

Secondhand Smoking Related Headache in Medical Colleges in Karachi, Pakistan

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Abstract

Objective: The primary aim of our study was to determine the frequency of headache in medical students exposed to secondhand smoking, as well as observing response of non-smoker medical students for passive smoking.

Methods: A cross-sectional study was conducted at three private colleges of Karachi in June 2014, sample size was 300. The inclusion criteria were medical students between 18-25 years of age who were non-smokers, exposed daily once or more to secondhand smoking. Students were inquired about age, gender, duration, location and frequency of exposure to passive smoking and presence or absence of secondhand smoking related headache and response and behavior of smokers observed by non-smoker students to counselling.

Result: Out of 290 students 186 (64.1%) complained of headache related to passive smoking, 172 (59%) were exposed in medical colleges. Of 127 (43%) had been exposed to passive smoking more than two times a day. Although 255 (88%) out of 290 students favoured prohibition of smoking at public place, but only 90 (31%) did practical attempt to advise smokers to stop smoking at public place. Response of smokers was good, 73% students believed that smokers gave positive response to their advice.

Conclusion: There appears to be a high frequency of headache related to secondhand smoking. Hence, students should be provided special training skills to council the smokers to avoid smoking at public place; moreover we also need practical implementation of laws against smoking at public place.

Keywords: Passive smoking, secondhand smoking, headache.

IRB: Approved by Ethical Review and Research Committee of Jinnah Medical College Hospital.

Dated: 17th October 2015

(ASH & KMDC 20(2):116;2015).

Introduction

Secondhand tobacco smoke is the smoke in air, inhaled by nonsmokers, when someone around them is smoking cigarettes, cigars, or pipes in the indoor environment. Secondhand smoke is sometimes called environmental tobacco smoke, involuntary smoking, or passive smoke. It represents one of the most important and most widespread expo-

sure in the indoor environment and is a known health hazard effecting public health. Most exposure to secondhand smoking occurs at work place, educational institutions and homes. Clear associations have been identified between second hand smoking and lung cancer, ischaemic heart disease, asthma and other respiratory symptoms¹⁻³. It is estimated that 4000 chemical are produced from burning end of cigarette and exhaled by smoker, out of which 40 are known cancer causing agents. Exposure to secondhand smoking in the public places is still common, it is reported that 93% of the world population is still living in countries not covered by 100% smoke-free public health regulations⁴. In 2004, 40% of children, 33% of male non-smokers and 35% of

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female non-smokers were exposed to secondhand smoke. Worldwide, more than 600,000 deaths per year are caused by secondhand smoke⁴.

Headache is a common complaint in people living in Karachi. Although, not life threatening, but it is distressing and affects a persons daily activity as well as the mood. Amongst many causes, passive smoking or environmental smoke exposure is related to headache^{5,6}, but the data regarding the incidence of headache and passive smoking especially in students and youngsters, limited. The school and college students are repeatedly exposed to secondhand smoking because of lack of implementation of law against smoking at public places. A study carried out in Spain showed that children exposed to secondhand smoke were more susceptible to developing headache and respiratory diseases⁷. Rozen et al. conducted a survey in United States concluded that there was high incidence of cluster headache in children exposed to second hand smoking⁸.

Another important area of research is awareness in non-smoker medical students about passive smoking. Although there is high incidence of smoking in Pakistani educational institutions and because of lack of implementation of law regarding prohibition of smoking at public places, people openly smoke in colleges/universities. Still the question remains, how many students took practical step to council smokers and what was the success rate for such attempts.

The primary aim of our study was to determine the frequency of headache in medical students when exposed to secondhand smoking, as well as observing response of non-smoker medical students for passive smoking.

Subjects and Method

We carried out a prospective cross sectional, observational study in three private medical colleges of Karachi in June 2014. The total population of three medical colleges was 2000 approximately, from which sample size was derived to be 300, rep-

resenting more than 20% of given population. A total of 100 people were selected from each medical college by using random sampling technique. The inclusion criteria were medical students between 18-25 years of age who were non-smokers, exposed daily, once or repeatedly to passive smoking at home, college or public place. People having history of chronic headache e.g. migraine or cluster headache, history of recent head trauma or people with neurological deficits were excluded by detailed history and neurological examination. Participants were reassured that their personal and college identification would not be disclosed and the collected information would be used for research purpose only. After informed consent, students meeting the inclusion criteria were given a questionnaire; mentioning demographic data i.e. age and gender, details of exposure to passive smoking like location, duration and frequency, and duration of headache when exposed. Questionnaire also included questions about any practical attempt to council/advice smokers to avoid smoking at public place and what was the response of smoker observed by the person. Questionnaire also included the opinion of students regarding prohibition of smoking at public places. Data was entered in SPSS version 21.00. Quantitative variables like age was presented as mean \pm S.D; while qualitative data like gender, frequency of headache, place, duration and frequency of exposure to passive smoking and students response assessment was presented as frequency and percentages.

Result

After scrutiny, 290 students filled complete performa, out of which 102 (35.2%) were males and 188 (64.8%) were females. Mean age was 22.6 ± 1.29 years. Among all, 172 (59%) were exposed at medical institution, 67 (23%) were exposed at public place and 51 (18%) were exposed at home. It was also observed that 208 (72%) were exposed for more than 60 minutes a day. About 144 (49.7%) of the students were exposed to 1-2 times a day; 127 (43.8%) were exposed to 2-3 times/day; 19 (6.5%) were exposed less than 1 time/day. Frequency of

headache when exposed to passive smoking was found to be 186 (64.1%) students (Table 1.).

Regarding the response of students, revealed that out of 290 only 90 (31%) students made practical attempt to council the smokers to avoid smoking at public place. While the response of smokers observed by students when attempted or advised to stop smoking was more positive. Out of 90, who attempted counselling, 66 (73%) students believed that smokers agreed to stop smoking at public place, while 20 (22%) students replied that smokers didn't listen to their advice, 4 (5%) made no response. Out of the total, 255 (88%) students favor prohibition of smoking at public place; 3% were against the prohibition and 9% made no response (Table 2).

Discussion

Cigarette smoking exposes a person to variety of symptoms and complications. Not only affecting the smoker himself but also to people working nearby. Nicotine being a vasoconstrictor is believed to be responsible for smoking related headache. Increase Carbon monoxide and less oxygen in the environment can also lead to headache^{6,9}. Complications of second hand smoking ranges from lung cancer to various other non-malignant diseases¹⁰. Most common are respiratory symptoms like cough, sneezing, rhinorrhea, dysphonia, dry throat, pharyngitis and headache¹¹. There has been considerable evidence that second hand smoking increases the incidence of headache especially in younger population^{5,11,12}. Therefore we selected the medical colleges for collecting our samples, keeping in mind the fact that the medical students and professionals are believed to be more aware of hazards of environmental smoke exposure rather than the general population. Moreover such study has not been done in Pakistani medical colleges before.

Our study included young population with average age of 22 years. It was noted that 64% of students exposed to second hand smoking, experienced headache. In other comparable studies; Gedikondele et al. observed 54%¹¹. Hammad

et al. observed that the incidence of headache was 68%¹². Stosic et al. observed the incidence to be 56%. We also observed that most of the students were exposed in college premises as compared to other places, which shows the general lack of discipline in educational institutions. It was also observed that most students had to bear daily episodes of exposure for more than 1 hour; which means that the exposure was distressing and affecting their general performance, ability and concentration.

Regarding the response of students the data was quite interesting. Although 88% students agreed that smoking at public places should be prohibited but only 31% took any active step to council the smokers regarding the hazards of smoking for him and others. There was similar data from a study conducted in Riyadh, Saudi Arabia; where despite high awareness and knowledge very few students took active participation in counseling¹³. Similar study in United Kingdom showed deficient education and training for smoking cessation in medical schools¹⁴. It shows that the medical students are well aware of the hazards but don't take practical steps to stop second hand smoking. It demands need of proper training and guidance for students so that they can realize their duty and take interventional steps to control community related public health problems. It is also recommended that medical curriculum should stress more towards preventive measures to decrease disease burden in general.

It was interesting to note the attitude of smokers observed by students when they were counseled, was largely positive. This clearly shows that despite of far less attempts of counseling, sharing knowledge and implementation of laws against passive smoking; the response of smokers was far better towards any positive attempt. Chuang et al. also observed the positive effects of counseling and implementation of law against smoking at public place¹⁵. Several other studies provide evidence of positive outcome of practical attempts to stop passive smoking^{16,17}.

Table 1. Characteristics of subjects selected (n=290)

	n	%
Mean age	22.6±1.294	
Male	102	35.2%
Female	188	64.8%
Frequency of headache	186	64.1%
Place of Exposure		
College	172	59%
Home	51	18%
Public Place (off campus)	67	23%
Duration of exposure/day		
> 60 minutes	208	72%
< 60 minutes	82	28%
Frequency of exposure		
1-2 times/day	144	49.7%
2-3 times/day	127	43.8%
< 1 time/day	19	6.5%

Table 2. Evaluation of response of subjects

Students who attempted to counsel the smokers	90(31%)
Smoker's response observed by students n=90	
Agreed	66(73%)
Refused	20(22%)
No response	4(5%)
Students opinion regarding prohibition of smoking at public place N=290	
Favor	255(88%)
Against	8(3%)
No response	27(9%)

Our study was done on limited population due to limited resources, evaluating only a single complication of passive smoking. Future studies should be directed towards evaluation of other complications of second hand smoking and effects of counseling and laws enforcement. Studies are needed in different settings like low-income population, shopping malls and boarding schools.

Conclusion

There is high frequency of headache related to second hand smoking in medical colleges in Karachi. Students should be provided special training skills to counsel the smokers to avoid smoking at public places; moreover we also need practical

implementation of laws against smoking at public place.

Acknowledgement

Authors are thankful to volunteer students and Department of Community Medicine, Jinnah Medical and Dental College for great support in data collection and analysis. Authors are also thankful to Mr. Farooq Rana for help in data analysis and manuscript writing.

Conflict of interest

Authors have no conflict of interests and no grant/ funding from any organization.

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