Prevalence of Tobacco Use and Awareness of Risks Among School Children in Jaipur

V Singh*, R Gupta**

Abstract

Background: Smoking and tobacco use is a major public health issue in developing countries. We performed an epidemiological study to determine the prevalence of smoking and tobacco-use and awareness of risks of tobacco use among school children.

Methods: Students in randomly selected schools in Jaipur were studied. Students in classes 9-12 (age 13-18 years, boys 2866, girls 939) were enrolled. Medical social workers filled in information regarding presence of smoking and other forms of tobacco use among these children. Details of presence of tobacco use among family members, awareness of harms of tobacco and proactive role of children were also inquired.

Results: Fifty nine boys (2.1%, 95% confidence interval 1.5% to 2.6%) and 16 girls (1.7%, 0.9% to 2.5%) agreed to current tobacco use. Smoking cigarettes or bidis was present in 43 boys (1.5%, 72.8% of users) and 8 girls (0.8%, 50.0% of users). Smoking or tobacco use was present in immediate family of 1208 boys (42.1%) and 304 girls (32.4%) (p<0.001) but was significantly more in family of children who used tobacco (boys 51/59, 86.4%, girls 11/16, 68.8%). 2842 boys (99.2%) boys and 934 girls (99.5%) were aware that tobacco use is harmful and similar proportions disliked it. More than 90% students were aware of its importance in causing respiratory diseases and the majority of boys and girls, respectively, knew of its potential to cause general debility (55.7%, 54.1%), heart disease (56.8%, 58.3%), cancer (64.6%, 64.6%), impotence (40.9%, 23.2%), ulcer of stomach (48.1%, 46.4%) and death (68.2%, 68.1%). 76.4% boys and 75.7% girls considered quitting to smoke beneficial and 77.1% boys and 75.8% girls knew that passive smoking is bad. 75.7% boys and 75.0% girls would insist that no-one smokes in their presence. 1592 boys (55.5%) and 507 girls (54.0%) remembered seeing tobacco related advertisement in news-paper and could recall name of the brand. 57.2% boys and 62.4% girls agreed to participate in a tobacco-awareness and cessation program, however only 5.2% of the students had attempted tobacco-control among family or peers.

Conclusions: There is low prevalence of smoking and tobacco use in school children in Jaipur. Awareness of harmful effects of tobacco is high. ©

INTRODUCTION

Tobacco use is a major health and social problem worldwide. The habit usually starts in adolescence and rapidly escalates thereafter. In developed countries, the habit usually starts in the early teens in both boys and girls and stabilizes to adult levels by the late teens. Center for Disease Control and Prevention (CDC) in the United States (USA) has reported that there is a significant increase in the percentage of high school students that reported current cigarette smoking from 27.5% in the year 1991 to 34.8% in 1999. The Global Tobacco Youth Study (GTYS) reported that smoking is the predominant form of tobacco use among adolescent children in developed countries while smoking as well as use of smokeless tobacco is equally prevalent among the youth in developing countries. The GTYS included data from 12 countries and 17 sites in Asia: (China, Fiji, Jordan, Sri Lanka), Africa (South Africa, Zimbabwe), Europe (Poland, Russian Federation, Ukraine) and Central (Costa Rica, Barbados) and South America (Venezuela). The sample size at a single site varied from 896 in Harare, Zimbabwe to 6045 in South Africa. The current tobacco use varied from a low of 8.6% in Shandong, China to 35.1% in Moscow and smoking prevalence varied from a low of 2.4% in Shandong to 33.9% in Kiev, Ukraine.

The prevalence of smoking and tobacco use in India has been inadequately reported. Gajalakshmi et al
summarised the Indian data and reported a variable prevalence of tobacco use in the country depending upon local customs and religion. In adults aged ≥15 years prevalence was reported as 21% for cigarette smoking and 21% for bidi. In Rajasthan, Gupta et al\(^5\) reported prevalence of smoking or tobacco use of 51% in rural men, 5% in rural women, 39% in urban men and 19% in urban women while Venkat Narayan et al reported smoking prevalence of 45% in men and 7% in women in Delhi.\(^7\) In Mumbai, Gupta et al\(^8\) reported current tobacco use in 69% men (smokers 23.6%) and 57% women. Smoking and tobacco use among children has not been extensively reported from India although some small studies exist. Vaidya et al\(^9\) reported tobacco use in 13.5% boys and 9.5% girls in Goa. Jayant et al\(^10\) reported tobacco use of 6.9% to 22.5% among 1278 boys and 353 girls belonging to different types of schools in Mumbai and George et al\(^11\) studied 146 children in Kerala and reported tobacco use in 29% and smoking in 2%. Therefore, to determine prevalence of tobacco use and knowledge, attitude and practice of tobacco control among a larger sample of school children, we performed an epidemiological study in Jaipur, North-West India.

**METHODS**

The study was approved by the institutional ethics committee. As part of tobacco control and asthma awareness programme managed by a non-governmental organisation (Indian Asthma Care Society) in Jaipur, Rajasthan, we randomly enrolled schools for evaluation of tobacco use and awareness.

Statistical analysis: Results are reported separately for boys and girls. Prevalence rates are reported in percent. Inter-group differences have been analyzed for significance using chi-square test or z-test as appropriate. P value <0.05 was considered significant.

**RESULTS**

A total of 3805 students (boys 2866, girls 939) were evaluated. Fifty nine boys (2.1%, 95% confidence intervals (CI) 1.5%, 2.6%) and 16 girls (1.7%; CI 0.9%, 2.5%) agreed to current tobacco use (Table 1). The study subjects were divided into two-year age-group tertiles. There was no significant difference in the prevalence of tobacco use among different age-groups. Smoking cigarettes or bidis was present in 43 boys (1.5%, 72.8% of users) and 8 girls (0.8%, 50.0% of users). Cigarette use was more common in both boys and girls. Other form of tobacco use was as raw tobacco, tobacco mixed with pan-masala and as tobacco-mixed tooth powder. Many subjects used tobacco in more than one form (Table 2).

Smoking or tobacco use was present in immediate family of 1208 boys (42.1%) and 304 girls (32.4%) (p≤0.001). There was a significant influence of smoking or tobacco use in family members on its prevalence in

<table>
<thead>
<tr>
<th>Boys</th>
<th>Girls</th>
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<tbody>
<tr>
<td>Total 2866</td>
<td>Total 939</td>
</tr>
<tr>
<td>13-14 years 443</td>
<td>123</td>
</tr>
<tr>
<td>15-16 years 1530</td>
<td>471</td>
</tr>
<tr>
<td>17-18 years 893</td>
<td>345</td>
</tr>
<tr>
<td>Smokers 2866 43</td>
<td>939 8</td>
</tr>
</tbody>
</table>

Numbers in parentheses are percent. The sums of type of tobacco use do not match the absolute sum as many subjects use more than one form.

2842 boys (99.2%) and 934 girls (99.5%) were aware that tobacco use is harmful and similar proportions disliked it. More than 90% students were aware of its importance in causing respiratory diseases (boys 96.5%, girls 93.7%). A majority of boys and girls, respectively, knew of its potential to cause general debility (55.7%, 54.1%), heart disease (56.8%, 58.3%), cancer (64.6%, 64.6%), impotence (40.9%, 23.2%), ulcer of stomach (48.1%, 46.4%) and death (68.2%, 68.1%). 2190 boys (76.4%) and 711 girls (75.7%) considered quitting to smoke beneficial and 2209 boys (77.1%) and 712 girls (75.8%) were aware that passive smoking is bad. 1592 boys (55.5%) and 507 girls (54.0%) distinctly

<table>
<thead>
<tr>
<th>Boys</th>
<th>Girls</th>
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<tbody>
<tr>
<td>Ever users 59</td>
<td>16</td>
</tr>
<tr>
<td>Cigarette 24</td>
<td>5</td>
</tr>
<tr>
<td>Bidi 19</td>
<td>3</td>
</tr>
<tr>
<td>Raw tobacco (zarda) 19</td>
<td>6</td>
</tr>
<tr>
<td>Tobacco with pan-masala (gutka) 22</td>
<td>3</td>
</tr>
<tr>
<td>Tobacco tooth-powder 7</td>
<td>2</td>
</tr>
</tbody>
</table>

Numbers in parentheses are percent.

![Fig. 1 : Prevalence (%) of tobacco use and smoking among boys and girls.](image-url)
remembered seeing a tobacco-related advertisement in a newspaper or a magazine and could name the tobacco product.

2140 boys (75.7%) and 304 girls (75.0%) insisted that they wished that nobody would smoke or use tobacco in their presence. 1650 boys (57.2%) and 586 girls (62.4%) agreed to participate in a tobacco-awareness and cessation programme. However, only 5.2% of the students (149 boys, 49 girls) had attempted tobacco-control among family members or peers.

**DISCUSSION**

This study shows a low prevalence of tobacco use among the school children in Jaipur despite a moderately high prevalence of tobacco use among their family members. There is satisfactory awareness of the harmful effects of tobacco.

The Global Tobacco Youth Study (GTYS) reported that smoking is the predominant form of tobacco use among adolescent children in developed countries while in developing countries the use of smokeless tobacco is equally prevalent.4 The present study reports similar findings. In urban sites of developing countries, use of one or another tobacco product was reported as 16.9% in Barbados, 9.7% in Tianjin (China), 20.8% in Costa Rica, 15.1% in Fiji, 20.6% in Jordan, 34.1% in Poland, 35.1% in Moscow, 9.9% in Sri Lanka, 34.6% in Kiev (Ukraine), 14.8% in Venezuela, and 18.0% in Harare (Zimbabwe).4 All these rates are significantly higher than those reported in the present study. The present study has also reported a lower prevalence than previous Indian studies.9-11 Vaidya et al reported tobacco use in 13.4% boys and 9.5% girls among school children in Goa.9 Jayant et al conducted a study in 1278 boys and 353 girls studying in different types of schools in Bombay and reported tobacco use in 22.5% children in private English-medium schools, 6.9% in private Indian language schools and 13.8% in municipal schools.10 George et al reported the habit in 146 children in a poor coastal community in Kerala and reported tobacco-chewing in 29% and smoking in 2%.11

The lower tobacco prevalence in the present study could be due to greater awareness of the harmful effects of tobacco among the children. The study was conducted as a part of a respiratory diseases awareness programme and it is possible that many children did not report the habit correctly. Explaining the harmful effects of tobacco use before giving out the questionnaire can lead to under expression of the tobacco uses. A more intensive and prolonged interview10 or study of urinary cotinine13 may provide more reliable data. It is also possible that there is truly low prevalence of tobacco use among the children in Jaipur although adult tobacco use and smoking prevalence are similar to those in other cities in India.14

There are multiple and interacting determinants that affect smoking.13 These are physiological factors (nicotine addiction), personal characteristics (demographics, personality, education, information), cognition and skills, environment (social, cultural, economic and political) and other concurrent habits (drinking alcohol, coffee etc.). In children the main influences in smoking initiation are environmental factors and personal characteristics. The present study showed that tobacco use is significantly more in children when its use is present in a family member. Exposure to advertisements was very high in these children and most of them remembered seeing a tobacco advertisement in a newspaper or a magazine. This can have both a negative and positive effect.10 More studies are required to exactly determine both positive and negative determinants of smoking and tobacco use among the children in India and other developing countries.

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**Announcement**

**ICCD-WCCN - 2006**

International College of Cardiology and World College of Nutrition are organizing their 4th International Congress on Cardiovascular Disease (ICCD 2006) and XI World Congress on Clinical Nutrition (WCCN 2006) - an Unique Joint Congress - ICCD - WCCN - 2006 at Hotel Renaissance, Mumbai from 17th to 19th November 2006.

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