Prevalence of tobacco use among dental patients and their knowledge of its health effects

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Abstract

Objectives: The objective of this study was to determine the prevalence of tobacco use in dental patients, to compare the knowledge of the effects of tobacco in tobacco users and nonuser, to determine their source of information, and to obtain their opinion on strategies that may be used to reduce or stop tobacco consumption.

Materials and Methods: A descriptive cross-sectional survey of 400 patients attending the University of Benin Teaching Hospital dental clinic for treatment was carried out using a self-administered questionnaire.

Results: The result revealed that the prevalence of tobacco use is 4.25% and that tobacco was consumed in the form of cigarette in 94% of cases. Only a small percentage of the respondents (0.3%) had a poor knowledge of both the tobacco effect on general and oral health. Although 26.5% claimed to have multiple source of information on the effect of tobacco on health but the media was the highest single source (23.5%). Banning of sales of tobacco products was suggested by 30.5% of the respondents, 19.8% suggested that doctor should educate patients on the health effect of tobacco, and 17.8% feel that to discourage tobacco use, multiple strategies should be used.

Conclusion: There is a need for health workers to lay more emphasis on the rare complications of tobacco use. The use of multiple regulatory strategies should be employed to reduce the overall adverse health impact of tobacco and the media can play a great role.

Key words: Tobacco use, dental patients, knowledge, health effects

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Introduction

Tobacco is the second major cause of death in the world, accounting for 1 in 10 adults death worldwide.[1] It has been documented that every 6.5 seconds one tobacco user dies from a tobacco-related disease somewhere in the world.[1] As in 2002, the death toll from tobacco consumption was 4.9 million people a year[2] and it was estimated then that if the consumption patterns continued, the number of deaths will increase to 10 million by the year 2020, 70% of which will occur in developing countries.[2]

Consumption of tobacco in any form is the single most important preventable cause of most of the noncommunicable diseases.[3,4] As research on the effects of tobacco on health continues and the number of the affected people increases, the list of conditions caused by tobacco has expanded. When used in the form of smoking, it is a risk factor for coronary heart disease, cerebrovascular disease, lung carcinoma, and other noncommunicable diseases whereas in the smokeless form, it is an epidemiologically and experimentally proven risk factor for various other forms of cancer, particularly oropharyngeal cancers.[5-7] There is evidence that almost every organ in the body is affected by tobacco consumption.[8]

Nonsmokers also suffer the health consequences of tobacco. Previous studies showed that involuntary exposure to
tobacco smoke puts nonsmokers at a greater risk of diseases associated with smoking including sudden infant death syndrome in infants.[9-11]

The effects of tobacco on oral health are also important and must be taken into consideration. Tobacco use and its association with oral diseases is a major contributor to the global oral disease burden as it is associated with up to half of all periodontal disease conditions among adults.[12] Association between tobacco use and the prevalence and severity of periodontal disease is established in the literature.[13]

The use of tobacco in any form should be discouraged because the negative impact relates not only to smoking but also to the use of smokeless tobacco. Most recently, the International Agency for Research on Cancer observed that there is sufficient evidence that smokeless tobacco causes oral cancer and pancreatic cancer in humans.[14] Tobacco forms include cigarette, cigar, pipe, chewed tobacco, dipped tobacco, and snuff (moist and dry snuff). The pattern of use of smokeless tobacco in developing countries is less documented when compared with the pattern of tobacco smoking.[15,16]

The knowledge about the health consequences of tobacco among patients, generally, is not adequate and has been said to be unevenly distributed.[17] This is probably due to the fact that myths about tobacco consumption are still persistent and pronounced. There is misconception that tobacco has medicinal value for improvement in toothache, headache, and stomach ache.[18] Some people believe that a reduction in smoking will reduce the risk for smoking-related diseases, or even that the danger is reduced when using other nicotine delivery systems, such as hand-rolled cigarettes or a Narghile (water pipe).[19-21] Also it is still believed in some quarters that smokeless tobacco is less hazardous than cigarette smoking. Therefore these forms continue to be used by a vast number of people.[22]

Prevalence studies have shown that tobacco consumption in Nigeria is high.[23,24] Not much has been done on the knowledge of patients on health effects of tobacco use. The objective of this study was to determine the prevalence of tobacco use in dental patients, to assess their knowledge on the effects of tobacco on general and oral health, to compare the knowledge of tobacco users and nonuser, to determine if their knowledge is dependent on tobacco use, and to determine their source of information. The study was also aimed at obtaining the opinion of patients on strategies that may be used to reduce or stop tobacco consumption.

Materials and Methods

The prevalence of tobacco consumption among Nigerian adults in a previous study[23] was 22.6% and this was used in the calculation of the sample size for this descriptive cross-sectional survey. The calculated minimum sample size using the formula \( n = \frac{z^2pq}{d^2} \) was 269. A total of 400 consecutive consenting adult patients, attending the University of Benin Teaching Hospital dental clinic for treatment, were surveyed using a pretested, self-administered questionnaire. The 15-itemed questionnaire contained both open and closed questions. Items 1-3 elicited information on demography, items 4-11 determined use of tobacco, reason for tobacco use and previous attempts at cessation while items 12-14 asked about possible strategies to discourage the use of tobacco, knowledge of health effects of tobacco consumption, and patients’ source of information on tobacco use. The 15th item contained a list of health conditions that may be caused by tobacco use and a Likert scale was used for the responses, i.e., strongly agree (score 5), agree (score 4), undecided (score 3), disagree (score 2), and strongly disagree (score 1). Respondents were required to indicate if tobacco can cause 10 general health conditions (group 1) and 10 oral health conditions (group 2). The highest and lowest obtainable scores for each group are 50 and 10, respectively. The questionnaire was pretested over a period of 1 week on 20 patients attending the periodontal outpatient clinic in the University of Benin Teaching Hospital.

Informed consent was obtained from all the 400 participants after they were educated on the study and its objectives. Ethical approval was obtained from University of Benin Teaching Hospital Ethics Committee.

Data collected were analyzed using Statistical Package for Social Science (SPSS) version 14.0. Results were presented with frequency tables, cross-tabulation, and bar chart. The independent t-test was done to compare means and the chi-square test of association was also used to assess association between variables. \( P < 0.05 \) was considered significant. The graph was plotted with Microsoft Excel.

Results

A total of 400 patients responded to the questionnaire, giving a response rate of 100%. The female : male ratio was approximately 1 : 1.4. The mean age of the participants was 29.8 ± 11.6 (range = 18-80 years). The majority of respondents (61%) had attained a tertiary level of education [Table 1]. The prevalence of tobacco use was 4.25%. All the females in this study were nonsmokers and only 17 out of the males were using tobacco [Table 2]. Out of all the respondents who claimed to use tobacco, only 94% volunteered information on the form consumed and all 94% consumed tobacco in the form of cigarette.

Generally, the mean knowledge score for the knowledge of the harmful effect of tobacco on general health and oral health was 37.21 ± 5.73 and 39.09 ± 6.12 respectively (maximum score = 50). Only a small percentage of the respondents (0.3%) had a poor knowledge of both the tobacco effect on general and oral health, 67.5% and 49.3%
had fair knowledge of harmful effect of tobacco on general health and oral health respectively, while 32.3% and 50.5% had good knowledge of harmful effect of tobacco on general health and oral health respectively [Figure 1].

When comparing the knowledge of the effect of tobacco on general health in tobacco users and nonusers, the mean score for tobacco users was 35.59 ± 7.914 while that of nonusers was 37.28 ± 5.621 (P = 0.233) [Table 3].

Majority (64.3%) of respondents who had a good knowledge of effect of tobacco on general health (P = 0.53) [Table 4] and 65.3% who had a good knowledge of effect of tobacco on oral health (P = 0.44) [Table 5] had a tertiary level of education.

More of the respondents (26.5%) claimed to have multiple source of information on the effect of tobacco on health. The media was the highest single source (26.5%) followed by health workers (19.5%), lay persons (15.5%), and books (15%) [Table 6].

A total of 30.5% of the respondents suggested banning of sales of tobacco products, 19.8% suggested that doctor should educate patients on the health effect of tobacco, and

![Figure 1: Respondents’ knowledge of the effect of tobacco use on general and oral health](image_url)

### Table 1: Demographic variables of the respondents

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Frequency (no.)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;25</td>
<td>168</td>
<td>42.0</td>
</tr>
<tr>
<td>25-50</td>
<td>198</td>
<td>49.5</td>
</tr>
<tr>
<td>51-75</td>
<td>33</td>
<td>8.25</td>
</tr>
<tr>
<td>&gt;75</td>
<td>1</td>
<td>0.25</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>235</td>
<td>58.5</td>
</tr>
<tr>
<td>Female</td>
<td>165</td>
<td>41.5</td>
</tr>
<tr>
<td>Highest level of education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No formal education</td>
<td>1</td>
<td>0.3</td>
</tr>
<tr>
<td>Primary</td>
<td>19</td>
<td>4.8</td>
</tr>
<tr>
<td>Secondary</td>
<td>136</td>
<td>34.0</td>
</tr>
<tr>
<td>Tertiary</td>
<td>244</td>
<td>61.0</td>
</tr>
<tr>
<td>Total</td>
<td>400</td>
<td>100.0</td>
</tr>
</tbody>
</table>

### Table 2: Prevalence of tobacco use among the respondents

<table>
<thead>
<tr>
<th>Tobacco use</th>
<th>Sex</th>
<th>Male n (%)</th>
<th>Female n (%)</th>
<th>Total n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>17 (7.2)</td>
<td>0 (0.0)</td>
<td>17 (4.3)</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>218 (92.8)</td>
<td>165 (100.0)</td>
<td>383 (95.8)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>235 (58.8)</td>
<td>165 (41.3)</td>
<td>400 (100.1)</td>
<td></td>
</tr>
</tbody>
</table>

χ² = 10.75, df = 1, P = 0.001

### Table 3: Mean score of respondents on effect of tobacco on general health and oral health

<table>
<thead>
<tr>
<th>Tobacco use</th>
<th>Health effect</th>
<th>General health</th>
<th>Oral health</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean (SEM)</td>
<td>Mean (SEM)</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>35.59 (1.92)</td>
<td>37.12 (1.87)</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>37.28 (0.29)</td>
<td>39.18 (0.31)</td>
<td></td>
</tr>
<tr>
<td>P-value</td>
<td>0.233</td>
<td>0.181</td>
<td></td>
</tr>
</tbody>
</table>

### Table 4: Relationship between respondents’ highest level of education and their knowledge of the effect of tobacco on general health

<table>
<thead>
<tr>
<th>Educational level</th>
<th>Knowledge</th>
<th>Poor n (%)</th>
<th>Fair n (%)</th>
<th>Good n (%)</th>
<th>Total n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Informal</td>
<td>0 (0)</td>
<td>1 (0.4)</td>
<td>0 (0)</td>
<td>1 (0.3)</td>
<td></td>
</tr>
<tr>
<td>Primary</td>
<td>0 (0)</td>
<td>16 (5.9)</td>
<td>3 (2.3)</td>
<td>19 (4.8)</td>
<td></td>
</tr>
<tr>
<td>Secondary</td>
<td>1 (100.0)</td>
<td>92 (34.1)</td>
<td>43 (33.3)</td>
<td>136 (34.0)</td>
<td></td>
</tr>
<tr>
<td>Tertiary</td>
<td>0 (0)</td>
<td>161 (59.6)</td>
<td>83 (64.3)</td>
<td>244 (61.0)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1 (100.0)</td>
<td>270 (100.0)</td>
<td>129 (100.0)</td>
<td>400 (100.0)</td>
<td></td>
</tr>
</tbody>
</table>

χ² = 5.14, df = 6, P = 0.53

### Table 5: Relationship between respondents’ highest level of education and their knowledge of the effect of tobacco on oral health

<table>
<thead>
<tr>
<th>Educational level</th>
<th>Knowledge</th>
<th>Poor n (%)</th>
<th>Fair n (%)</th>
<th>Good n (%)</th>
<th>Total n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Informal</td>
<td>0 (0)</td>
<td>1 (0.5)</td>
<td>0 (0)</td>
<td>1 (0.3)</td>
<td></td>
</tr>
<tr>
<td>Primary</td>
<td>0 (0)</td>
<td>11 (5.9)</td>
<td>8 (4.0)</td>
<td>19 (4.8)</td>
<td></td>
</tr>
<tr>
<td>Secondary</td>
<td>1 (100.0)</td>
<td>73 (34.1)</td>
<td>62 (33.3)</td>
<td>136 (34.0)</td>
<td></td>
</tr>
<tr>
<td>Tertiary</td>
<td>0 (0)</td>
<td>112 (59.6)</td>
<td>132 (64.3)</td>
<td>244 (61.0)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1 (100.0)</td>
<td>197 (100.0)</td>
<td>202 (100.0)</td>
<td>400 (100.0)</td>
<td></td>
</tr>
</tbody>
</table>

χ² = 5.894, df = 6, P = 0.44
17.8% felt that to discourage tobacco use, multiple strategies must be used [Table 7].

**Discussion**

The prevalence of tobacco use of 4.25% recorded in this study is lower than what was previously reported among dental patients. A study done in a dental school in America revealed that of the total dental patient population, 25% was current tobacco users. The result is also lower than the 19.7% prevalence recorded among medical patients also in America. This may be a result of racial differences. Blacks have been said to, on average, smoke fewer cigarettes per day than whites.

In this present study, only males reported tobacco use. It was recorded in a similar study in Nigeria that males smoked more than females. Notable differences in gender smoking rates have also been reported in Indians and blacks with more males consuming tobacco. The widespread pattern of greater tobacco use by men appears to be linked to general features of sex roles. Men often have greater social power than women, and this has been expressed in greater restrictions on women’s behavior, including social prohibitions against women’s smoking.

In the 1997 National Survey done in Vietnam, “women shouldn’t smoke” was the main reason women gave for shunning tobacco use. Gender differences in tobacco use have been said to vary in magnitude, depending on the type of tobacco used and the particular cultural group, age group, and historical period considered. A large gender gap in cigarette smoking existed in the 1960s in America. Presently this gap has been narrowed but has not disappeared.

Cigarette was the tobacco form consumed by 94% of the tobacco users in this study. Cigarette is said to be the tobacco product most commonly consumed probably because it is the most widely advertised. The result from this study may...
therefore imply that fewer tobacco users use the smokeless form of tobacco. This supports a previous study done to determine that the smokeless tobacco use in adult Nigerian population was only 7.5%.[14]

Majority of the respondents had a fair knowledge of the health effects of tobacco on both general and oral health. Their pattern of response showed that they seem to know that tobacco can cause common conditions like cancers, dental stains or mouth odor as opposed to it causing spontaneous abortion, low birth weight babies or cleft lip and palate [Table 8]. The pattern in this study is similar to that recorded in a South African study where although majority of the respondents (87%) acknowledged the harmful effects of direct smoking, only 58% were aware that cancer is associated with smoking, and only 36% associated heart disease with smoking.[24] A poorer knowledge was recorded when adult Nigerians were studied previously. It was reported that majority (89.5%) were ignorant of the potential health dangers of smokeless tobacco.[14]

The result from this study revealed that knowledge is not dependent on tobacco use but may be dependent on patients’ level of education. Socioeconomic variation was earlier reported in the knowledge of risk of tobacco smoking.[15]

This study supports the fact that the media play a great role in health education.[16] Apart from the respondents who claimed to have multiple source of information on health effects of tobacco use, the respondents who got their information through the media form the highest group.

The study also revealed that the role of health workers in health education on tobacco use is not optimal yet. Only less than 20% of the respondents stated categorically that they got information on the health effects of tobacco from a medical doctor, a dentist, or a nurse. This may imply that many of the Nigerian health workers are not fully following the code of practice on tobacco control for health professional organizations.[17]

Some respondents correctly think that multiple strategies will be needed to reduce or stop tobacco consumption as supported by other studies.[18] Where single suggestions were offered, banning of tobacco sales was most favored. It has been suggested that this approach may be difficult and costly to enforce and that the most effective tool to reduce or deter use of tobacco products, especially by young people, is price increases.[19,20]

Conclusion

It can be concluded that the knowledge of Nigerian dental patients on the health effect of tobacco is not dependent on tobacco use and that the prevalence of tobacco use is low among them. There is a need for health workers to routinely educate all the patients they come in contact with, laying more emphasis on the rare complications of tobacco use. The media can be a great tool for wider coverage and the health professionals should take advantage of that. The use of multiple regulatory strategies should be employed to reduce the overall adverse health impact of tobacco.

References


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