user. On the other hand, the prevalence was that high in spite of the finding that our medical students had adequate knowledge about complications of tobacco consumption. This wide gap between knowledge and practice is a common finding, not only confined to our medical students, but also medical students and doctors in other countries\(^{(16,18)}\). It is worth noting that, prevalence of tobacco consumption among non-medical students, who have lower degree of knowledge about complications of smoking, was proved to be higher\(^{(24)}\). In a comparative study conducted in China, non-medical students had less anti-smoking attitude, and higher prevalence of regular smoking than medical students of similar age\(^{(24)}\).

Outside Sudan, one of the major reasons mentioned as an explanation for the high prevalence of tobacco consumption among medical students was the stress of training coupled with lack of anti-smoking environment\(^{(25)}\). Regional studies reported smoking by friends as the major reason and academic stress as a secondary cause\(^{(16)}\). Similarly in this study, more than one third of the tobacco users started their habit because of their friends. Cigarette smoking used as a strategy to cope with academic or social stresses was mentioned as a secondary cause. Students’ stress during examinations is a well-known problem in the medical schools. The Faculty of Medicine in Khartoum was being adopting a tough curriculum, the traditional medical curriculum, since 1924 up to the year 2008. Fortunately, this has been replaced by problem based learning, which, unlike the traditional curriculum, is known to increase students' motivation and enjoyment and decreases their stress\(^{(26)}\).

A significant relation was found between tobacco consumption by a medical student and its use by a family member. About three quarters of the tobacco users have close relatives who consume tobacco every day. Of these, first degree relatives constitute about 28% of all relatives of the tobacco users. These, most probably, serve as models for the students during their childhood, encouraging them to practice tobacco consumption in the future. It was found that more than one half of the parents were unaware of the student’s practice of cigarette smoking and a high proportion of those who know that practice did not advise them to quit smoking.

In our community, female smoking is socially un-acceptable. Previous studies reported very low prevalence that did not rise to more than 1%\(^{(13)}\); however, our results suggest increasing prevalence of tobacco consumption among females. Comparable results were reported from many conservative societies where female smoking is believed to offend their customs\(^{(27)}\). Although our finding may be inflated due to selection bias, it can be attributed to the increasing number of female students coming from abroad to study medicine in Sudan, further research is needed for confirmation.

In this study, although we have obtained a high response rates, we cannot rule out some selection bias. A considerable number of students who are non-tobacco users, especially the females, did not participate in the study. In addition, verification of self-reported tobacco consumption with cotinine measurements in saliva or urine, which is one of the byproducts...
of nicotine metabolism, was not performed. This obviously indicates that the percentage of tobacco users could be lesser than what is presented. However, our results can highlight the present status of knowledge, attitudes and behaviors of our future doctors towards tobacco consumption; and may encourage introducing education of some smoking-related topics like adverse health effects of tobacco consumption, patients counseling and smoking cessation.

References


10. American Cancer Society, World Lung Foundation. The tobacco atlas, 3rd edition. 14th World Conference on Tobacco OR Health in Mumbai, India; 8-12 March 2009.


