Impact of Socio-demographic Factors on Awareness of Smoking Effects on Oral Health among Smokers and Non-smokers Dental Patients Visiting Private Clinics

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INTRODUCTION

The global tobacco epidemic is one of the serious and major public health concerns. It causes more than eight million people deaths around the world. Of these fatalities, seven million deaths are occurring due to direct consumption of tobacco while 1.2 million mortalities of non-smokers are the result of passive smoke.1 Owing to tobacco consumption, low and middle income countries are the most vulnerable countries contributing to the highest morbidity and mortality rates where currently 1.1 billion i.e. 80% of the world's smokers resides.1 In addition to the harmful effects of tobacco on health, productivity losses and health expenditures are significantly contributing to the overall economic burden of smoking which is estimated to be around US$ 1.4 trillion per annum. This burden is equivalent to the magnitude of 1.8% of the global annual gross domestic product (GDP). Developing countries are the main stakeholders of this burden as they borne 40% of this overall economic cost.2

Pakistan is among top 15 countries who carries a substantial weight of diseases associated with tobacco, worldwide. According to the WHO report, established scale of smoking frequency unveiled 19.1% of Pakistan's adult population, 31.8% of men and 5.8% of women utilizes tobacco in various forms. Of the tobacco prevalent population, 9.6% of the adult population, 17.9% of men and 1% of women are regular cigarette smokers, whereas 2.7% of the adult population, 4.4% men and 1% women are regular water pipe smokers.3 Furthermore, 10.5% men, 3.5% women and 7.1% of adults practice smokeless tobacco every day. As concerns youth population, 13.3% of boys, 6.6% of girls and 10.7% of youth is consuming tobacco in multiple ways.3 Many fatal diseases including respiratory diseases, lung cancer and cardiovascular diseases are all directly associated with tobacco consumption.

Similarly, smoking is more likely to affect the oral well-being in several ways emerging from nominal impacts e.g. ‘teeth discoloring', to plausibly hazardous conditions such as oral cancer. Other conditions include periodontal diseases, diminished response to surgical as well as non-surgical periodontal treatments, pre-cancerous lesions and dental transplant collapse.4-8 The rapid increase in the use of tobacco in Pakistan is alarming. Regardless of confirmed adverse impacts of smoking on health especially on oral wellbeing, only few studies assess the awareness of dental patients in the context of Pakistan. Furthermore, the dearth of available literature elucidated oral diseases as a center of the research and few has analyzed other aspects of oral wellbeing.

Therefore, the objectives of this study were to assess the awareness regarding effects of smoking on oral health among smokers and non-smokers dental patients; and to explore the impact of sociodemographics on patient's awareness of these effects.

METHODS

The survey was approved by the ethical review committee (ERC) of the Hussain College of Health Sciences/Hussain Memorial Hospital, Lahore (No. HCSC/18/ERC/107). This analytical study was conducted for 11 months between April 2018 and February 2019 in the six private dental clinics of Lahore which is provincial capital of Punjab, Pakistan. All patients participated in this study provided written informed consent. Therefore, all patients included in this survey were 1) eighteen years of age or older; and 2) visiting for dental procedures in the private dental clinics. However, study excluded all those patients who did not provide written informed consent. The minimum sample size needed to maintain a 5% margin of error, 95% confidence interval was calculated as 380 patients using a raosoft sample size calculator.9 By using random sampling technique, 854 patients who fulfilled the inclusion and exclusion criteria were recruited for the study.

Targeted patients were interviewed by the trained data enumerators by using semi-structured questionnaires. Questionnaire was developed by a multi-disciplinary team of authors based on the past reliable and validated scales.10 The survey instrument was pre-tested on two groups of 30 patients each to assess various aspects including presentation, acceptability, and ease of understanding. The questionnaire consisted of thirteen (13) questions and was further sub-divided into two sections.

The section wise distribution of variables information is as follows:

i. Sociodemographic variables included six questions i.e. gender (female, male), age of the patient (in years), marital status (single, married), education (in years, later transformed into dummy variable: high school or less = 0, university education = 1), average household income (in years, later transformed into dummy variable: PKR 50,000 or below = 0, above PKR 50,000 = 1) and rural background (yes, no).

ii. Smoking status of the dental patients and awareness regarding effects of smoking on oral health including seven questions i.e. current smoking status (smoker, non-smoker), smoking and oral health is related (yes, no), smoking effects on oral well being including tooth staining (yes, no), periodontal health (yes, no), caries (yes, no), wound healing (yes, no) and oral cancer (yes, no). Scores were calculated for the patient's awareness by assigning ‘yes = 1' and ‘no = 0' for five effects of smoking on oral health i.e. periodontal health, caries, wound healing, oral cancer and tooth staining and adding up these scores, later.

Data was analyzed using Statistical Package for Social Sciences software [version 25.00 (IBM Corp., Armonk, NY, USA)]. Frequencies, percentages, and measures of central tendency were calculated for the data.

Differences between non-smokers and smokers were assessed regarding patient's socio-demographic factors and awareness using Chi-square test. Finally, multiple linear regression analysis was used to analyze the impact of sociodemographic factors on the patient's awareness regarding the effects of smoking on oral health. Significance level (p-value) was taken as ≤ 0.05.

Table 1: Patient's sociodemographics according to current smoking status.

Sociodemographics	Non-smokers (n = 528) n(%)	Smokers (n = 326) n(%)	p-value All Patients (N = 854) n(%)
Sex			0.001
Female	314(59.5)	28(8.6)	342(40.0)
Male	214(40.5)	298(91.4)	512(60.0)
Educational qualification			0.002
University education	354(67.0)	192(58.9)	546(63.9)
High school or less	174(33.0)	134(41.1)	308(36.1)
Marital Status			0.273

Unmarried		79(15.0)	42(12.9)	121(14.2)
Married		449(85.0)	284(87.1)	733(85.8)
Income			0.438	
Above PKR 50,000		404(76.5)	244(74.8)	648(75.9)
PKR 50,000 or below		124(23.5)	82(25.2)	206(24.1)
Rural background			0.020	
Yes		346(65.5)	194(59.5)	540(63.2)
No		182(34.5)	132(40.5)	314(36.8)
Patient's level of awareness(scores)				
5		46(8.7)	20(6.1)	66(7.7)
4		110(20.8)	64(19.6)	174(20.4)
3		150(28.4)	106(32.5)	256(30.0)
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Patient's age(in years)	Mean ± SD		p-value	Mean ± SD
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RESULTS

Socio-demographic information of the patients visiting private dental clinics: Majority of the male patients (91.4%) were smokers as compared to their female counterparts (8.6%). Meager proportion of the respondents (14.2%) were unmarried. Of the 854 patients, educational background of the participants (546, 63.9%) was relatively high and up to the university level education, however, 192 smoker patients were from the same category. Nearly, one fourth of the patients (24.1%) reported monthly household income below the level of PKR 50,000 and 36.8% patients had no rural background (Table 1).

Scores calculated for the patient's awareness (from 1-5) where 36.8% patients correctly identified 2effects of smoking on oral health followed by 3 (30.0%), 4 (20.4%), 5 (7.7%) and 1 (5.2%) effects. There was a significant difference between non-smokers and smokers according to rural background ($p = 0.020$), educational level of the patients ($p = 0.002$) and gender ($p = 0.001$), but not in marital status or monthly household income (Table 1). Awareness level of dental patients visiting private clinics regarding the effects of tobacco consumption on oral heath according to their smoking status: Majority of the patients correctly identified oral cancers (77.3%) and caries (60.9%) as serious threat to oral health caused by smoking. Differences between patient's awareness and most of the effects of smoking on oral health were statistically significant among non-smokers and smokers patients (Table 2).

The model fitness was highly significant ($p = 0.004$). Gender ($p = 0.032$), educational background of the patients ($p = 0.036$) and monthly household income ($p = 0.049$) were significantly associated with the dental patient's awareness visiting private clinics (Table 3).

DISCUSSION

Smokers were least aware of the adverse impact of smoking on oral health than non-smokers. Scores calculated for the level of awareness unveiled great variations among patients regarding the identification of adverse impacts on oral health triggered by smoking as most of the patients were only able to identify two or threeout of five effects. Moreover, smoker versus non-smoker patients were significantly different according to their education, gender and rural background. Also awareness level for the different effects of smoking on oral health including periodontal health, caries, oral cancer and wound healing was significantly different in smokers versus non-smokers. Furthermore, socio-demographic factors (i.e. income, education and gender) were significantly impacting the patient's awareness. In current study, our results regarding patient's awareness related to negative impact of smoking on oral health among smokers were consistent from those reported by researchers in Kuwait.

The study showed that only one fourth (25.50%) dental patients had full knowledge of these effects.7 Similarly, Dawood and colleagues also reported that smokers had lack of awareness for such effects including male impotency in smokers (52.6%), lung cancers in passive smokers (30.1%).8 It might be owing to the addiction to smoking which force the smokers to stick with the tobacco consumption irrespective of its hazardous effects on general health and oral wellbeing.11 This justification may also be related to the Government of Pakistan's initiative which has ensured the compliance of cigarette manufacturers to mention the cautions of smoking hazards on each

and every pack of cigarette in written and pictorial form.12 On the contrary, a non-smoker perspective may also be inferred which indicates that lack of smoking is directly associated with the awareness of smoking hazards.

Another reason may also be supplemented according to which non-smokers being well aware of smoking effects intends to avoid such addictions so they may not encountered with fatal diseases.13 Consistent with our work, Bhatti and colleagues showed that none of the female patients were consuming tobacco in any form as compare to their male counterparts.22 Another study elucidated that female as compare to male patients were taking good care of themselves in chronic ill-health conditions which shows the female's priority to maintain their health and well being.12 Another reason might be linked which explained the gender differences for tobacco consumption is due to the cultural restrictions where such practices consider as unpleasant especially for women.13 Contrary to our results, a US based study reported that prevalence of smoking among university graduates was less (12%) as compared to those having education up to high school level (54%).11

In consistent its present study results, sociodemographics including education, gender and income were associated with the awareness level of patients regarding smoking hazards to oral health. Study further showed that females as well as people having higher level of education and higher income were more likely to be aware of such hazards.13.14 According to a WHO report, smoking is directly linked with the low socioeconomic communities.5 People with low income tend to smoke more than their affluent counterpart and smoking worsened the level of poverty.3 Nevertheless, our study results didn't support such associations but consistent to Saudi study which showed that individuals from affluent families were 25% more likely to smoke cigarettes as compare to those with low socioeconomic backgrounds.

The argument of economic disadvantage deems to provide an explanation that having lower probability of smoking among unprivileged individuals might be owing to their unaffordability to purchase cigarettes than people from higher income class.15

It is concluded that In a nutshell, smoker patients are least aware of the harmful effects of smoking on oral health than non-smokers. Patient awareness concerning such effects is affected by various sociodemographics. Therefore, there is a dire need of further comparative studies involving public healthcare facilities to ensure the validity of inferences drawn from this study.

Limitations

The study was self funded and has limited resources. In future study may be conducted on large scale to strengthen its reliability of conclusions drawn about study topic under discussion.

Author's Contribution

RA: Conception of work and design.

MN: Acquisition of data and substantial contribution and design.

MC: Drafting article and receiving critically.

HM: Reviewing critically important intellectual content.

FA: Final approval of version.

HA: Final approval of version.

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Conflict of Interest

No conflicts of interest are associated with this work.

Financial Disclosure

None.

REFERENCES

1. World Health Organization. Tobacco. 2019. Available online at: *https://www.who.int/news-room/factsheets/detail/tobacco*. Last accessed in February, 2019.

2. World Health Organization. Smoking. 2019. Available online at: *https://www.who.int/health-topics/tobacco*. Last accessed in February, 2019.

3. World Health Organization. Tobacco Free Initiative (TFI). 2019. Available online at: *https://www.who.int/tobacco/about/partners/bloombe* rg/pak/en/. Last accessed in February, 2019.

4. Reibel J. Tobacco and oral diseases. Update on the evidence, with recommendations. Med Princ Pract. 2003; 12 (suppl. 1): 22-32.

5. World Health Organization. Oral Health. Available online at: *https://www.who.int/news-room/factsheets/detail/oral-health*. Last accessed in February, 2019.

6. Raosoft. An Online Sample Size Calculator, 2019 [cited 2019 August 13]. Available online at: *http://www.raosoft.com/samplesize.html*. Last accessed in February, 2019.

7. Al-Shammari KF, Moussa MA, Al-Ansari JM, Al-Duwairy YS, Honkala EJ et al. Dental patient awareness of smoking effects on oral health: comparison of smokers and non-smokers. J Dent. 2006; 34 (3): 173-8.

8. Dawood OT, Rashan MA, Hassali MA, Saleem F et al. Knowledge and perception about health risks of cigarette smoking among Iraqi smokers. J Pharm Bioallied Sci. 2016; 8 (2): 146.

9. Baumeister RF. Addiction, cigarette smoking, and voluntary control of action: Do cigarette smokers lose their free will? Addict Behav Rep. 2017; 5: 67-84.

10. The News. Pakistan to print new pictorial health warning on cigarette packs, outers. 2019. Available online at: *https://www.thenews.com.pk/latest/425190-pakistan-to-print-new-pictorial-health-warning-on-cigarette-packs-outers*. Last accessed in April, 2019.

11. Milcarz M, Polanska K, Bak-Romaniszyn L, Kaleta D, et al. Tobacco Health Risk Awareness among Socially Disadvantaged People-A Crucial Tool for Smoking Cessation. Int J Environ Res Public Health. 2018; 15 (10): 2244.

12. Bhatti ZI, Manzoor N, Korai NA, Khaliq IH, et al. Impact of sociodemographic factors on self-care practices among patients with type 2 diabetes in Lahore, Pakistan: an exploratory study. J Fatima Jinnah Med Univ. 2018; 12 (4): 166-71.

13. Wagenknecht LE, Perkins LL, Cutter GR, Sidney S, Burke GL, Manolio TA, et al. Cigarette smoking behavior is strongly related to educational status: the ***CARDIA study***. Prev Med. 1990; 19 (2): 158-69.

14. Taype-Rondan A, Bernabe-Ortiz A, Alvarado GF, Gilman RH, Smeeth L, Miranda JJ, et al. Smoking and heavy drinking patterns in rural, urban and rural-tourban migrants: the Peru Migrant Study. BMC Public Health. 2017; 17 (1): 165.

15. Nazir MA, Almas K. Awareness about the effects of tobacco consumption on oral health and the possibility of smoking behavior among male Saudi schoolchildren. Eur J Dent. 2017; 11 (1): 29.

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