Effect of smoking status in support to anti-smoking legislation among medical and dental professionals in an Indian City- a Cross Sectional Study.
Harshvardhan.R.Chaudhary, Shrinath Shetty, Archana.J.Sharda, Anil.A. Agarwal, Karan.P.Singh

Abstract
Background: Tobacco (both smoking and smoke-less) is the single most preventable cause of death in the country. Tobacco control strategies are known to discourage the uptake of smoking, encourage cessation and protect people from environmental exposure to passive smoke. Aim: To examine the association between smoking status and agreement with current anti-smoking legislation among medical & dental professionals in Udaipur City. Settings and Design: A cross sectional survey was conducted in all Medical and Dental Education Institutes in Udaipur city. Materials and methods: Pre tested self administered questionnaire was used to collect the information after taking informed consent. The participants were asked about their smoking status, knowledge about current anti-smoking legislation and their agreement with the current legislation. Statistical analysis: Chi-square test was used for statistical analysis. Results: Among all the participants, 18.2% were smokers, all being males. 76.9% participants believed that it was right to ban smoking in public places. But the overall support to the legislation varied according to smoking status. Non-smokers agreed more than smokers that the introduction of legislation would create the healthier environment, reduce exposure to passive smoking, forced the smokers to reduce the number of cigarettes they smoke. Both the groups agreed that more advertisement would be helpful for implementation of the legislation. Conclusion: The results in this study are encouraging and there is overall support for the anti-smoking legislation. But there is a lack of enforcing mechanism in support of the legislation, so complete smoking ban along with strong enforcement and implementation may provide better results.

Key words: Anti-smoking legislation; Smoking status; Medical and dental professionals.

Received on: 12/09/2010 Accepted on: 12/10/2010

Introduction
Tobacco use is an important risk factor for the development of cardiovascular, respiratory and oncological diseases. It remains as one of the leading preventable cause of mortality and morbidity in developed as well as developing countries. (1) Each year, tobacco products kill some 5 million people worldwide and this number is increasing. (2) Tobacco use including both the smoking and the non-smoking forms of tobacco is common in India, (3) which ranges from 20-29%.

Second-hand smoke has been found to increase the risk to non-smokers of lung cancer, heart disease and many other diseases in non-smokers. Concerns about these health risks and their costs have justified limits to smoking in the presence of non-smokers. (5) The aim of public health tobacco control efforts is to reduce morbidity and mortality caused by preventable smoking related diseases. (6) The Government of India is taking steps to ensure effective implementation of Cigarettes and other Tobacco Products Act, 2003 (Prohibition of Advertisement and Regulation of Trade and Commerce, Production, Supply and Distribution). (7) As per Tobacco Control Legislation, 2003, the Rules regarding ban of smoking in public places has come into effect on 2nd October, 2008. (8)

As medical and dental professionals witness the continued burden of smoking-related diseases in their patients in their daily practices, they are uniquely placed to lead smoking cessation programmes in the community. Therefore this study was taken up to evaluate whether the support to anti-smoking legislation varies with smoking status among medical & dental professionals in Udaipur, Rajasthan.

Materials and Methods
A cross sectional survey was conducted in all medical and dental (2 medical and 2 dental) Education Institutes situated in Udaipur city, Rajasthan, India from September 15th to October 10th, 2009.

The study population consisted of the teaching faculty and dental/medical students with clinical experience in all 4 institutes. Before the commencement of the study, ethical approval was taken from ethical committee of Pacific Dental College and Hospital. Official permission was also taken from the authorities of all 4 educational institutes and dates were pre decided for the survey.

Informed consent: Written informed consent was obtained from those who were willing to participate. A pilot survey (n=40) was done before the start of the study and necessary changes in the questionnaire were made accordingly.

Questionnaire: A self-administered structured questionnaire written in English validated through pre-tested survey was used for getting information.
The questionnaire consisted of 15 items under following sections:
(1) Demographic questions including age, sex, speciality
(2) Smoking behaviour: frequency and duration of smoking
(3) Specific research questions: Eleven specific research questions elicited respondents’ beliefs about smoking. For these questions, the respondents were asked to select from a 5-point Likert-style rating scale ranging from strongly disagree to strongly agree.

Methodology: On the pre decided day, the investigator visited each of the institutes and questionnaires were filled by the professionals available at the time of visit. The professionals took an average of 10 minutes to fill the questionnaire. The response rate was 66% (medical professionals- 67%, dental professionals- 65%).

Analysis: Prior to conducting the analysis, the 5-point Likert scale responses were grouped into two discrete categories: agree (agree/strongly agree); or fail to agree (neither agree nor disagree/disagree/strongly disagree). Data was processed and analysed using Microsoft excel 2007 and SPSS (Statistical Package for Social Sciences), version 11.5 (SPSS, Inc., Chicago, IL, USA). Chi-square tests were used to assess the association between smoking behaviour, smoking beliefs and socio-demographic variables. P<0.05 was considered as the level of significance.

Results

Demographic characteristics:
The total sample size (n=649) consisted 408 (62.9%) males and 241 (37.1%) females. The mean age of the participants was 28 years. (SD=5.30)

Smoking behaviour:
Among 649 participants, 118 (18.2%) classified themselves as smokers. There was a significant difference between the percentage of male and female smokers (p<0.00) with none of the female participants being smokers.

Beliefs about legislation:
Majority of the participants (81.2%) were aware of current anti-smoking legislation. Overall most of the participants agreed that the introduction of current legislation was likely to create healthy environment for all (61.9%) and it was right to ban smoking in public places (76.9%). Almost half (43.5%) of the participants agreed that the legislation was likely to encourage the smokers to consider their smoking practices, but only 65.3% believed that the legislation was unlikely to decrease the number of smokers in Udaipur city. Only 32.5% agreed that the legislation has forced smokers to reduce the number of cigarettes they smoke. There was a strong disagreement (94.9%) that everyone has the right to smoke if they wish in public places, 66.6% felt that government has not fulfilled its duty just by making the legislation and 76.7% agreed that more implementation and advertisement was needed. Almost one third (70.6%) of the participants believed that introduction of sign boards (public places warnings) might be helpful. Around 18% smokers had reduced their cigarette consumption after the introduction of the legislation.

<table>
<thead>
<tr>
<th>No</th>
<th>Questions</th>
<th>Smokers agree (%)</th>
<th>Non-smokers agree (%)</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>The current legislation is likely to decrease the number of smokers in Udaipur.</td>
<td>16.9</td>
<td>38.6</td>
<td>0.000*</td>
</tr>
<tr>
<td>2.</td>
<td>The current legislation is likely to create a healthier environment</td>
<td>50.0</td>
<td>64.6</td>
<td>0.002*</td>
</tr>
<tr>
<td>3.</td>
<td>The introduction of the recent anti-smoking legislation will encourage smokers to consider their smoking practices</td>
<td>42.4</td>
<td>43.7</td>
<td>0.438</td>
</tr>
<tr>
<td>4.</td>
<td>The introduction of the recent anti-smoking legislation has forced smokers to reduce the number of cigarettes they smoke</td>
<td>16.9</td>
<td>35.6</td>
<td>0.000*</td>
</tr>
<tr>
<td>5.</td>
<td>The introduction of the recent anti-smoking legislation has reduced my exposure to passive smoking</td>
<td>30.5</td>
<td>51.0</td>
<td>0.000*</td>
</tr>
<tr>
<td>6.</td>
<td>It is right to ban smoking in public places</td>
<td>65.3</td>
<td>79.5</td>
<td>0.001*</td>
</tr>
<tr>
<td>7.</td>
<td>Everyone has the right to smoke if they wish to smoke in public places</td>
<td>5.1</td>
<td>5.1</td>
<td>0.574</td>
</tr>
<tr>
<td>8.</td>
<td>Government has fulfilled its duty by making Anti-smoking legislation</td>
<td>22.0</td>
<td>36.0</td>
<td>0.002*</td>
</tr>
<tr>
<td>9.</td>
<td>More implementation and advertisement is needed for current Anti-smoking Legislation</td>
<td>67.8</td>
<td>78.7</td>
<td>0.009*</td>
</tr>
<tr>
<td>10.</td>
<td>The introduction of Sign-boards (public place warnings) of anti-smoking legislation will be helpful [eg. No parking]</td>
<td>57.6</td>
<td>73.4</td>
<td>0.001*</td>
</tr>
</tbody>
</table>

Table 1: Association between smoking behaviour and agreement with smoking belief statements
(Chi-square test, P< 0.05, *- statistically significant)
Comparison of responses between smokers and non-smokers

In this study, 50% of smokers and 64.6% of non-smokers agreed that the introduction of legislation would create healthier environment (p=0.002) (Table 1). 38.6% non-smokers agreed that current legislation would likely to decrease the number of smokers in the city, whereas only 16.9% believed so (p=0.000). 42.4% smokers and 43.7% non-smokers agreed that the smokers would consider their smoking practices after this legislation, which was statistically not significant (p=0.438). 30.5% smokers and 51% non-smokers believed that current anti-smoking legislation had reduced their exposure to passive smoking which was statistically significant (p=0.000). Very few smokers (5.1%) and non-smokers (5.1%) agreed that everyone has the right to smoke in the public places. Majority of them (67.8% smokers and 78.7% non-smokers) agreed that more implementation and advertisement was required for current anti-smoking legislation.

Discussion

Recent anti-smoking legislation, which came into act from October 2008, was an attempt from the Government of India to reduce smoking behaviour into the public places. As this legislation has finished its one year of implementation, this study was an attempt to find about peoples’ support towards this legislation. As health care professionals are considered as health educators and role models in smoking cessation practices, their opinions about the legislation could provide some vital information on the implementation of the legislation.

In the present study, significant difference in the prevalence of smoking in health care professionals was found when compared with study done by Ranjeeta Kumari(2) but when compared with general population (20-29%), there was no significant difference.(4) This study showed that in Udaipur city, 28.9% of male health care professionals smoke whereas none of the females smoke, which was consistent with a study done on health care professionals(4) but was in contrast with the study conducted in general population by T. Dwyer et al.(9) The percentage of the current smoking behaviour of health care professionals in this study was comparable to the general population which was a matter of serious concern. There was an increase in prevalence of smoking with increase in age, which was consistent with earlier studies done in general population.(9,10) The reason might be the older age groups might not be able to make the decision to quit or have not been successful at stopping smoking.

In this study, around 20% of health care professionals were unaware of the introduction of the legislation in 2008. This is also a matter of concern as these professionals are believed to play a major role in successful anti-smoking campaign. There is enough evidence and data to demonstrate that smoking causes a large spectrum of diseases.(11-16) Consistent with the previous research, this study had shown community awareness of the effects of Environmental tobacco smoke and contribution of the legislation to create a healthy environment.(9,17) Very few smokers in this study agreed that the legislation would reduce the smokers in the city and has forced smokers to reduce the number of cigarettes they smoke. But it has been observed that smoking restrictions increased the likelihood of a quit attempt (18) and complete smoking bans tend to reduce the number of smokers.(19,20) Interestingly, only 21 (3%) smokers had reduced smoking after the legislation came into act and smokers still continue to smoke despite of intense publicity and overwhelming evidence of ill effects of smoking on health. 65% smokers in this study believed that it is right to ban smoking in public places and majority of them also disagreed that everyone has the right to smoke if they wish, both the findings were not consistent with the previous study.(9)

There was an overall support for the legislation, but comparison of smokers’ and non-smokers’ beliefs showed significant differences between two groups. More non-smokers agreed than smokers that the introduction would create the healthier environment or that there would be a reduction in exposure to passive smoking. Similarly, when compared to non-smokers, fewer smokers agreed that the legislation has decreased the number of smokers in city or the legislation has forced the smokers to reduce the number of cigarettes they smoke. Both the groups disagreed with the statement that: ‘everyone has the right to smoke if they wish to smoke in public places’, but both the groups agreed that more advertisement would be helpful for implementation of the legislation which was not consistent with the results shown in study done by Kumiko Saika. (21)

Public support for smoking bans is important for successful policy implementation and sustainability. Anti-smoking policy aimed at putting additional pressure on smokers to change their behaviour- opposed to one merely aimed at ensuring smoke-free air for non-smokers- needs more vigorous enforcement. In case of complete smoking ban, there is even greater need for enforcement. The enforcement includes preventing children from becoming addicted to tobacco, effective health promotion and health education programmes, television anti-smoking advertisement
(22), prominent health warnings on tobacco product packing and financial measures to discourage tobacco consumption.

The data relied on self-reported smoking behaviours and this might have resulted in under-reporting of smoking because of growing social unacceptability of tobacco use. Ultimately, there might have been a potential bias and underestimation of the true smoking behaviours of medical and dental professionals in Udaipur city.

**Conclusion**

Only medical and dental professionals from the teaching institutes were the focus of the study as the approach and credibility of these professionals as treatment providers for smoking-related diseases may be influenced by their smoking habits and their view towards the anti-smoking legislation. The results in this study are encouraging and there is overall support for the anti-smoking legislation. But there is a lack of enforcing mechanism in support of the legislation, so complete smoking ban along with strong enforcement and implementation may provide better results.

**Authors Affiliations:**

1. Dr. Harshvardhan R. Chaudhary BDS, Post-graduate student.
2. Dr. Shrinath Shetty MDS, Professor.
3. Dr. Archana J. Sharda MDS, Senior Lecturer.
4. Dr. Anil A. Agarwal BDS, Post-graduate student.
5. Dr. Karan P. Singh BDS, Post-graduate student. Department of Preventive & Community Dentistry, Pacific Dental College & Hospital, Udaipur, Rajasthan, India.

**Acknowledgement:** To all Staff in the Department of Preventive & Community Dentistry, Pacific Dental College & Hospital, Udaipur, Rajasthan, India.

**References**

8. The Gazette of India. May 30, 2008 Extraordinary; Part 2-section 3-sub section 1; published by Authority, New Delhi
19. Antero Heloma & Maritta S. Jaakkola. Four-year follow-up of smoke exposure, attitudes and smoking behaviour following enactment


Source of Support: Nil, Conflict of Interest: None Declared