



# Willingness to Quit and Associated Factors Among Tobacco Users Attending Outpatient Departments of a Tertiary Care Hospital in Delhi, India

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## Abstract

**Background:** Tobacco use has become a modern-day epidemic which significantly impacts health, socioeconomic status, and environmental sustainability. The readiness to quit or stop using tobacco is a crucial first step in changing one's behavior. Hence, the current study sought to assess the prevalence of willingness to quit and associated factors among tobacco users.

**Methods:** This study was conducted on 425 tobacco users selected using multi-stage random sampling from the outpatient departments (OPDs) of a tertiary care hospital in Delhi, India. A pre-designed, interviewer-administered questionnaire was used to elicit information. Logistic regression was performed to assess the effect of independent factors on the willingness to quit.

**Findings:** The mean age of the study participants was 39.37 years (S.D.=±12.99). The majority of the participants were male (400, 94.1%), and 25 (6.9%) were female. Overall, the prevalence of willingness to quit in the current study was 70% among the study participants. The results of the multivariable analysis showed that those belonging to urban areas, tobacco users with a duration of ≤10 years, and those who received advice from a doctor to quit had a significantly higher willingness to quit than their counterparts. However, age, gender, marital status, education, religion, age of initiation of tobacco use, and nicotine dependence were not found to have a statistically significant relationship with the willingness to quit tobacco products.

**Conclusion:** Willingness to quit was high among the study participants. The data in this study suggested that belonging to urban areas, duration of tobacco use, and doctor's advice to quit are important factors which need to be considered when framing future tobacco cessation programs.

**Keywords:** Tobacco, Quitting behavior, Willingness to quit, Patients, Delhi

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## Introduction

Tobacco use has become a modern-day epidemic which significantly impacts health, socioeconomic status, and environmental sustainability. In 2020, the World Health Organization (WHO) reported that approximately 1.3 billion individuals were using tobacco, primarily residing in lower- to middle-income countries.<sup>1</sup> Each year approximately 8 million people die around the world due to tobacco consumption; of this, approximately 7 million deaths are attributed to direct tobacco use, while an additional 1.2 million deaths are caused by exposure to second-hand smoke.<sup>1</sup> In 2020, tobacco use was prevalent among 22.3% of the global population. Specifically, 36.7% of men and 7.8% of women engaged in tobacco consumption worldwide.<sup>1</sup> India is the world's second-largest tobacco producer and has the second-highest number of tobacco users.<sup>2</sup> Based on the findings of the second round of Global Adult Tobacco Survey India (GATS-2) conducted during 2016-2017, it was observed that approximately 267 million adults in India, accounting

for 29% of the adult population, utilized various forms of tobacco. Among men, the prevalence of current tobacco use was 42.4%, whereas among women, it stood at 14.2%.<sup>3</sup> The estimated annual number of deaths in India attributable to tobacco use is around 1.3 million.<sup>2-5</sup> One million of these are attributed to tobacco smoking, while the remainder is due to smokeless tobacco use.<sup>2,3</sup>

In India, smokeless tobacco has the highest preference among tobacco users. Popular smokeless tobacco products consumed in the country include khaini, gutkha, betel quid with tobacco, and zarda. In contrast, standard smoking methods include bidis, cigarettes, and hookah.<sup>6</sup> The most readily available addictive substances are tobacco products, and both developed and developing nations suffer from several adverse health effects due to their use. Tobacco consumption directly contributes to cardiovascular diseases, cancers, and chronic lung diseases.<sup>7</sup> The presence of nicotine, a highly addictive compound in tobacco, poses significant difficulties for individuals attempting to quit using tobacco products.<sup>8</sup>



It affects both the physical and emotional state of the brain, generating pleasurable sensations that contribute to the development of dependency.<sup>8</sup> Although nicotine plays a minor role in developing tobacco-related diseases, nicotine addiction is the direct cause of these diseases.<sup>8,9</sup> The readiness to quit or stop using tobacco is a crucial first step in changing one's behavior. Although readiness to quit is not the sole factor that predicts quitting tobacco, it is strongly correlated with subsequent attempts to quit and actual cessation of tobacco use.<sup>10</sup> Thus, a firm foundation for future stop attempts and effective quitting is formed by knowing the user's willingness and intention to quit. Finding the users who are ready to stop is essential for creating effective interventions that can aid users in quitting their habit. To reduce the prevalence of tobacco use, it is crucial to comprehend the factors influencing the willingness of tobacco users to quit. Therefore, the present study aimed to evaluate the prevalence of willingness to quit and identify associated factors among tobacco users seeking care at the outpatient department (OPD) of a tertiary care hospital in Delhi, India.

## Methods

The present study was conducted among tobacco users receiving outpatient treatment at a tertiary care hospital in Delhi, India. The aim was to determine the level of willingness to quit tobacco and identify the factors associated with it. The study area encompassed the National Capital Territory (NCT) of Delhi, while the specific study setting was Vardhman Mahavir Medical College (VMMC) and Safdarjung Hospital in Delhi, India. The study employed a cross-sectional observational design and was conducted within the hospital setting over a duration of four weeks from July 2022 to August 2022. The study population consisted of individuals who were currently using tobacco and seeking treatment at the hospital's OPD. The inclusion criteria for participation in the study encompassed individuals who were current tobacco users with a usage history of more than one year, and those aged 18 and above who used any form of tobacco. On the other hand, the individuals who had been diagnosed with major depressive disorders, delusional disorders, or terminal illnesses according to their treatment charts were excluded from the study. The individuals with foreign nationalities who were seeking treatment at the hospital were also excluded from the study cohort.

## Sample size

Using data from the GATS conducted in India, Kar et al<sup>11</sup> carried out a study in 2020 to determine the willingness to quit tobacco and found that the prevalence of willingness to quit among tobacco users was 52.2%. Taking this as prevalence, the sample size was calculated as 384 using the following formula:

$$(Z\alpha/2)^2PQ/L^2$$

1. P = 52.2% [Prevalence]
2. Q = 47.8% [1-P]
3. Taking L = 5% [Absolute error]

Taking a non-response rate of 10%, the total sample size was calculated as 425.

## Sampling technique

Multistage random sampling was used to select the sample. In the first stage, a list of all OPDs providing services to the patients at the hospital was compiled, and then, using the simple random sampling technique, five OPDs, namely Medicine, Dental, Surgical, Orthopedic, and Ophthalmology departments were selected randomly via a random number generator.

In the second stage, a list of patients who underwent treatment at the selected OPDs was sought for the past three months; based on the average records, the number of daily patients per OPD was determined. Probability proportional to size sampling was employed to calculate the number of participants selected from each OPD for inclusion in the study. Since 21 surveys can be collected on each data collection day during regular working hours, the number of surveys to be conducted was divided proportionally amongst the five selected OPDs. Based on the average number of patients seeking treatment for each OPD per day, a sampling interval was determined individually for each OPD.

The first participant was chosen at random from 1 to 10, and then the next prospective participant was selected based on the sampling interval for each department; if the selected participant was not a tobacco user or was unwilling to participate, then the next person in the order was approached. The same methodology was followed until the total number of participants for the day was completed (Figure 1).

## Instruments

A pre-designed, pre-tested, interviewer-administered questionnaire was used in the study. A previously validated Hindi version of the GATS-2 and Fagerstrom test for nicotine dependence was used to collect data.<sup>3,12,13</sup>

1. *Part-A:* Sociodemographic profile: This section focused on collecting demographic information including age, gender, religion, education, place of permanent residence, current residential status, family income, occupation, and more.

2. *Part-B:* This section included questions related to tobacco use, forms of tobacco use, age of initiation, and frequency of use within the past 30 days for both smokers and smokeless tobacco users.

3. *Part-C:* Nicotine dependence was assessed using two Fagerstrom nicotine dependence questionnaires,<sup>12,13</sup> one for smokers and one for smokeless tobacco users.

4. *Part-D:* Willingness and intention to quit tobacco

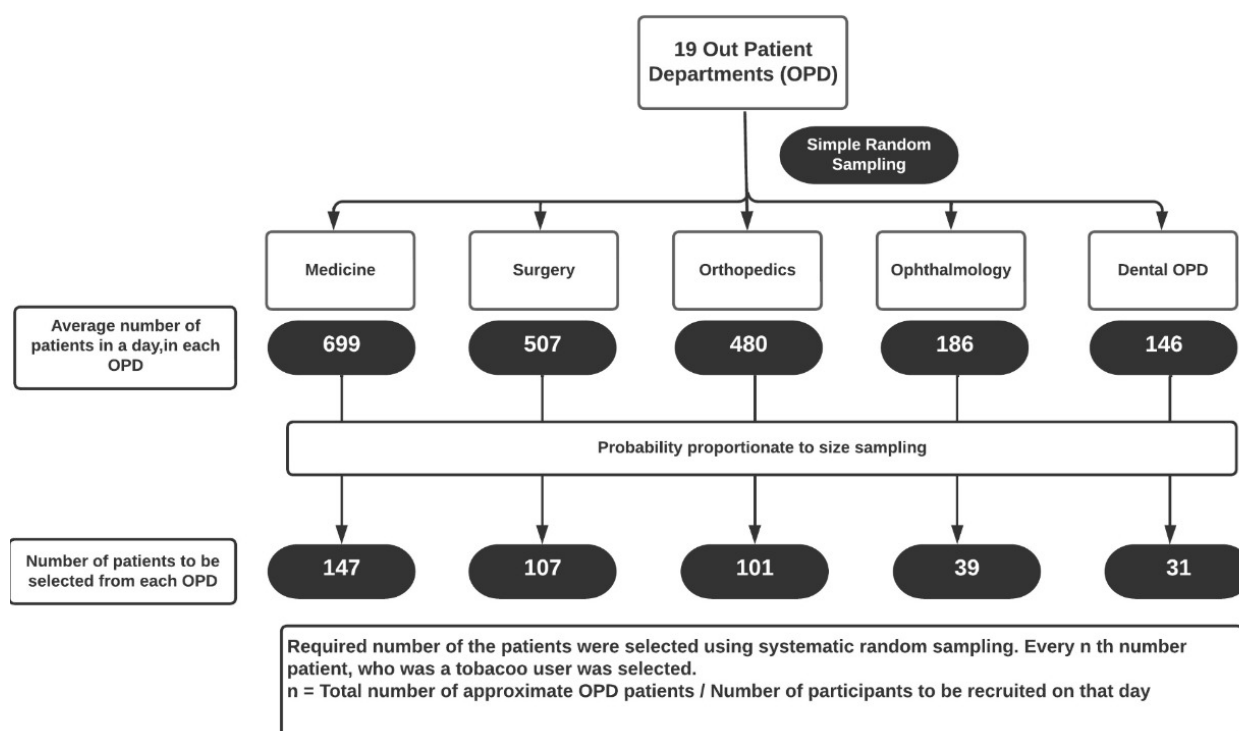


Figure 1. Flowchart of selection of study participants.

products: Transtheoretical Model (TTM)<sup>14</sup> was employed to assess willingness and intention to quit. The TTM is based on the understanding that individuals do not typically make abrupt and significant behavioral changes. Instead, behavior modification follows a cyclical process, especially when addressing repetitive behavior.<sup>14</sup> In the survey, the participants were asked the question, “Are you planning to quit tobacco use?” with response options as follows: A) Yes, within a month, B) Yes, within 6 months, C) Yes, but not within 6 months, D) No plan for quitting. Participants who chose options A or B were categorized as having the intention to quit. This classification aligns with the TTM, which considers individuals who do not intend to quit within 6 months as being in the precontemplation stage.<sup>14</sup> Quitting behavior was assessed through the question, “Have you attempted to quit using tobacco products within the past year?” with response options A) Yes and B) No.

#### Operational definitions

**Tobacco use:** was assessed based on whether the prospective participant smoked cigarettes, cigars, beedi, hookah, or used smokeless tobacco.

**Ever-tobacco user:** Individuals who have used any tobacco products at least once in their lifetime.

**Current tobacco user:** Individuals who have used any tobacco products at least once within the past 30 days.

**Nicotine dependence:** According to the Fagerstrom Nicotine Dependence Scale, individuals with a score of 0-3 were classified as having low nicotine dependence, while a score of 4-6 indicated moderate dependence.

A score of 7 or higher was categorized as high nicotine dependence.

**Willingness to quit:** was categorized into a dichotomous variable, determined based on the response to the question “Are you planning to quit tobacco use?” Options A, B, and C, indicating willingness to quit within different time frames, were categorized as having a willingness to quit. Conversely, those choosing option D, indicating no plans for quitting, were categorized as not being willing to quit.

**Precontemplation:** Individuals in this stage do not currently have intentions to take immediate action or quit, specifically within the next 6 months. Often, individuals may not be fully aware that their actions are problematic or have detrimental consequences.

**Contemplation:** In this phase, individuals realize that tobacco use is problematic and are considering quitting within the next 6 months. Individuals begin to analyze the advantages and disadvantages of quitting tobacco more carefully and practically after realizing that it might be troublesome.

**Preparation:** Individuals in this stage are prepared to quit tobacco within the upcoming 30 days. They initiate small actions towards quitting, holding the belief that modifying their behavior will result in a healthier life.

**Action:** Individuals in this stage have successfully ceased using tobacco products within the past 6 months and are committed to sustaining this change in behavior.

#### Data analysis

The collected data were encoded and entered into a Microsoft Excel spreadsheet. Relevant variables were

established, and appropriate coding was applied to each variable. The analysis of the data was performed using the licensed IBM Statistical Package for Social Sciences (SPSS) software (version 21). Descriptive statistics were utilized to analyze all the variables. Categorical data were presented as frequencies or proportions, while continuous data were presented as mean values accompanied by their respective standard deviations (SD). Firstly, the prevalence of willingness to quit was estimated for each independent variable among the tobacco users. Then, the chi-square test was performed to assess whether the willingness to quit differed by these characteristics. Following the descriptive analysis, bivariate logistic regression analysis was conducted using the chi-square test to identify factors that independently correlated with willingness to quit among tobacco users. Variables that showed significant associations ( $P < 0.2$ ) in the bivariate analysis were included in the multivariate regression analysis. Multiple logistic regression was then applied to examine the relationship, if any, and obtain adjusted odds ratios with corresponding 95% confidence intervals for each characteristic. A  $P$  value  $< 0.05$  was deemed statistically significant in determining the significance of the findings.

## Results

The mean age of the study participants was 39.37 years ( $SD = \pm 12.99$ ) and the majority of the participants were male (400, 94.1%), and 25 (6.9%) were female. Approximately, 34.6% of the study participants resided in urban areas, while the majority, accounting for 65.4%, were originally from rural areas. More than one-fifth (92, 21.6%) of the participants reported not having formal education. In comparison, 158 (37.2%) participants were educated to the 10<sup>th</sup> grade, and 175 (41.2%) received education higher than the 10<sup>th</sup> grade. A quarter (25.6%) of the participants stated that they lived in a joint family, while three-fourths (75.4%) reported living in a nuclear family. The majority reported being either married or separated (82.4%), while almost one-fifth (18.4%) of the participants reported being single (Table 1).

Out of the total 425 study participants, 56% were smokers, 56.7% were chewers, and 12.5% reported concurrent use, both smoking and chewing tobacco. The mean age of initiation of smoking and smokeless tobacco use was  $19.16 \pm 5.31$  and  $21.85 \pm 8.67$  years, respectively. More than half of the participants (237, 55.8%) had moderate to high nicotine dependence, whereas 188 (44.2%) participants had low nicotine dependence.

Table 2 shows that approximately three-fourths (71.1%) of the study participants attempted to quit tobacco at least once in their lifetime. Half (50.1%) of the study participants reported trying to quit tobacco use within the past year. More than a quarter (27.3%) of the participants intended to quit tobacco use within the next month. More than half (58.9%) of the participants were in the

**Table 1.** Distribution of study participants according to sociodemographic characteristics (N=425)

Characteristics	Number (%)
<b>Age group* (y)</b>	
18-30	132 (31.1)
31-45	166 (39.0)
46 and above	127 (29.9)
<b>Gender</b>	
Male	400 (94.1)
Female	25 (5.9)
<b>Place of origin</b>	
Rural	278 (65.4)
Urban	147 (34.6)
<b>Religion</b>	
Hinduism	364 (85.6)
Islam	52 (12.2)
Christianity	3 (0.7)
Others	6 (1.4)
<b>Marital Status</b>	
Unmarried	78 (18.4)
Married/Separated	347 (82.6)
<b>Educational Status</b>	
No formal education	92(21.6)
Educated to the 10 <sup>th</sup> grade	158(37.2)
Higher than the 10 <sup>th</sup> grade	175(41.2)
<b>Type of Family</b>	
Nuclear	316 (74.4)
Joint	109 (25.6)
<b>Children</b>	
Yes	320 (75.3)
No	105 (24.7)

\* Mean age=39.37 years; SD= $\pm 12.99$ ; Max=80; Min=19; Range=61.

precontemplation phase, more than one-fifth (21.6%) were in the contemplation stage, and almost one-fifth (19.5%) were in the preparation stage of TTM. Overall, 70.3% of the participants were willing to quit using tobacco products (Table 2).

Figure 2 demonstrates that nearly three-fourths (71.5%) of the study participants had visited a doctor within the previous 12 months. Of those who visited a doctor, 184 (60.5%) were asked if they used a tobacco product and 150 (81.5%) of them received advice to cease using them. Only 27 (18%) participants received a recommendation to visit a tobacco cessation center, of which one-third (33.3%, 9/27) visited the tobacco cessation center (Figure 2).

### Factors associated with willingness to quit

Prevalence of willingness to quit among tobacco users differed significantly across rural vs. urban areas ( $P < 0.01$ ), tobacco users with children ( $P < 0.05$ ), duration

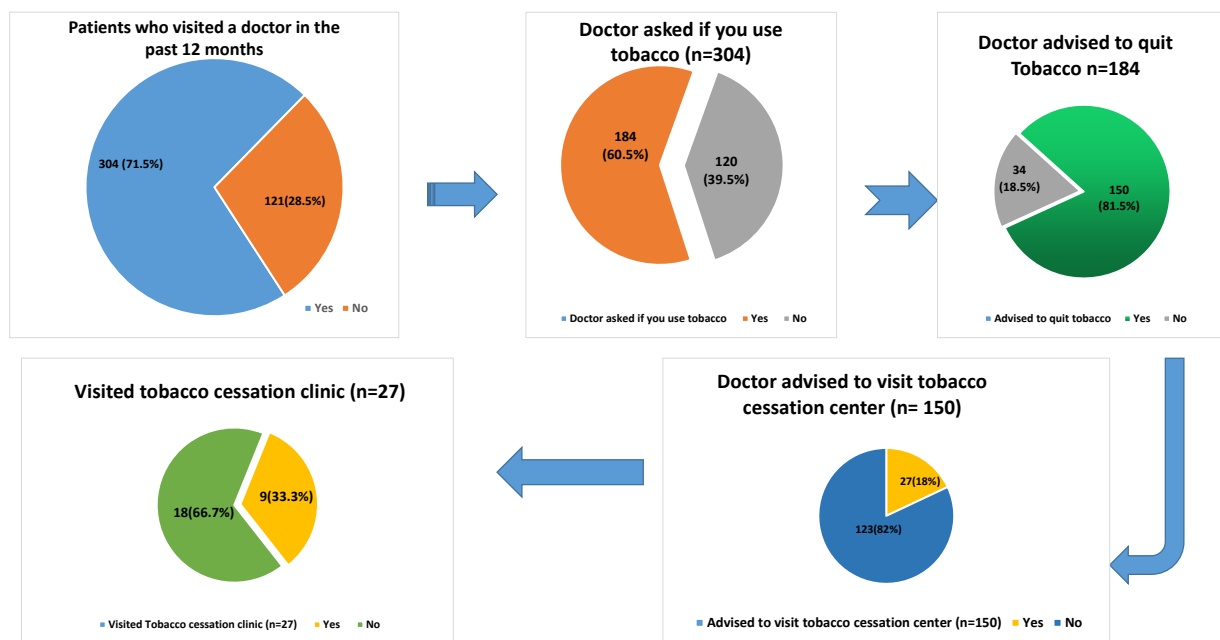


Figure 2. Pie chart depicting health-seeking behavior of study participants .

Table 2. Distribution of study participants based on quitting behavior (N= 425)

Characteristics	Number (%)
Ever tried to quit	
Yes	302 (71.1)
No	123 (28.9)
Tried to quit in the past 12 months	
Yes	213 (50.1)
No	212 (49.9)
Plan to quit in the next 30 days	
Yes	116 (27.3)
No	309 (72.7)
Ready to set a quit date	
Yes	54 (12.7)
No	371(87.3)
Thinking about quitting	
Quit within the next month	83 (19.5)
Thinking to quit within the next 6 months	92 (21.6)
Quit someday but not within the next 6 months	124 (29.2)
Not interested in quitting	126 (29.7)
Overall prevalence of willingness to quit	
Present	299 (70.3)
Absent	126 (29.7)

of tobacco use ( $P < 0.05$ ), and if the doctor had advised quitting tobacco ( $P < 0.05$ ). Willingness to quit tobacco was more prevalent among urban users, users who did not have any children, those who were using tobacco for 10 years or less, and tobacco users who had been advised

by the doctor to quit using tobacco (Table 3). However, there were no statistically significant associations between willingness to quit tobacco products and variables such as age, gender, marital status, education, religion, age of initiation of tobacco use, and nicotine dependence.

**Bivariate logistic regression**

In the bivariate logistic regression models, several factors showed associations with willingness to quit tobacco. Residing in urban areas had a positive relationship with willingness to quit tobacco [uOR = 2.1, CI = 1.3-3.3], as did duration of tobacco use  $\leq 10$  years [uOR = 1.6, CI = 1.1-2.5] and receiving advice from a doctor to quit tobacco [uOR = 1.7, CI = 1.1-2.8]. On the other hand, users who had children demonstrated a lower willingness to quit tobacco compared to those without children [uOR = 0.6, CI = 0.4-0.9,  $P < 0.001$ ] (Table 4).

**Multivariate logistic regression**

In the adjusted model, users from urban areas [aOR = 2, CI = 1.2-3.2], those using tobacco for a duration of  $\leq 10$  years [aOR = 1.8, CI = 1.1-3.3], and individuals who received advice from a doctor to quit [aOR = 2.1, CI = 1.3-3.4] showed significantly higher levels of willingness to quit as compared to their counterparts (Table 4).

Compared to tobacco users from rural areas, urban users had two times higher odds of willingness to quit tobacco use. The odds of willingness to quit tobacco were 1.8 times higher among users with a history of tobacco use equal to or less than 10 years vs. more than 10 years of usage. Individuals who received advice from a doctor to quit tobacco use were 1.7 times more inclined

**Table 3.** Association of independent variables with willingness to quit amongst study participants (N=425)

Characteristics	Willingness to Quit		Total N (%)	P value
	Yes n (%)	No n (%)		
Age (in completed years)				0.12
18-30	94(71.2)	38(28.8)	132(100)	
31-46	124(74.7)	42(25.3)	166(100)	
46 or more	81(63.8)	46(36.2)	127(100)	
Gender				0.791
Male	282(70.5)	118(29.5)	400(100)	
Female	17(68)	8(32)	25(100)	
Religion				0.560 <sup>a</sup>
Hinduism	253(69.5)	111(30.5)	364(100)	
Islam	38(73.1)	14(26.9)	52(100)	
Christianity	3(100)	0	3(100)	
Sikhism	5(83.3)	1(16.7)	6(100)	
Educational status				0.158
No formal education	61(66.7)	31(33.7)	92(100)	
Educated to the 10 <sup>th</sup> grade	106(67.1)	52(32.9)	158(100)	
Higher than the 10 <sup>th</sup> grade	132(75.4)	43(24.6)	175(100)	
Type of family				0.514
Nuclear	225(71.2)	91(22.8)	316(100)	
Joint	74(67.9)	35(32.1)	109(100)	
Place of origin				<0.01*
Rural	182(65.5)	96(34.5)	278(100)	
Urban	117(79.6)	30(20.4)	147(100)	
Marital status				0.160
Unmarried	60(76.9)	18(23.1)	78(100)	
Married	239(68.9)	108(31.1)	347(100)	
Children				0.04*
Yes	217(67.8)	103(32.2)	320(100)	
No	82(78.1)	23(22.9)	105(100)	
Doctor advised to quit tobacco				0.02*
Yes	116(77.3)	34(22.7)	150(100)	
No	183(64.7)	92(35.3)	275(100)	
Nicotine dependence				0.72
Low	131(69.7)	57(30.3)	188(100)	
Moderate	98(69.0)	44(31.0)	142(100)	
High	70(73.7)	25(26.3)	95(100)	
Age of initiation of tobacco				0.71
<18 years	98(71.5)	39(28.5)	137(100)	
≥18 years	201(69.8)	87(30.2)	288(100)	
Duration of tobacco use (year)				0.04*
10 years or less	116(76.3)	36(23.7)	152(100)	
More than 10 years	183(67)	90(33)	273(100)	

<sup>a</sup> Fisher's exact test.

\*Significant at P value&lt;0.05.

**Table 4.** Logistic regression analysis for factors associated with willingness to quit among study participants (N=425)

Variable	Total N (%)	Unadjusted OR; 95%CI	P value	Adjusted OR; 95%CI	P value
<b>Age group</b>					
18-30	132(32)	Reference		Reference	
31-46	166(39.1)	0.84 (0.5-1.4)	0.5	0.4 (0.1-1.4)	0.2
46 or more	127(29.9)	1.4 (0.8-2.3)	0.2	0.7(0.4-1.2)	0.2
<b>Educational status</b>					
No formal education	92(21.6)	Reference		Reference	
Educated to the 10 <sup>th</sup> grade	158(37.2)	0.97 (0.5-1.7)	0.8	1 (0.6-1.8)	0.9
Higher than the 10 <sup>th</sup> grade	175(41.2)	0.64 (0.4-1.1)	0.1	0.8 (0.5- 1.5)	0.5
<b>Place of origin</b>					
Rural	278(65.4)	Reference		Reference	
Urban	147(34.6)	2.1(1.3-3.3)	<0.01*	2.0 ( 1.2-3.2)	<0.01*
<b>Marital status</b>					
Unmarried	78(18.4)	Reference		Reference	
Married	347(81.6)	1.5 (0.8-2.6)	0.1	0.7(0.2-2.2)	0.7
<b>Children</b>					
No	104(24.5)	Reference		Reference	
Yes	321(75.5)	0.6 (0.4-0.9)	0.04*	0.4(0.1-1.1)	0.09
<b>Doctor advised to quit tobacco</b>					
No	275(64.7)	Reference		Reference	
Yes	150(35.3)	1.7 (1.1-2.8)	0.02*	2.1(1.3-3.4)	<0.01*
<b>Duration of tobacco use (year)</b>					
> 10 years	273 (64.2)	Reference		Reference	
≤10 years	152 (35.8)	1.6 (1.1-2.5)	0.04*	1.8 (1.1-3.3)	0.04*

\*Significant at *P* value < 0.05

to quit tobacco compared to those who did not receive such advice.

## Discussion

To the best of the researchers' knowledge, this is the first study examining the factors that influence tobacco users' readiness to quit at a tertiary care hospital in Delhi, India. This study aimed to investigate the factors linked to the willingness to quit tobacco among individuals aged 18 years and above. The study participants demonstrated an overall prevalence of 70% for willingness to quit tobacco. The results of the multivariable analysis revealed that individuals residing in urban areas, tobacco users with a duration of ≤10 years, and those who received advice from a doctor to quit exhibited significantly higher levels of willingness to quit compared to their counterparts.

The prevalence of willingness to quit tobacco observed in this study aligns closely with the findings reported by Dasgupta et al in West Bengal; the prevalence of willingness to quit was 76.3% amongst their study participants.<sup>15</sup> However, the present study reported higher prevalence rates compared to the studies conducted by Khan et al<sup>16</sup> in Haryana and Kar et al<sup>11</sup>; as they reported willingness to quit to be 52.4% and 52.2%, respectively. These variations in prevalence rates can be attributed to the different study

settings; the results reported by Kar et al<sup>11</sup> were from a population-based survey, and those by Khan et al<sup>16</sup> were based on a community survey conducted in rural India. Furthermore, Khan et al only analyzed willingness to quit smoking among their study participants, whereas the current study explored willingness amongst both smokers and chewers. The findings in the current study are consistent and comparable to prevalence rates regarding willingness to quit among tobacco users reported by Wang and Mati,<sup>17</sup> Parashar et al,<sup>18</sup> Islam et al,<sup>19</sup> and Marques-Vidal et al.<sup>20</sup>

Previous studies have yielded inconsistent findings regarding the relationship between age and the willingness to quit among individuals who use tobacco. In the present study, the willingness to quit was lower amongst the higher age group (>46 years); however, it was not statistically significant. This finding aligns with the results observed by Dasgupta et al,<sup>15</sup> Parashar et al,<sup>18</sup> Rüge et al,<sup>21</sup> and Hyland et al<sup>10</sup> showing no significant association between age and the willingness to quit. However, cross-sectional studies conducted by Kar et al,<sup>11</sup> Panda et al,<sup>22</sup> Hoang et al,<sup>23</sup> and Islam et al<sup>19</sup> reported significantly higher willingness to quit among young people. This difference can be due to expanded healthcare services among different age groups and improved reach of anti-

tobacco messages among the young population. Tobacco cessation efforts targeting the younger age group can prove beneficial to curb the growing tobacco pandemic in developing countries such as India.

The current study reported a significantly higher willingness to quit amongst tobacco users with a lower duration of tobacco use, corroborated by findings from other studies.<sup>16,20,24</sup> Thus, tobacco prevention and cessation activities focused on individuals with a lower duration of tobacco may provide substantial positive results. Implementing tobacco cessation services, awareness campaigns, and Information Education and Communication (IEC) activities tailored to these individuals and early identification by medical professionals would prove beneficial.

One of the remarkable findings in the current study revealed that tobacco users who had received medical advice to quit tobacco use from their doctor had a considerably higher willingness to quit tobacco, which is congruent with the findings from other studies.<sup>11,23,25</sup> This finding highlights the importance of the role of doctors in encouraging patients to quit their tobacco habits. Prior research shows that cessation interventions conducted via healthcare professionals can significantly lower tobacco use.<sup>26-28</sup> Patients see doctors as role models for healthy living. Furthermore, due to doctors' specialized knowledge, smoking patients are more likely to accept doctors' guidance. As a result, doctors play an essential role in providing tobacco cessation therapy. This highlights the importance of healthcare providers utilizing the opportunity to evaluate tobacco use and provide brief concise guidance on quitting, along with facilitating referrals and linkages to tobacco cessation centers. It also signifies the need for training healthcare providers at all levels in India to provide counseling for quitting and linkages to cessation programs and services to facilitate and expedite the inclination to quit and subsequently improve the rates of tobacco cessation in the country.

This study also discovered differences in willingness to quit based on residence (urban/rural), with people from urban areas reporting significantly higher willingness to quit. This can be due to higher access to information, frequent health awareness campaigns, and IEC activities in urban areas regarding the ill effects of tobacco on health compared to rural counterparts. However, some studies reported that higher education, marital status, and having children are associated with increased willingness to quit tobacco<sup>11,16,22,23</sup>; this study could not establish such independent association. Further research is warranted to explore the possible reasons for these findings.

The present study had some limitations. Firstly, since the study was cross-sectional, no conclusions about causality can be made. Longitudinal studies are required to confirm the temporality of these relationships. Secondly, the survey focused exclusively on patients

from one hospital in a specific state, and incorporating patients from other hospitals in different regions could potentially yield contrasting outcomes. However, Delhi is a hub for migrants, and individuals seeking treatment services provide for a diverse patient population. Thirdly, since patients are not necessarily representative of the general populace, tobacco-related behaviors, and risk factors might vary depending on the sector of the population. Fourthly, the evaluation relied on patients' self-report, which could potentially introduce bias due to recall. Finally, as people usually have the tendency to underreport negative behaviors, social desirability bias may have occurred. However, during the design phase, researchers took precautions to remove all identifiers, and participants were assured that their responses would remain anonymous and could not be linked to their personal information. Furthermore, it was emphasized that their participation and responses would not affect their ongoing treatment in any way.

Notwithstanding these limitations, this study addresses a gap in existing research by providing estimates of the prevalence and factors associated with the willingness of tobacco users to quit tobacco consumption. This research identifies specific groups for targeted interventions and future policy implications. The findings can further be utilized for comparisons within the country and tracking future trends and patterns.

## Conclusion

The willingness to quit was high among the study participants. The results of the present study suggested that coming from urban areas, duration of tobacco use, and doctor's advice to quit are essential factors that need to be considered when framing tobacco cessation programs. The study emphasized the need for focused targeted cessation interventions among tobacco users to quit tobacco. By identifying the factors that influence the willingness of tobacco users to quit, it becomes possible to develop evidence-based initiatives aimed at promoting cessation among tobacco users in India. The findings of the current study can guide future research on factors that can impact tobacco cessation programs in healthcare settings in India. Future initiatives aimed at primary care facilities would be more useful if they involved training primary care doctors in assessing smokers' willingness to quit, offering cessation services, and providing appropriate referrals and links to tobacco cessation centers.

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## Authors' Contribution

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### Competing Interests

There are no competing interests.

### Ethical Approval

Clearance for the study was obtained from the Institutional Ethics Committee of VMMC and Safdarjung Hospital (IEC/VMMC/SJH/Project/06-2022/CC-01). Participants provided written informed consent, and their personal information was handled with the utmost confidentiality. The survey ensured complete anonymity, with no possibility of linking the responses to individual participants.

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