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THE PREVALENCE OF TOBACCO CONSUMPTION IN YOUTH OF KARACHI, PAKISTAN – A PILOT STUDY

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ABSTRACT

The aim of this study is to explore the prevalence of tobacco consumption in young people and observe its association with second hand smoking. It is a pilot study conducted in Karachi, Pakistan. Following are the objectives of this study: This pilot study will help to proceed with conducting validated Global Youth Tobacco Survey (GYTS) in Karachi using standard methodology in future. It will also establish current and life time prevalence of smoking in young people of Karachi, Pakistan. To study correlation between young people consuming tobacco and the effect of environmental tobacco smoke (second hand smoking). A cross sectional study was conducted in a private school in Karachi. School was selected through convenience sampling. The sample consisted of 76 students both boys and girls had equal opportunity to participate in the survey. A Validated GYTS questionnaire was used. The current prevalence of smoking is 16% while the students who ever smoked is 41% which is comparatively high to other Global Youth Tobacco Survey (GYTS) conducted in other cities in Pakistan, The results matched with GYTS Eastern Mediterranean Regions which reports 15.3% as current smokers.[1] Environmental tobacco smoke or second hand smoking reported was statistically significant. In this study environmental tobacco smoke (ETS) second hand smoking has been considered as an associated factor and has correlation with tobacco consumption in young people in Karachi. Further research is needed by conducting GYTS using the standard methodology and tobacco awareness programmes need to be integrated in health promoting schools to reduce the ETS.

Key words: *Tobacco consumption, GYTS questionnaire, prevalence of smoking, Environmental tobacco consumption.*

INTRODUCTION

Health is defined as "the extent to which an individual is able on one hand to realize aspirations and satisfy needs; and on the other hand to change or to cope with the environment".[2] This concept encompasses the physical social and psychological well being in an individual rather than an absence of disease alone[3].

The epidemic of tobacco use is one of the most wide spread and severe threats to global health. Approximately one-third of the world population use tobacco in some form or the other, half will die prematurely. World-wide 4.9 million people died in 2000 as a result of nicotine addiction[4]. According to WHO, tobacco is responsible for the death of about one in ten adults around the globe approximating to about 5 millions deaths each year. If this situation continues there will be yearly 10 million deaths by 2020. There are more than 1200 million currently smoking people worldwide, half of them will eventually be killed by tobacco.[4] Others on unhealthy diet, lack of physical activity, diabetes, obesity and high lipids, smoking is rated as one of the strongest risk factors and root cause of current global epidemics in non communicable diseases[5].

Tobacco is referred as the highest risk factor causing oral cancer, it shows strong association with congenital defects in children whose mothers smoke or consume tobacco in any other form during maternal time period[6]. Tobacco products contain more than 50 identified carcinogens. Tobacco causes disturbance in cell cycle regulation, effecting on the immune and endocrine systems. At least 15% of all types of cancers are attributed to oral cancer[7]. Smoking tobacco and chewing tobacco have direct impact on the oral mucosa. Recently it has been concluded that effect of cigar and cigarette smoking is similar and has no significant difference[8]. It is important to discuss why smoking has become a global issue and to study how smoking affects our body; Smoking harms the body in many ways. It damages the immune system and increases the risk of infections. Smokers tend to be less healthy than non-smokers[9].

Through different systemic reviews and meta-analysis have proven that second hand smoking or

passive smoking can cause lung cancer as well as ischaemic heart disease, but the risk related to passive smoking is much lower than people who smoke cigarette. Inhaling tar along with nicotine in tobacco smokes mainly is responsible for the development of cancer. Passive smoking has its own repercussions of causing increase in sensitivity from specific allergens, reduced lung infection, and increasing probability of recurrence of asthmatic attacks[12].

The Global youth Tobacco Survey was developed by Centre of Disease Control and World Health Organization (Headquarter and regional office) to increase the growth capacity of countries to design, formulate, implement and evaluate tobacco control programs. The GYTS specifically aims on tobacco usage, attitudes, exposure to tobacco smoke, and other critical measures by collecting, analyzing and disseminating. The Global Youth Tobacco Survey is the largest and most common School based youth public health surveillance system in the world. It monitors the tobacco usage around the globe covering more than 75 sites in 43 countries of the world[10].

Representative and reliable data that can be compared across different countries of the world. Currently there are more than 160 countries (out of which 85% of WHO states) are involved in GYTS. Lately Centre of Disease Control and WHO worked on gender difference in Global Youth Tobacco use, which reported on the narrowing gender gap in tobacco consumption among youths.[13]

Global Youth tobacco Survey has been conducted in three major cities of Pakistan. The first Global youth tobacco survey was conducted in Islamabad the Capital city of Pakistan in the year 2003 and in the same year the second global youth tobacco survey was conducted in the city Lahore, while a recent survey was done in Quetta in the year 2004. Global Youth Tobacco Survey has yet to be conducted in Karachi, as the city has its own importance being one the most industrialised, populous and urbanised city of Pakistan having a diverse multi ethnic culture spread in the huge geographical area.

In Islamabad 11% students use any form of tobacco; 1% currently smoke cigarette and 10% any other form of tobacco. In Lahore the 6% student use any form of tobacco; 1% currently smoke cigarette and 5% use some other form of tobacco. So far the highest prevalence found of tobacco consumption in the Pakistan has been seen in Quetta where the prevalence rate is as high has 15%; out of which 4% currently smoke cigarettes; and 14% currently use some other form of tobacco[11]. This paper discusses the implementation of GYTS in Karachi as a pilot study. Karachi is the only big city where this survey has not been conducted by the health authorities.

MATERIALS AND METHOD:

Participants

A cross sectional study was conducted in this survey. The survey was conducted at a local private School of Karachi, Pakistan. This school is one of the largest Private school systems in Pakistan[12]. Seventy six students were included in this study. According to GYTS school based survey of students is among 13-15 years therefore students studying in grade ninth and tenth ageing from 13 to 16 years old were selected.[13] Opportunistic sampling was selected for the survey. Each of the ninth and tenth grades has three sections; two sections were selected randomly for both the grades. Each section comprised of girls and boys and equal opportunity was given to both genders. Census was carried out in the selected classes with the option of voluntary participation. The students were placed in two groups ageing from 13-14 years and 15-16 years.

Ethical Approval

An introductory letter was sent to the Principal of the school for permission and detailed information of survey administration, where details of the survey were stated. After the approval, date was fixed to when the survey would be carried out.

Instruments applied

Outline of GYTS survey.

A validated GYTS questionnaire was used to collect the information[15] GYTS is composed of "core" country-approved questions designed to gather data on several topics out of which following two topics were used:

Prevalence of cigarette smoking and other tobacco use among young people:

- how many young people have experimented with smoking cigarettes or used other forms of tobacco products
- the age at which young people begin cigarette smoking
- what brand of cigarettes younger people smoke
- Environment in which young people usually smoke

Environmental tobacco smoke (ETS):

- the extent of young people's exposure to smoking at home and in other places
- young people's perceptions about the harmful effects of ETS

Survey administration

The survey was administered during one class period. CDC- WHO designed procedures as the questionnaire itself is self-administered and the student's privacy was assured, and the student's participation was anonymous and voluntary. Students

completed the questionnaire in the classroom, recording their response on the same sheet of question while in the GYTS surveys conducted on the national level has computerized answer sheet which was not needed as the number of participants was only 76. Three additional questions regarding student's gender, age and their grade were part of the core questionnaire as the rest included questions reporting on. Tobacco use (bids, cigarettes, pipes and smokeless tobacco) and exposure to second hand smoke.

Data Analysis:

These questionnaires were entered on to SPSS version 12. Chi square test frequencies and cross tabulation of the data were performed. Pearson's chi-square test is one of chi-square tests - statistical procedures whose results were evaluated by reference to the chi-square distribution. Chi-square is calculated by finding the difference between each observed and theoretical frequency, squaring them, dividing each by the theoretical frequency, and taking the sum of the results. The statistical significance was measured on level of 0.05.

RESULTS

The tables below represent the distribution of life time and current prevalence of smoking, denoted by gender and age. According to gender distribution 44 were males (58%) and 32 females (42%). The students were divided into two different age groups, from age 13yrs to 14yrs and 15yrs to 16yrs. There were 28 students (37%) aged 13yrs to 14yrs and 48 students (63%) aged 15-16yrs old.

Prevalence of smoking according to Gender:

Table 2: *Prevalence of smoking according to gender in a sample of youth in Karachi (n = 76).*

Gender	Life time prevalence of smoking		Current prevalence of smoking	
	Yes n (%)	No n (%)	Yes n (%)	Non (%)
Males	20 (46%)	24 (55%)	9 (22%)	32 (78%)
Females	11 (34%)	21 (66%)	3 (9%)	29 (91%)

According to the table 1, the current prevalence of smoking in boys is 22% while the current prevalence of smoking for girls is 3%. The prevalence of smoking in boys who had ever smoked was 46% while the lifetime prevalence of ever smoking in girls was 34%. The relationship in the table was not found to be statistically significant.

Prevalence of smoking according to Age;

Table 3: *Prevalence of smoking according to Age in a sample of youth in Karachi (n-76).*

Age	Life time prevalence of smoking		Current prevalence of smoking	
	Yes n (%)	No n (%)	Yes n (%)	Non (%)
13 – 14 years	10 (36%)	18 (64%)	2 (7%)	25 (93%)
15 – 16 years	21 (44%)	27 (56%)	10 (22%)	36 (78%)

According to the table 2, the current prevalence of smoking among 13-14yrs was 7% and the current prevalence of smoking in 15-16yrs was 22%. The lifetime prevalence of smoking in 13-14 yrs of age group was 36% while the lifetime prevalence of smoking in 15-16yrs of age is 44%. The relationship in the table was not found to be statistically significant.

Prevalence of Smoking in Exposure to Environmental tobacco smoke;

The table below shows distribution of the sample against the prevalence of lifetime and current smoking and exposure to Environmental tobacco smoke. Responses of Seventy five students were recorded for this question. Forty five students (60%) responded that nobody smoked in their house in their presence while 30 students (40%) responded yes people did smoke in their house in their presence. In question two 25 students (33%) replied that nobody smoked around them other than home while 50 students (66%) responded that people did smoke around them in their presence. Chi-square of current prevalence of smoking with people smoking in the house in the child's presence has proved statistically y significant with a value of 0.031.

According to table 3, the current prevalence of smoking with people smoking in the students house in their presence is 29% while the prevalence rate of students who ever smoked with people smoking in the house in their presence is 53%. The relationship was found to be statistically significant. The Chi-square of current prevalence of smoking with people smoking in the house in the student's presence has a value of 0.031 while the life time prevalence of smoking with people smoking in the house of the student in their presence has a value of 0.085

According to table 4, the current prevalence of smoking while people smoking in other places than home is 19% while lifetime prevalence of student smoking is 42% while people smoking in other places than home. The relationship was not found to be

statistically significant.

The statistical significance found at 0,05 level was between the exposure to environmental tobacco smoke and the prevalence of current and life time smoking in the students.

Table 4: *Prevalence of smoking and exposure to Environmental Tobacco smoke in a sample of youth in Karachi (n=76).*

Environmental tobacco smoke	Life time prevalence of smoking		Current prevalence of smoking	
	Yes n (%)	Non (%)	Yes n (%)	No n (%)
During the past 7 days, how many days have people smoked in your home, in your presence?	16 53%	14 47%	8 29%	20 71%
Yes				
None	15 33%	30 67%	4 9%	40 91%

Table 5: *Prevalence of smoking and exposure to environmental Tobacco smoke in a sample of youth in Karachi (n=76).*

Environmental tobacco smoke	Life time prevalence of smoking		Current prevalence of smoking	
	Yes n (%)	No n (%)	Yes n (%)	No n (%)
During the past 7 days, how many days have people smoked in your presence, place other than your home?	21 42%	29 58%	9 19%	38 81%
"I Yes				
None	10 40%	15 60%	3 12%	22 88%

DISCUSSION

In this study exposure to second hand smoke at home during the past seven days in the current smokers was 29% while the prevalence rate for life time smoker with people smoking in the house in their presence is 53%, mean of 41%. Exposure to secondhand smoke in public places during past seven days in current smokers was reported to be 19% and the prevalence rate of students who ever smoked with people smoking in public places was 42%, mean of 31%. In Easter Mediterranean region exposure to secondhand smoke at home during the past seven days was reported to be 37% having a range of (35.4-38.6) which is total of current and ever smoke whilst exposure to secondhand smoke in public places during past seven days was reported to be 46% (47.4 - 51.1)[1]. The GYTS data shows that worldwide more than 30% of students were exposed to secondhand smoke at home and more than 45% worldwide were exposed to second hand smoke in public places. Another study conducted in Karachi similar results were reported highlighting the affects of ETS where the median age of starting smoking among students was 16 years and the adolescents are influenced more by their friends and are generally less affected by the lifestyle of their parents. However other studies have reported parental or relatives influence on initiation of smoking[14]. Friends and peers essentially creating an environment of students becomes significant link for students develop smoking habit.[15]

Environmental tobacco smoke is now considered as the most important risk factor according to the reports of GYTS, which is correlated to the results reported in this study. Therefore exposure to secondhand smoke is an important health risk for non smoker and smokers. Thus reduction of this exposure should be a primary component of national comprehensive tobacco control program.

Smoking is reported to be on the rise among Pakistani students because of non-implementation of laws prohibiting sale of cigarettes to people below the age of 18 years[16]. According to the study conducted under supervision of Pakistan Medical Research Council (PMRC) 1,983 students surveyed, 445 were found to be regular smokers, 41 had quit and the rest were non-smokers, most of the students had started smoking because of the presence of smokers in their homes.[17] It is clear representation of failure of executing the legislation passed for the protection of non-smokers as smoking is banned in medical colleges and teaching hospital in Pakistan.[18]

The Global Youth Tobacco Survey questionnaire is validated and offers a standardised and a robust methodology to collect data from students aged 13

to 15 years. This aids constructing the sample frame, selecting participating schools and classes and processing data. GYTS uses a two-stage, cluster-sample design that produces representative samples of students in grades associated with ages 13 to 15 years. In this pilot study school selection was opportunistic, for further studies future national recommended GYTS studies in Karachi should be planned involving all the ninth and tenth grade students of all the schools in the city. Lack of role model also plays an important role, as it is very essential that this stage of life, children learn what they live and acquire the influence from their teachers and elders in their surroundings.

It is **concluded** that environmental tobacco smoke (ETS) was found to correlate with current and ever smoking. Current and ever smoking prevalence was higher than in other GYTS results from Pakistan, yet the result of the study match with the Easter Mediterranean regional results of GYTS in prevalence of smoking and the frequencies of environmental tobacco smoke[1]. Trends for such high incidence of smoking in young school and college going population is evidentially proven now. It also validates students taking up habits of smoking have strong links of association with peers and students smoking around them. The tobacco control programs in school and colleges should be give emphasis on implementation of policies which limit students to indulge in entering such habits and creating an environment which discourages students to smoke.

REFERENCES

1. Warren CW. Jones NR. Erikson MP, Asma S. Patterns of global tobacco use in young people and implication for future chronic disease burden in adults. The Lancet. 2006; 267: 749-753.
2. World Health Organization. Health Promotion and Community Participation. 1984. http://www.who.int/water_sanitation_health/hygiene/emergencies/em2002chap.15.pdf
3. World Health Organization. Promoting Mental Health. 2004. http://wtvw.who.int/mental_health/eyidence/en/promoting mhh.pdf
4. World Health Oragnization. The World Health Report, Reducing risks Promoting Healthy life, 2002. http://www.who.int/whr/2002/en/Overview_E.pdf
5. World Health Organization-EMRO.WHO Regional Office for the Eastern Mediterranean. Health Journal. 2004; 10 (6): 778-788.
6. National Institute of Health. The Health Consequences of Smoking, A report of the Surgeon General, 1972. http://profiles.nlin.mh.gov/NN/B/B/P/M//nnbbpm.ocr
7. Kuper H, Adan 0, Trichopulous D, Infections as a major preventable case of human cancer: Internal Medicine in 21st Century. Journal of Internal Medicine. 2000; 248 (3): 171-183.
8. World Health Organization. Main page. tobacco free initiative. Why is tobacco a public health priority 2006, available from www.int/tobacco/en
9. Centre of Disease Control. Global tobacco prevention and Control, World health organization collaborating centre for global tobacco prevention and control. 2004. available from www.cdc.gov/tobacco/globaVoverview.htm
10. Centre of Disease Control. Global youth tobacco survey. Introduction. Global tobacco prevention and con-trol. 2005, available from www.cdc.gov/tobacco/gloabal/gyts/GYT_Sjntro. htm
11. Center of Disease Control. Global Youth Tobacco survey Fact Sheet Pakistan, 2007. http://www.cdc.gov/tobacco/global/gyts/factsheets/emro/2003/pakistanlahore_factsheet.htm
12. Wikipedia. City School System, Pakistan. 2006. available from www.en.wikipdia.org/wiki/city_school_system%2C-Pakistan
13. Center of Disease Control, Global Youth Tobacco Survey Methodology, 2005. http://www.cdc.gov/tobacco/global/GYTS/methodology.htm
14. Rozi S, Akhtar S, Ali S, Khan: Prevalence and factors associated with current smoking among high school adolescents in Karachi, Pakistan. Southeast Asian J Trop Med Public Health 2005; 36 (2): 498-504. http://www,Pi.ibmedcentral.nih.gov/articlerender.fcgi?artid=2222162
15. Nichter M, Nichter M, Van Sickel D: Popular perceptions of tobacco products and patterns of use amongst male college students in India. Soc Sci Med 2004, 59: 415-431.
16. Centre of Disease Control. World Health Organization report. Pakistan 1997. Tobacco Info and Prevention Sources (TIPS). Available from www.cdc.gov/tobacco/WHO/Pakistan
17. Sajid Ali, Nalini Sathiakumar, Elizabeth Delzell. Journal of Tropical Medicine, Prevalence and Sociodemographic factors associated with tobacco smoking adult males in rural Sindh, Pakistan 2006; 37 (5): 32-37. http://www.to.mahidol.ac.th/seameo/2006 37_5/32-3712.pdf
18. WHO Global Status Report-Paistan-1997. Tobacco Information and Prevention Source (TIPS), Centers for Disease Control. http://www.cdc.gov/tobacco/who/pakistan Accessed May, 2006.