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## DETERMINANTS FOR TOBACCO CESSATION AMONGST SMOKERS VISITING TERTIARY HEALTH CARE CENTRE IN INDIA

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### ABSTRACT

**BACKGROUND.** In India, 92.4% of adults believe that smoking causes serious illness. However, only 55.4% of them are either willing or getting ready to quit. This indicates an explicit gap between perception and practice.

**AIM.** This study aims to identify individual knowledge, attitude, practices, barriers and motivators for tobacco cessation amongst smokers.

**MATERIAL AND METHODS.** A cross-sectional study was carried out amongst the smokers visiting dental outpatient department at tertiary health care centre at Rohtak district of Haryana, India. A structured and validated questionnaire was developed to ascertain knowledge, attitude, practice and nicotine dependence amongst the tobacco smokers. Additionally information about their willingness to quit tobacco, barriers and motivators for tobacco cessation were obtained. The study population was broadly divided into two groups on the basis of any previous attempts made for quitting tobacco use.

**RESULTS.** Among the sample of 371 smokers, 52.4% were found to make quit attempts while 47.6% never attempted to quit. Participants believed that smoking not only helps in socializing but also it is a good way to cope from the stress. Peer pressure was the major reason for initiation of habit of smoking. Those who have attempted to quit but could not do so for more than 6 months were more willing to quit. Concern for health and tobacco addiction was the major facilitator and barriers of tobacco cessation respectively.

**CONCLUSION.** Comprehending the population before chalking down the tobacco cessation strategies is important. Lower education, higher alcohol consumption, longer duration of tobacco intake, cultural and social acceptability of tobacco use and nicotine dependence was the major roadblocks for tobacco cessation amongst the tobacco smokers. Cold turkey method was the most common choice of tobacco cessation who attempted to quit.

**Key words:** *smokers, barriers, facilitators, knowledge, attitude, practice*

### INTRODUCTION

Injudicious use of tobacco all over the world has been a social and financial burden for a long time. Use of tobacco kills nearly 8 million people every year. More than 10 million people die due to tobacco in India itself each year (1). The society practice of using tobacco is the most paranoid preventable problem the world is facing today.

As per Global Adult Tobacco Survey (GATS-INDIA 2016-17) (2), khaini is by far the most common tobacco product used by adults in India followed by bidi smoking. Other forms of smoking tobacco include chillum, cigarette, hookah and hookli in different

parts of the country. In India, tobacco use is often mis-considered as remedy to many diseases such as toothache, headache and stomach ache (3, 4). It is also deeply associated with the cultural values in some parts of the country such as hookah smoking. In fact, hookah is mentioned as one of the gift items listed in the things to be presented in ancient times.

In India, 92.4% of adults believe that smoking causes serious illness. However, there are still 99.5 million smokers in India, out of which only 55.4% are either willing or getting ready to quit (GATS-INDIA 2016-17) (2). In fact, more than 20% population in a small state of India namely Haryana, are reported to be cigarette, bidi or hookah smokers, out of which

less than 50% of smokers have planned to quit and nearly 30% actually ever made a quit attempt (5). This scenario indicates an explicit gap between perception and practice.

Tobacco cessation leads to health improvement within first 12 hours with drop in the carbon monoxide levels in the blood and almost normal health like that of a non-smoker in next 10 years (6). Despite of the lucid and intelligible health benefits of quitting tobacco, there have been a few quit attempts nationally amongst tobacco habitués. This makes it imperative to focus more on the factors influencing the tobacco quitting behaviour.

There are several factors known to act as barriers for tobacco cessation such as lack of social support, motivation or knowledge about harmful effects of its use, tobacco addiction, but these may vary with the region and the population concerned (7-10). Understanding the population before targeting the specific factors can help tailoring an appropriate cessation programs and services.

Therefore, this study aims to identify individual knowledge, attitude, practices, barriers and motivators for tobacco cessation amongst tobacco smokers visiting dental outpatient department at tertiary health care centre at Rohtak district of Haryana.

## MATERIAL AND METHODS

**Design and research setting.** A cross-sectional study was carried between January to May 2019 in the Tobacco Cessation Centre in the Department of Public Health Dentistry, Post Graduate Institute of Dental Sciences, Rohtak, Haryana to identify the barriers and facilitators of quitting among tobacco smokers.

**Study population and sampling.** Opportunistic screening was done to identify smokers from the patients visiting the Dental OPD, PGIDS, Rohtak and those willing to participate were included in the study. Patients with minimum of 100 tobacco-using events in a lifetime and minimum one in the last one week were considered tobacco users. Ethical clearance was sought from the Institution Ethics committee of "Post Graduate Institute of Dental sciences, Rohtak" explaining the aim & objectives of the study (PGIDS/IEC/2018/30). Informed consent from the participants was taken prior to the study. Gathering from the previous literature and assuming that 60% of individuals had favorable knowledge and attitude, the sample was calculated at 95% confidence interval and 10% error and it turned out to be 288. This was adjusted to 307 to compensate for any missing or incomplete data.

**Data collection.** A structured questionnaire was developed in English, two translators whose

first language was Hindi then translated it to Hindi. A reviewer committee then unified the two versions. Two translators who were English experts then did two back translations. Before finalizing the questionnaire it was pilot-tested on a group of 50 tobacco users to ensure cultural sensitivity, clarity, reliability and validity. Internal consistency of the questionnaire was assessed by computing Cronbach's alpha (0.72). The questionnaire of the final survey was divided into two heads: first head comprised of further five domains and the second head consisted of both closed ended leading questions and few open ended questions focusing on quitting behaviour, barriers and facilitators of those participants who made quit attempts. Answers to the questions were of mixed kind including either level of agreement to the statements or choosing one of the given options. Domains for first head were as follows:

Domain 1: Socio-demographic characteristics – this section of the questionnaire consisted of questions pertaining to age, social and marital status and level of education of the participants;

Domain 2: Knowledge amongst tobacco users – questions assessing the participant's knowledge about the ill effects of tobacco use, barriers to quitting of habit of smoking, benefits of smoking such as stress buster or a social activity and their take on government tobacco regulatory policies such as increase in selling prices of tobacco products;

Domain 3: Attitude of tobacco users – these questions focused on the participant's internal locus of control i.e. how well do they take responsibility of their habit of smoking and its effect on their family. Questions' enquiring as to whom they state responsible for initiation of their smoking habit and does this habit affects their family and children in anyway were included. Further, their willingness, readiness and will power to quit the habit were also assessed under the scale of 1 to 10 in this segment of the questionnaire;

Domain 4: Practices amongst tobacco users – the realm of questions in this domain revealed the type, frequency and duration of tobacco products used by the participants and the monthly expenditure made for the same. The family history of tobacco usage was also recorded to correlate with the participant's tobacco habit;

Domain 5: Nicotine dependence amongst tobacco users – to estimate nicotine dependence, Fagerstorme scale was used and the level of dependence was categorised into highly, moderately or minimally dependent on the basis of combined score of all the questions recorded on the scale.

**Statistical analysis.** For the purpose of assessment, the population was divided into two major groups:

1. No attempts group: those who never attempted to quit;

2. Attempts group: those who attempted to quit. They are further divided into following:
  - a) abstinence group: those who quit for less than 6 months;
  - b) quitters group: those who quit for more than 6 months.

The data was analysed using SPSS 21 (Statistical Package for Social Sciences) package for relevant statistical comparison. Descriptive statistics and inferential statistics were used. Significance of the variables was assessed through chi-square test.

## RESULTS

An equal distribution was recorded in both the groups with respect to gender and marital status. Overall, there was more number of male participants with the mean age of 41.2±12.1 years. Among the sample of 371 smokers, 52.4% were found to make quit attempts, while 47.6% never attempted to quit. There was a significant difference between the education levels of participants in both the groups. Group having participants with no quit attempts largely showed to have only primary education. A similar trend was observed in both the sub groups of attempt class (Table 1).

It was observed that people who had higher quit attempts believe that smoking is not harmful for health, and it is addictive making it difficult to quit. Both the groups in fact think that smoking not only helps in socialising but also it is a good way to cope from the stress. However, they supported the government policy of high taxation on sale of tobacco products (Table 2).

Peer pressure was the major reason for initiation of habit of smoking in both of the groups. People who started smoking on their own seemed to have significantly higher tendency to quit smoking than

those who started smoking under the influence of friends. They do not repudiate their children from tobacco intake as they have no problem to see them smoking. Those who have attempted to quit but could not do so for more than 6 months were more willing to quit. Subjects with no quit attempts were majorly in the contemplation stage i.e. getting ready to quit while those with quit attempts were more in preparation stage i.e. ready to quit (Table 3).

Participants who never made an attempt to quit showed significantly higher frequency and duration of alcohol intake. People smoking bidi from a longer duration had more quit attempts, which was also witnessed in the abstinence group as compared to the quitters. On the contrary, subjects in abstinence group revealed shorter duration of cigarette smoking than “no attempt” group. People having higher monthly expenditure on tobacco use made no attempts to quit smoking. Quitters reported to have one or more smokers in their families (Table 4). As assessed by Fagerstrom Dependence Scale, majority of the participants who never attempted to quit were moderately dependent on nicotine while those who made attempt to quit were minimally dependent on nicotine (Table 5).

When subjects in the two groups, “abstinence” and “quitters” were compared regarding the barriers and facilitators for quitting, it was unveiled that expenses associated with smoking curb smoking amongst quitters. The major reason for making an attempt to quit was the concern about the current and future health and cold turkey method was the predominant choice for it. Quitters switched back to smoking after more than 6 months of quit period for either the sake of enjoyment or to cope with the loneliness. However, addiction for tobacco followed by craving arising on seeing someone else smoking turned out to be the main cause for the relapse of smoking (Table 6). Concern for

Table 1. Socio-demographic details of the participants

Variable	Never attempted to quit N (%)	Attempted to quit N (%)	Abstinence N (%)	Quitters N (%)	P value ≤ 0.05
Distribution	146(47.6)	161(52.4)	138(85.7)	23(14.3)	-
Gender:					
Male	146(100)	158(98.1)	137(99.3)	21(91.3)	-
Female	0(0)	3(1.9)	1(0.7)	2(8.7)	
Marital status:					
Married	123(84.2)	134(83.2)	113(81.9)	21(91.3)	-
Unmarried	23(15.8)	27(16.8)	25(18.1)	2(8.7)	
Education:					
Primary	95(65.1)	65(40.4)	56(40.6)	9(39.1)	P <sub>ab</sub> , P <sub>cd</sub> , P <sub>ac</sub> , P <sub>ad</sub>
Secondary	32(21.9)	62(38.5)	49(35.5)	13(56.5)	
Above	19(13.0)	34(21.1)	33(23.9)	1(4.3)	
Mean age	41±11.9	41.3±13	41±12.5	41.2±11.9	-

Table 2. Knowledge amongst tobacco users

QUESTIONS	Never attempted to quit N (%)	Attempted to quit N (%)	Abstinence N (%)	Quitters N (%)	P value ≤ 0.05
Does smoking cause any harm to your health? *yes *no	84(57.5) 62(42.5)	78(48.4) 83(51.6)	73(54.9) 60(45.1)	5(22.7) 17(77.3)	P <sub>cd</sub> , P <sub>ad</sub>
It is difficult to quit smoking because of its: *addiction *smell *taste *none, it's easy to quit	118(80.8) 6(4.1) 4(2.7) 18(12.3)	130(80.7) 5(3.1) 1(0.6) 25(15.5)	111(80.4) 5(3.6) 1(0.7) 21(15.2)	19(82.6) 0 0 4(17.4)	-
Do you think smoking helps tackle stress? *agree *neither agree nor disagree *disagree	77(52.7) 12(8.2) 57(39)	82(50.9) 18(11.2) 61(37.9)	70(50.7) 18(13) 50(36.2)	12(52.2) 0 11(47.8)	-
Do you feel that smoking helps in socialising? *agree *neither agree nor disagree *disagree	73(50) 11(7.5) 62(42.5)	75(46.6) 15(9.3) 71(44.1)	65(47.1) 13(9.4) 60(43.5)	10(43.5) 2(8.7) 11(47.8)	-
Do you think the government decision of increasing prices of tobacco products right? *agree *neither agree nor disagree *disagree	101(69.2) 25(17.1) 20(13.7)	109(67.7) 31(19.3) 21(13)	90(65.2) 28(20.3) 20(14.5)	19(82.6) 3(13.0) 1(4.3)	-

Table 3. Attitude of tobacco users

QUESTIONS	Never Attempted to quit N (%)	Attempted to quit N (%)	Abstinence N (%)	Quitters N (%)	P value ≤ 0.05
Who is responsible for beginning of your smoking? *friends *family *movies *yourself	126(86.3) 6(4.1) 1(0.7) 13(8.9)	127(78.9) 9(5.6) 1(0.6) 24(14.9)	113(81.9) 7(5.1) 1(0.7) 16(11.6)	13(56.5) 2(8.7) 0 8(34.8)	P <sub>cd</sub> , P <sub>ad</sub>
Do you stop your kids from smoking? *yes *no	114(78.1) 18(12.3)	113(70.2) 35(21.7)	99(71.7) 26(18.8)	14(60.9) 9(39.1)	P <sub>ad</sub>
If your kid smoke in front of you, will you have problem with that? *yes *no	109(74.7) 23(15.8)	90(55.9) 58(36)	80(58) 45(32.6)	10(43.5) 13(56.5)	P <sub>ab</sub> , P <sub>cd</sub> , P <sub>ac</sub> , P <sub>ad</sub>
Do you want to quit smoking? *yes *no	144(98.6) 2(1.4)	159(98.8) 2(1.2)	137(99.3) 1(0.7)	22(95.7) 1(4.3)	P <sub>cd</sub>
How ready are you to quit smoking? *not ready *getting ready *ready	14(9.6) 72(49.3) 60(41.1)	12(7.5) 41(25.5) 108(67.1)	11(8) 36(26.1) 91(65.9)	1(4.3) 5(21.7) 17(73.9)	P <sub>ab</sub> , P <sub>ac</sub> , P <sub>ad</sub>
How much will power do you think you have to quit smoking if you want to? *10% to 30% *40% to 70% *80% to 100%	18(12.3) 80(54.8) 48(32.9)	14(8.7) 78(48.4) 69(42.9)	12(8.7) 68(49.3) 58(42)	2(8.7) 10(43.5) 11(47.8)	-

Table 4. Practices by tobacco users

QUESTIONS	Never attempted to quit N (%)	Attempted to quit N (%)	Abstinence N (%)	Quitters N (%)	P value ≤ 0.05
<b>Alcohol frequency:</b> Never 375ml >375ml	86(58.9) 42(28.8) 18(12.3)	119(73.9) 30(18.6) 12(7.5)	100(72.5) 27(19.6) 11(8.0)	19(82.6) 3(13.0) 1(4.3)	$P_{ab}, P_{ac}$
<b>Alcohol duration:</b> 1-10 years 11-20years >20 years	27(18.5) 19(13) 14(9.6)	21(13) 10(6.2) 11(6.8)	19(13.8) 8(5.8) 11(8.0)	2(8.7) 2(8.7) 0	$P_{ab}$
<b>Bidi frequency:</b> 0 1-10 11-20 >20	27(18.5) 42(28.8) 42(28.8) 35(24)	20(12.4) 58(36) 44(27.3) 39(24.2)	17(12.3) 51(37) 40(29) 30(21.7)	3(13) 7(30.4) 4(17.4) 9(39.1)	-
<b>Bidi duration:</b> 1-10 years 11-20years >20 years	31(21.2) 46(31.5) 41(28.1)	48(29.8) 23(14.3) 68(42.2)	46(33.3) 16(11.6) 57(41.3)	2(8.7) 7(30.4) 11(47.8)	$P_{ab}, P_{cd}, P_{ac}$
<b>Cigarette frequency:</b> 0 1-10 11-20 >20	120(82.2) 18(12.3) 6(4.1) 2(1.4)	126(78.3) 25(15.5) 6(3.7) 4(2.5)	103(74.6) 25(18.1) 6(4.3) 4(2.9)	23(100) 0 0 0	-
<b>Cigarette duration:</b> 1-10 years 11-20years >20 years	14(9.6) 8(5.5) 6(4.1)	26(16.1) 2(1.2) 6(3.7)	26(18.8) 2(1.4) 6(4.3)	0 0 0	$P_{ac}$
<b>Hukka frequency:</b> 0 1-10 11-20 >20	95(65.1) 35(24) 10(6.8) 6(4.1)	106(65.8) 43(26.7) 10(6.2) 2(1.2)	90(65.2) 36(26.1) 10(7.2) 2(1.4)	16(69.6) 7(30.4) 0 0	-
<b>Hukka duration:</b> 1-10 years 11-20years >20 years	31(21.2) 10(6.8) 8(5.5)	35(21.7) 4(2.5) 15(9.3)	31(22.5) 3(2.2) 13(9.4)	4(17.4) 1(4.3) 2(8.7)	-
Mean monthly expenditure on tobacco use:	1.6±.82	1.4±.75	1.5±.78	1.4±.75	$P_{cd}, P_{ad}$
<b>Does anyone else smoke in your family?</b> *yes *no	52(35.6) 94(64.4)	65(40.4) 96(59.6)	52(37.7) 86(62.3)	13(56.5) 10(43.5)	$P_{cd}, P_{ad}$

Table 5. Nicotine dependence assessed by Fagerstorme Dependence Scale

Level of nicotine dependence	Never attempted to quit N (%)	Attempted to quit N (%)	Abstinence N (%)	Quitters N (%)
Highly dependent	28(19.1)	35(21.7)	29(21.0)	06(26.0)
Moderately dependent	74(50.6)	59(36.6)	54(39.1)	05(21.7)
Minimally dependent	44(30.1)	67(41.6)	55(39.8)	12(52.1)

Table 6. Quitting behaviour of those who made quit attempts

Reason for quitting	Abstinence N (%)	Quitters N (%)	Total N (%)	P Value
Expenses associated with smoking	2(1.4)	3(13)	5(3.1)	0.003
Concern for your own current or future health	31(22.5)	7(30.4)	38(23.6)	0.40
Advice from doctor or dentist	9(6.5)	1(4.3)	10(6.2)	0.68
Pressure from family, friends, or co-workers	12(8.7)	1(4.3)	13(8.1)	0.47
Some disease	13(9.4)	2(8.7)	15(9.3)	0.91
Method of quitting	Abstinence N (%)	Quitters N (%)	Total N (%)	P Value
Go to a physician for help	4(2.9)	1(4.3)	5(3.1)	0.71
Quit all at once, cold turkey	46(33.3)	14(60.9)	60(37.3)	0.01
Through any other method	2(1.4)	0	2(1.2)	0.56
Reason for relapse	Abstinence N (%)	Quitters N (%)	Total N (%)	P Value
To cope with stress	12(8.7)	1(4.3)	13(8.1)	0.47
To cope up with loneliness	5(3.6)	4(17.4)	9(5.6)	0.008
For the sake of enjoyment	2(1.4)	3(13)	5(3.1)	0.003
Addiction	27(19.6)	7(30.4)	34(21.1)	0.23
Craving arising on seeing someone else smoking	25(18.1)	1(4.3)	26(16.1)	0.09
To cope with sleeping problems	1(0.7)	1(4.3)	2(1.2)	0.14
To treat gastric problems	3(2.2)	1(4.3)	4(2.5)	0.53
Smoking is very prevalent in society	4(2.9)	1(4.3)	5(3.1)	0.71

Table 7. Barriers and facilitators for quitting smoking

Barriers	%	Facilitators	%
Tobacco addiction or craving	81	Concern for health	77.5
To cope from stress or for mental peace	52	Family pressure	59.5
Social acceptability or peer pressure	48.2	Willingness to quit	98.7
Smokers in family	38.1	Readiness to quit	91.5
Influence of alcohol	58.8	Will power to quit	89.5

health was the major facilitator and tobacco addiction was a main barrier of tobacco cessation (Table 7).

## DISCUSSION

This study demonstrates a significant association of lower education, higher alcohol consumption and longer duration of tobacco intake, lower willingness and confidence to quit tobacco use with no attempts made for quitting tobacco. Male predominance in the target population was similar to that observed in other studies (10, 11). Education was found to be directly proportional to the number and duration of quit attempts reflecting the awareness and insightful regarding the tobacco usage in educated people in accordance to the findings by Srivastava et al. (10) and Sarkar et al. (12).

Unlike to that reported by Srivastava et al. (10) where 41.8% of those who made quit attempts quit the habit, there were only 14.2% participants who quit the tobacco habit from those who ever made a quit attempt. This was probably due to the difference in defining the quitters in both of the studies. The current study considered only those users as quitters, who quit the use for more than 6 months.

Rate of quit attempts were found to be higher in the current study (52.4%) when compared to GATS 2016-17 (38%). This was perhaps due to the difference in the study population as in the current study patients were recruited from a tertiary hospital set up who were evidently more motivated and ready to quit (54.2%) than a generalised national population (55.4%) (2). Majority of participants in both the groups indulged in the habit of smoking under peer pressure or influence of smoking peer. A similar finding was reported by

Harakeh et al. (13) and Basu et al. (14) where interaction with smoking peer lead to initiation of smoking habit.

A strong positive association has been established by various researchers between smoking and alcohol consumption (15, 16). A similar trend was observed in this study as participants who never attempted to quit showed a strong inclination towards both alcohol frequency and duration. Martire et al. (17) reported that smoking though create financial stress amongst low income population, however, this factor did not motivate this group to quit tobacco use. A similar picture could be drawn in the current study as despite of having higher monthly expenditure on tobacco use, subjects made no attempts to quit.

In contrast to Basu et al. (14) where parental smoking was found to be significantly associated with smokers; it was observed in the current study that most of the participants in the current study had no smokers in their family. This is probably because having smokers in the family have dual effects. It could act as a motivator to quit as they are constantly reminded by their family members about the ill effect of smoking and are forced to quit irrespective of their self desire but at the same time, it can act as a barrier as they can easily fall for the habit of smoking. However, irrespective of presence of other smokers in the family, majority of smokers restrain from smoking in front of their family reflecting the guilt or self conscience regarding ill effect of smoking.

It was observed in this study that the people who made a quit attempt but again switched to the habit after sometime, feels that quitting would not improve their health anyway. In such situation, they should be made aware that the human body takes some time to recover once they stop the tobacco use. So, they should not be discouraged if they do not see immediate improvement in health on quitting. The toolkit issued by the World Health Organisation (WHO) for delivering brief tobacco intervention under WHO capacity building training package elicit the enhancement caused in the health within 20 minutes of tobacco cessation till 15 years (6).

Concern for health and tobacco addiction were the most common perceived facilitators and barriers respectively in the current study like that reported by Stone et al. (18). Stress management, peer pressure and social acceptability were other observed barriers, reinforcing the conclusions of a systematic review by Twyman et al. (19).

Cold turkey method of quitting tobacco use was observed to be most commonly used in concordance to Doran et al. who reported that nearly 92% of the Australian smokers quit the habit through cold turkey method i.e. quitting at once. However, long-term

effectiveness of this method is still not promising as per Doran et al. (20).

This study recorded several aspects encompassing knowledge, attitude and practices of tobacco smokers but also their dependence on nicotine and perceived roadblocks for tobacco cessation, thereby giving a clear idea of barriers and facilitators for tobacco cessation. This study has a few limitations like the sample here may not represent the general population as the participants were recruited from a hospital setting. Moreover, the population concerned mostly belonged to the rural and low socio-economic areas. The chances of selection bias, reporting bias and recall bias cannot be overlooked owing to the cross-sectional nature of the study.

## CONCLUSION

This study reveals that lower education, higher alcohol consumption, longer duration of tobacco intake, cultural and social acceptability of tobacco use and nicotine dependence were the major roadblocks for tobacco cessation amongst the tobacco smokers. However, most of people trying to quit choose for cold turkey method. The only silver lining in this gloomy scenario is the fear that they have for their deteriorating health owing to tobacco use or the family pressure for quitting the same. Therefore, recognizing and appreciating the population before chalking down the tobacco cessation strategies is certainly important.

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