

Quitting tobacco through quitline services: impact in India

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Abstract

Tobacco quitline services offer telephone-based counseling to assist tobacco users in quitting through behavioral modification. It is a sponsored scheme by the Ministry of Health and Family Welfare, Government of India. The present study has two objec-

tives: primarily, to study the correlation between socio-demographic variables and tobacco abuse, and secondly, to study the impact of National Tobacco Quit-Line Services (NTQLS) in India. The data for the study were collected from the registered callers who had completed at least 1 year of follow-ups at NTQLS, Vallabhbhai Patel Chest Institute, University of Delhi, between May 2016 and May 2021. The questionnaire was directly administered to the people who had called NTQLS for the first time to quit tobacco use. Callers were provided 1 year of continuous follow-up to ensure they remain long-term abstinent from tobacco and permanently quit. All the data were managed through an electronic database. A total of 85,807 individuals' data was taken for the study. The maximum number of callers was from Uttar Pradesh (28.03%), followed by Rajasthan (24.67%) and Madhya Pradesh (7.59%). The female population represented only 1.43%; the male population was significantly higher (98.57%). Youth (44.83%) and adults (53.78%) were more than seniors (0.9%) and adolescents (0.4%). Smokeless tobacco users (67.32%) were more common than smoking tobacco users (20.11%). Duration of tobacco use among the 71.74% of callers was found to be between 1 and 10 years; the remaining 24.03% had been using tobacco for over 10 years, while 4.23% were novice users. The abstinence rate achieved by NTQLS was 33.42% after one month of quitting and 21.91% after 1 year of quitting. We found a significant association between the tobacco users' socioeconomic and demographic status. The number of male tobacco users was significantly higher than the number of female tobacco users. Among all the tobacco users, youth was persistently using tobacco the most. Individuals from low socio-economic status were more likely to use tobacco as compared to those from high socio-economic status. These associations indicate the need for strengthening the enforcement of tobacco control policies and developing and monitoring comprehensive smoke-free legislation.

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Introduction

The World Health Organization's (WHO) Framework Convention on Tobacco Control mandates countries to set up national programs to help people live a tobacco-free life by monitoring and controlling tobacco use and integrating brief tobacco cessation interventions into the primary care systems of the nation [1]. The brief and specialized tobacco cessation intervention can be provided by tobacco cessation centers/clinics, national toll-free tobacco quitlines, web-based applications, and through mobile-based text messaging (m-Cessation) projects [1,2]. Offering help to quit is one of the six key interventions outlined in the MPOWER (Monitor tobacco use and prevention policies, Protect people from tobacco smoke, Offer help to quit tobacco use, Warn people about the dangers of tobacco, Enforce bans on tobacco advertising, promotion and sponsorship, Raise taxes on tobacco) package of technical

measures and resources which WHO introduced in 2007 [3]. The Vallabhbhai Patel Chest Institute (VPCI) has been instrumental in providing help to quit tobacco use since 2001 [4]. In 2016 on the eve of “World No Tobacco Day”, the Government of India established the nation’s first National Tobacco Quit-Line Services (NTQLS) at VPCI, New Delhi, with the sole objective to reach a large number of tobacco users to provide free-of-cost telephone-based, information, advice, support, and referrals for tobacco cessation which is accessible with a toll-free number (1800-112-356). Since 2018, the services have been successfully expanded to three more regional satellite centers (Guwahati, Bangalore, and Mumbai). In order to reach a wider population, counseling services are now being offered in 15 regional languages to the tobacco users, including Hindi, English, Marathi, Bengali, Tamil, Telugu, Kannada, Malayalam, Assamese, Punjabi, Gujarati, and Maithili. The VPCI’s NTQLS is effective in terms of accessibility, over a 2-year period, 63,350 callers, including the elderly, rural residents, minorities, and the poor, used the toll-free number to get at least a quick, brief advice or information on quitting smoking [5].

The use of tobacco compromises health and the economic destruction of people in the country. Tobacco consumption in any form, either smokeless or smoke, causes numerous dangerous consequences to everyone. Tobacco is a leading preventable cause of death, killing up to half of its users. Tobacco kills more than 8 million people each year, whereas more than 7 million of those deaths are the result of direct tobacco use, while around 1.2 million are the result of non-smokers being exposed to second-hand smoke [3,6,7]. India is the second largest tobacco consumer almost 267 million people in India consuming tobacco [7]. The high tobacco use causes many forms of cancer, leading to early, painful deaths of users in their productive years. It is therefore critical to raise awareness to help reduce use and protect the health of the people [8]. India is a country with the largest population in the world. The people of India, in different regions, possess distinct social, cultural, and economic characteristics. The distribution of tobacco use is not uniform across the country. There are wide variations in tobacco consumption across various socio-economic and demographic classes, like age, gender, education, occupation, and income. This study was conducted to understand the association of tobacco users with different socioeconomic and demographic characteristics.

Materials and Methods

NTQLS has been designed to help tobacco users who are willing to quit their tobacco use habit. NTQLS provides telephone-based counseling to the registered callers who call first time (reactive call) at toll-free number 1800-11-2356 by answering their queries, setting a quit date, formulating a personalized quit plan, and follow-up calls. The 5As (Ask, Advise, Assess, Assist, and Arrange), the 5Rs (Relevance, Risks, Rewards, Roadblocks, Repetition), identifying dangerous situations, imparting fundamental knowledge, and cultivating coping skills, were the core intervention strategies applied through behavioral counseling among the callers (tobacco users). A total of 8 proactive follow-up calls are made throughout the year in order to maintain a longer abstinence rate. To understand the impact of NTQLS in India, the present study was conducted at NTQLS, VPCI University of Delhi. The data for the study were taken from the registered callers who completed at least 1 year of follow-ups between May 2016 to May 2021. The questionnaire was directly administered to the people who had called NTQLS for the first time to quit tobacco addiction. The questionnaire contained information on standardized characteristics like

socio-demographic and economic status, type of tobacco use (smoking and smokeless), quantity of tobacco use, disease, if any, and other related aspects. Among the detailed information, the study was conducted across the variables. A total of 85,807 registered callers were taken during the study period. The responses of these individuals were used to analyze the data. The individuals in the study generally belonged to the north, central, and western regions of India. The statistical methodology used in the analysis of data includes frequency tables, bar charts, and a one-sample Chi-Square test. All the analysis was performed using SPSS version 25.0 and Excel 2013. A standard p-value of 0.05 is used to test the significance of the result.

Results

There were 85,807 registered individuals who completed their 1-year follow-ups during the study period, and they were included in the present study. Each individual was using tobacco in some form (smoking and smokeless). The maximum number of callers was from Uttar Pradesh (28.03%), followed by Rajasthan (24.67%) and Madhya Pradesh (7.59%) (Figure 1).

Socio-demographic and economic characteristics of the study population

Among the study population, a large number of tobacco users were male ($n=84,582$, 98.57%). The p-value of the one-sample chi-square test is <0.01 , which indicates that the male tobacco users in India are much more than the female tobacco users (Table 1).

In the study of the age group, it was found that of all tobacco users, adult (25-64) tobacco users were the most (53.78%), followed by youth (15-24) (44.83%), while only 1.4% of seniors and adolescents consume tobacco. The p-value of the one-sample chi-square test is <0.01 , which indicates that there is a significant association between tobacco use and age group in India.

In terms of marital status, it was found that married (50%) and unmarried (49.85%) tobacco users were almost equal, whereas 0.15% of tobacco users were either widowed or divorced. The number of cases of tobacco users among married and unmarried people is approximately equal and is extensively larger than the cases of widowed and divorced. This may be happening due to the reason that the cases of widows and divorced in the country are very low. The p-value of the one-sample chi-square test is <0.01 , which indicates that there is a significant association between tobacco use and marital status.

Since the cases of widowed and divorced are very small so we have removed these cases. After removing the cases of widowed and divorced and taking only married and unmarried populations in the study, the one-sample chi-square test shows $p=0.662$, which indicates that there is no significant association between tobacco users and marital status.

In terms of education level, it was found that the maximum number of tobacco users were studied up to 10th class (40.43%), whereas 25.42% tobacco users were either graduate or diploma holders, and 25.30% tobacco users were studied up to 12th class. The result also showed that 4.34% tobacco users were post-graduate, 3.38% tobacco users were illiterate, and 1.12% tobacco users were professionals. This suggests that less educated people use tobacco more, and it will gradually decrease as the education level increases. The p-value of the one-sample chi-square test is <0.01 , which indicates that there is a significant association between tobacco use and education level.

In terms of occupation, it was found that the maximum tobacco users 46% are self-employed, followed by 24% employed in the private sector, and 20.1% were students. It was also found that 5.2% tobacco users were unemployed, 3.1% were employed in the government sector, and 0.7% were retired. The result is found to be significant; the p-value of the one-sample chi-square test is <0.01, which indicates that there is a significant association between tobacco use and occupation.

In terms of income level, it was found that most tobacco users (46.6%) have no income or an income of less than 10,000 per month, followed by 46.3% tobacco users with an income between 11,000 and 30,000 per month, whereas 7% tobacco users have an income of more than 30,000 per month. The significance value of chi chi-square test is <0.01, which indicates that poor people or people with low socioeconomic status have more tobacco users than high socioeconomic status (Table 1).

Prevalence of tobacco users and quitting percentage

In terms of different types of tobacco users in India, it was found that the smokeless tobacco (SLT) users in India were found to be a maximum of 67.32%, whereas the smoking tobacco users and both smoking and SLT users were found to be 20.11% and 12.57% respectively. The significance value of the chi-square test is <0.01, which indicates SLT users were more common as compared to other types of tobacco users in India (Table 2).

Among SLT users, it was found that the maximum number of tobacco users consumed Khaini (42.11%), followed by Guthka (39.8%) and Zarda (10.58%), whereas other smokeless products, such as Pan Masala, Tobacco Paste, etc., were consumed very less (7.50%). The above difference in the usage of different tobacco products was statistically significant; the p-value of chi chi-square test is <0.01, indicating that in India, Khaini and Guthka are con-

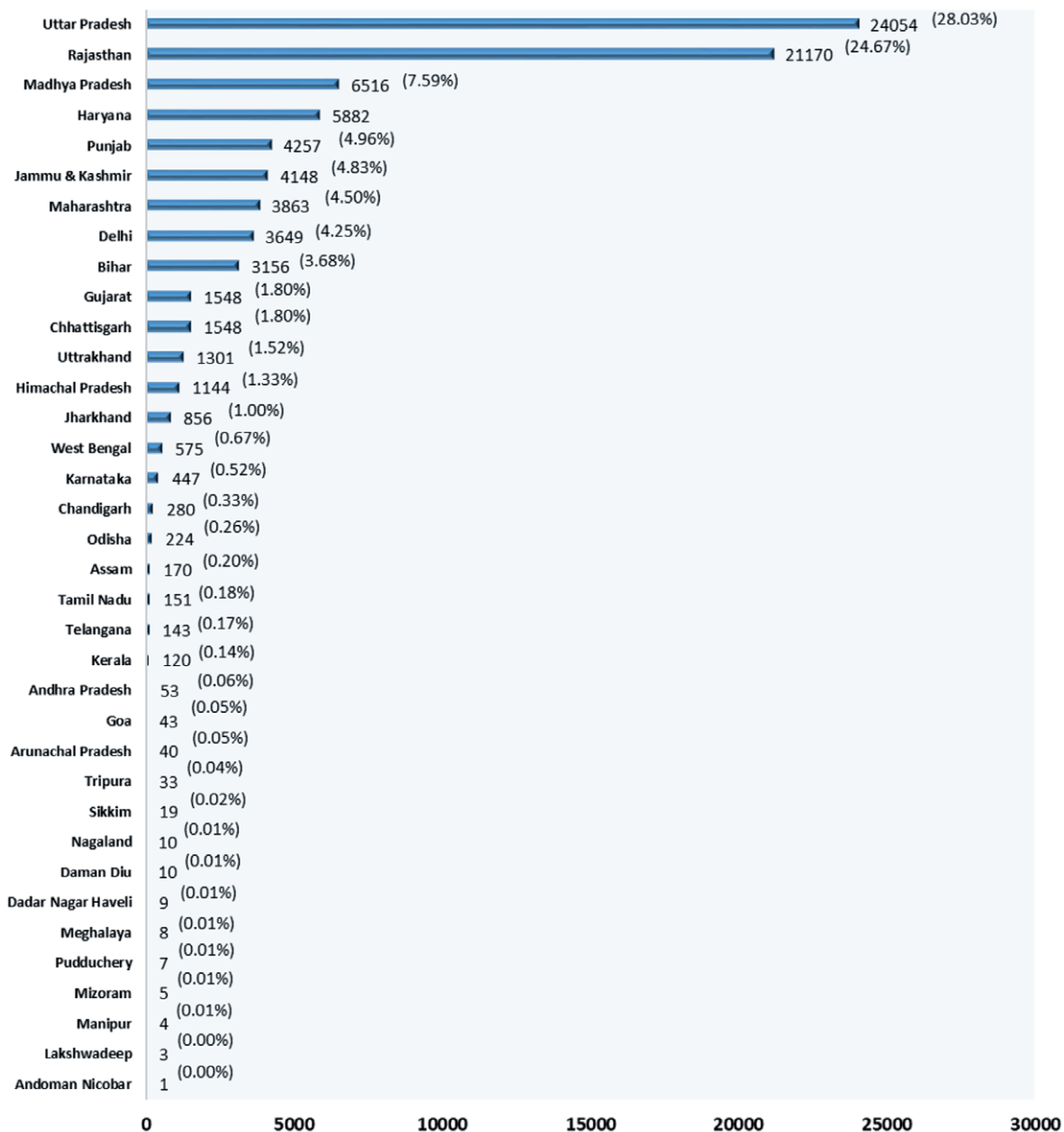


Figure 1. Represents state-wise calls received at the National Tobacco Quit-Line Services.

Table 1. Demographic and economic details of the study population.

Variables	n=85,807 (%)	p-value
Gender		<0.01
Male	84,580 (98.57)	
Female	1225 (1.43)	
Transgender	2 (0)	
Age criteria		<0.01
<14 years (childhood)	382 (0.45)	
15- 24 (youth)	38,465 (44.83)	
25-64 (adults)	46,145 (53.78)	
65 and above (seniors)	815(0.95)	
Marital status		0.662
Married	42,906 (50.00)	
Unmarried	42,778 (49.85)	
Widowed	56 (0.07)	
Divorced	67 (0.08)	
Education		<0.01
1 st -10 th	34,693 (40.43)	
11 th -12 th	21,706 (25.30)	
Diploma	1881 (2.19)	
Graduation	19,934 (23.23)	
Post-graduation	3728 (4.34)	
Professional	962 (1.12)	
Illiterate	2903 (3.38)	
Occupation		<0.01
Private sector	21,288 (24.81)	
Self employed	39,477 (46.01)	
Government sector	2676 (3.12)	
Student	17,256 (20.11)	
Unemployed	4497 (5.24)	
Retired	613 (0.71)	
Income per month		<0.01
<10000	18,376 (21.42)	
11000-30000	39,770 (46.35)	
31000-60000	4840 (5.64)	
61000+	1211 (1.41)	
NIL	21,610 (25.18)	

sumed significantly higher than any other SLT product. Among SLT users, 20.29% had consumed alcohol as well.

Among smoking tobacco users, it was found that the maximum number of tobacco users consumed cigarettes (59.1%), followed by Bidi (39.99%), whereas other smoking products like Huka and Cigar are smoked very less (0.82%). The significance value of chi chi-square test is <0.01, indicating that in India, cigarettes are smoked significantly higher than bidi and any other smoking product.

Among the SLT users, the 1-month abstinence rate was found to be a maximum of 34.58%, whereas the 1-month abstinence rate of smoking tobacco users was found to be 29.75% and for both smoking and SLT users, it was found to be 33.11%. The overall 1-month abstinence rate was 33.42%. From the proportion test, the significance value of the chi-square test is <0.01, which indicates that there is a significant difference between the quitting rates of different types of tobacco users, with the maximum quitters being from SLT. Among the SLT users, the 1-year abstinence rate was found to be a maximum of 23.20% whereas the 1-year abstinence rate of smoking tobacco users was found to be 17.76% and for both smoking and SLT users, it was found to be 21.62%. The overall 1-year abstinence rate of tobacco users was 21.91%. From the proportion test, the significance value of the chi-square test is <0.01, indicating a significant difference between the 1-year quitting rates of different types of tobacco users, with the maximum quitters being from SLT users. The 1-month abstinence rate of SLT users taking alcohol as well was found to be 33.38%, for smoking tobacco users taking alcohol as well, it was found to be 28.53% and for both smoking and SLT users taking alcohol as well, it was found to be 32.53%. The overall 1-month abstinence rate of tobacco users taking alcohol as well was 32.05%. The 1-year abstinence rate of SLT users taking alcohol as well was found to be 22.67%, for smoking tobacco users taking alcohol as well it was found to be 16.51% and for both smoking and SLT users taking alcohol as well it was found to be 22.14% (Table 2).

Table 2. Prevalence of tobacco users and quitting percentage.

	Frequency	Quitters (1 month)	Quitters (1 year)	Alcohol use	Quitters (1 month)	Quitters (1 year)
Tobacco type						
Smoking	17,258 (20.11)	5134 (29.75)	3065 (17.76)	4935 (28.60)	1408 (28.53)	815 (16.51)
Smokeless	57,761 (67.32)	19,974 (34.58)	13,402 (23.20)	11,718 (20.29)	3912 (33.38)	2657 (22.67)
Smoking and smokeless both	10,788(12.57)	3572 (33.11)	2332 (21.62)	3984 (36.93)	1296 (32.53)	882 (22.14)
Total	85,807 (100)	28,680 (33.42)	18,799 (21.91)	20,637 (24.05)	6616 (32.05)	4354 (21.09)
Smoking product						
Cigarette	10,215 (59.19)	2919 (28.58)	1665 (16.30)	3188 (31.21)	889 (27.89)	495 (15.53)
Bidi	6901 (39.99)	2163 (31.34)	1372 (19.88)	1712 (24.81)	507 (29.61)	313 (18.28)
Hukka	138 (0.80)	51 (36.96)	28 (20.29)	34 (24.64)	12 (35.29)	7 (20.59)
Cigar	4 (0.02)	1 (25)	0 (0.00)	1 (25.00)	0 (0.00)	0 (0.00)
Total	17,258 (100)	5134 (29.75)	3065 (17.76)	4935 (28.60)	1408 (28.53)	815 (16.51)
Smokeless product						
Guthka	22,994 (39.81)	7795 (33.90)	5189 (22.57)	4483 (19.50)	1446 (32.26)	974 (21.73)
Khaini	24,324 (42.11)	8574 (35.25)	5725 (23.54)	5254 (21.60)	1827 (34.77)	1259 (23.96)
Zarda	6113 (10.58)	2095 (34.27)	1552 (25.39)	1081 (17.68)	341 (31.54)	241 (22.29)
Pan Masala	2298 (3.98)	743 (32.33)	455 (19.80)	475 (20.67)	139 (29.26)	86 (18.11)
Tobacco Paste	1718 (2.97)	647 (37.66)	425 (24.74)	364 (21.19)	137 (37.64)	89 (24.45)
Other	314 (0.54)	120 (38.22)	56 (17.83)	61 (19.43)	22 (36.07)	8 (13.11)
Total	57,761 (100)	19,974 (34.58)	13,402 (23.20)	11, 718 (20.29)	3912 (33.38)	2657 (22.67)
Smoking and smokeless product						
Cigarette and any SLT	5912 (54.80)	1960 (33.15)	1272 (21.52)	2368 (40.05)	786 (33.19)	527 (22.26)
Bidi and any SLT	4778 (44.29)	1575 (32.96)	1039 (21.75)	1591 (33.30)	501 (31.49)	350 (22.00)
Cigar and any SLT	7 (0.06)	4 (57.14)	2 (28.57)	0 (0.00)	0 (0.00)	0 (0.00)
Huka and any SLT	91 (0.84)	33 (36.26)	19 (20.88)	25 (27.47)	9 (36.00)	5 (20.00)
Total	10,788 (100)	3572 (33.11)	2332 (21.62)	3984 (36.93)	1296 (32.53)	882 (22.14)

SLT, smokeless tobacco.

Abstinence rate of tobacco users at different proactive calls (follow-ups)

The abstinence rate of the study population was measured by two methods. The primary measure was prolonged abstinence or overall quit rate, whereas the secondary measures were periodic abstinence or periodic quit rate.

The prolonged abstinence is obtained as the number of registered individuals who quit tobacco after receiving the quitline services (proactive call) to the total number of registered population under study. Here, the denominator is fixed at each proactive call, which is the total number of registered callers, whereas in the numerator, the number of quitters in each follow-up is taken.

The periodic abstinence is obtained as the number of registered individuals who quit tobacco after receiving the quitline services

(proactive call) to the number of individuals who were quitted from tobacco during the previous proactive call.

In the prolonged abstinence rate, we have observed that the percentage of quitters declines with respect to time or different follow-up calls. At the first call, “pre-quit date call”, the abstinence rate was a maximum of 67.65% and then it started to decline in the further follow-up calls. The reason is that in the prolonged abstinence rate, the sample size (n) is fixed, whereas in the periodic abstinence rate, the sample size changes for each follow-up. (Table 3 and Figure 2).

In the periodic abstinence rate of callers, we have observed that most of the quitters were still quitters at 6 months (P6), 9 months (P7), and 1 year (P8) of follow-up calls, with a percentage of more than 90%. In P5 (3 months after quit date call), a decline in the periodic abstinence rate was observed from 94.61% to 78.26%. The periodic abstinence rates at pre-quit date call (P1), quit date call (P2), 7-10 days after quit date call (P3), and 1 month after quit date

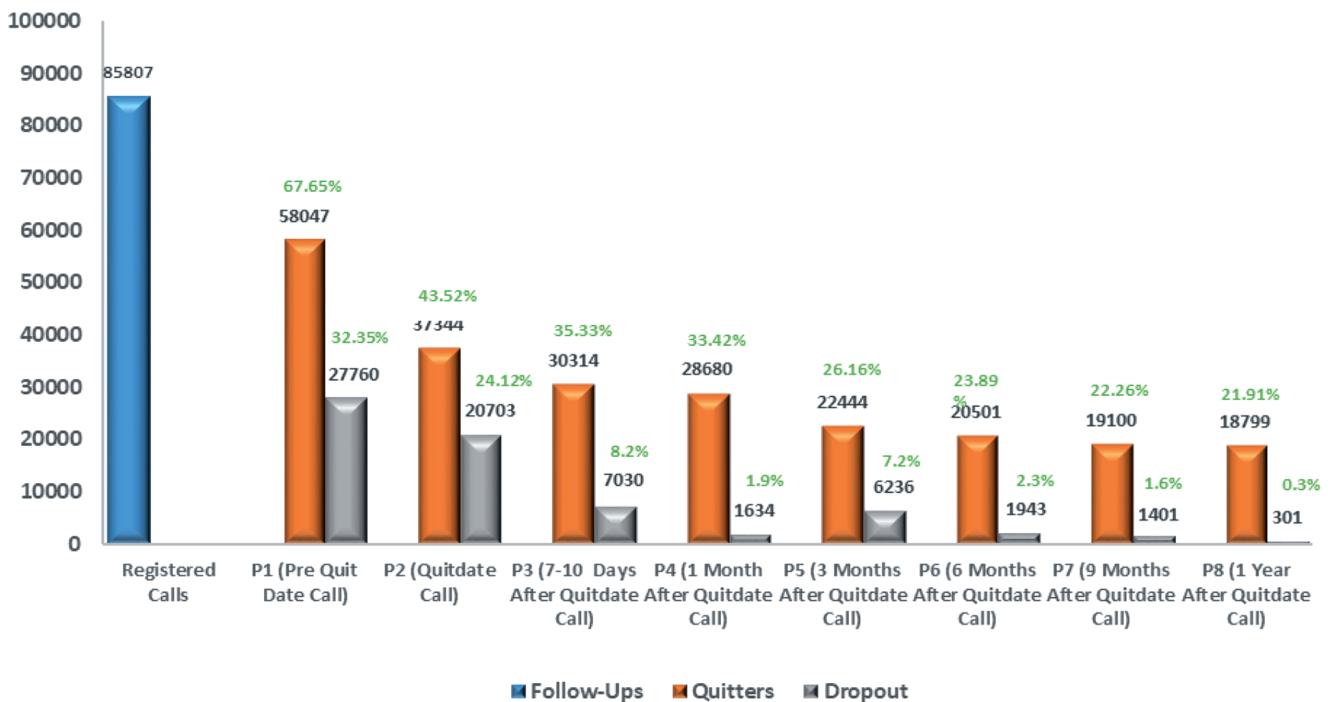


Figure 2. The prolonged abstinence rate of registered callers who have completed at least 1 year of follow-ups.

Table 3. Prolonged and periodic abstinence rate of callers at different follow-ups.

Variables	Proactive calls (follow-ups)	Quitters	Prolonged percentage of quitters	Periodic percentage of quitters
Registered calls (n=85,807)				
P1 (pre-quit date call)	85,807	58,047	67.65	67.65
P2 (quit date call)	58,047	37,344	43.52	64.33
P3 (7-10 days after quit date call)	37,344	30,314	35.33	81.18
P4 (1 month after quit date call)	30,314	28,680	33.42	94.61
P5 (3 months after quit date call)	28,680	22,444	26.16	78.26
P6 (6 months after quit date call)	22,444	20,501	23.89	91.34
P7 (9 months after quit date call)	20,501	19,100	22.26	93.17
P8 (1 year after quit date call)	19,100	18,799	21.91	98.42

call (P4) were observed as 67.65%, 64.33% 81.18% and 94.61%, respectively. Table 3 and Figure 3 represent the periodic abstinence rate of registered callers at different follow-up calls.

Discussion

The behavior of tobacco consumption has been prevalent in our society for a long time. Irrespective of gender, age, and region the tobacco is consumed widely. To understand the tobacco usage patterns and their correlated factors, this research study was conducted. This study provides the prevalence estimates of tobacco users by different socioeconomic and demographic characteristic who wants to quit. It also highlighted the impact of NTQLS on the abstinence rate of tobacco.

The NTQLS can lower relapse rates while having a major effect on the overall cessation rate. Most significantly, tobacco users can use NTQLS services at no cost to them, from any location at any time. It provides private, individualized, and customized help to encourage an individual who is addicted to tobacco to try quitting. According to estimates, NTQLS has the ability to lower India's economic burden of tobacco use-related illnesses overall [5]. Currently, only Hindi and English are offered during counseling sessions at NTQLS Delhi. The counselors fill out an English-language questionnaire with the caller's demographic information (name, age, gender, occupation, education, address, etc.), as well as information about the caller's level of tobacco use, expenses, and income. The information is stored on the server and is kept confidential [9]. Tobacco is very approachable, marked by persistent chemical and molecular alterations in the brain, compulsive drug seeking and abuse, and both. When the user tries to stop using it, they experience withdrawal symptoms like anxiety and irritability. In its worldwide report on the prevalence of tobacco use from 2000 to 2025, the WHO projected that there were 1.337 billion tobacco users worldwide in 2018 [7]. There is a widespread belief that if current tobacco

use patterns continue, about half of the world's population will eventually perish from tobacco use. According to the current trend in morbidity and mortality, smoking-related deaths are expected to reach 10 million annually by 2030, or 1 death every 3 seconds [3]. Tobacco is used both smokeless and smoked in India. Of the population, 10.7% (99.5 million) smoke, 21.4% (199.4 million) use SLT, and 28.6% (266.8 million) consume tobacco in any form. In India, bidis make up the majority of smoked tobacco use. In the lower socioeconomic strata, bidis consumption exceeds cigarette smoking by a factor of 8 to 10. The two most popular chewable SLT products in India are gutka and khaini. In the previous 12 months, 33.2% of users of SLT and 38.5% of current smokers attempted to stop. Of current tobacco users, 49.6% were SLT users, and 55.4% of smokers said they planned to stop using tobacco products [10].

As nicotine replacement therapy has been shown to be effective in helping smokers quit, and since the quitline at VPCI (NTQLS) does not provide medication, quitting was accomplished without the need for pharmacological intervention. Studies suggest that non-pharmacological interventions are also effective in tobacco cessation [2]. Regular reactive calls suggest that the individuals were inspired to give up smoking. Numerous studies indicate that social influence factors play a role in helping people give up tobacco use [11]. The prevalence estimates of registered callers from different socioeconomic and demographic characteristic who wants to quit their tobacco use habit (Table 1). As per the data obtained from this study, it is seen that males are comparatively higher in numbers when it comes to consuming tobacco than females. There is a vast difference between the two genders. Of all registered callers, 98.57% of males are consuming tobacco, whereas only 1.43% of females are consuming tobacco. In a study by Mamta Agrawal *et al.*, a significant gender difference was seen for tobacco use, with fewer females being habitués of tobacco as compared to males [12]. In a similar study, the same results were found [13]. As per that research study, the lower consumption of tobacco among females is due to the prevalence of diseases. Smoking during pregnancy

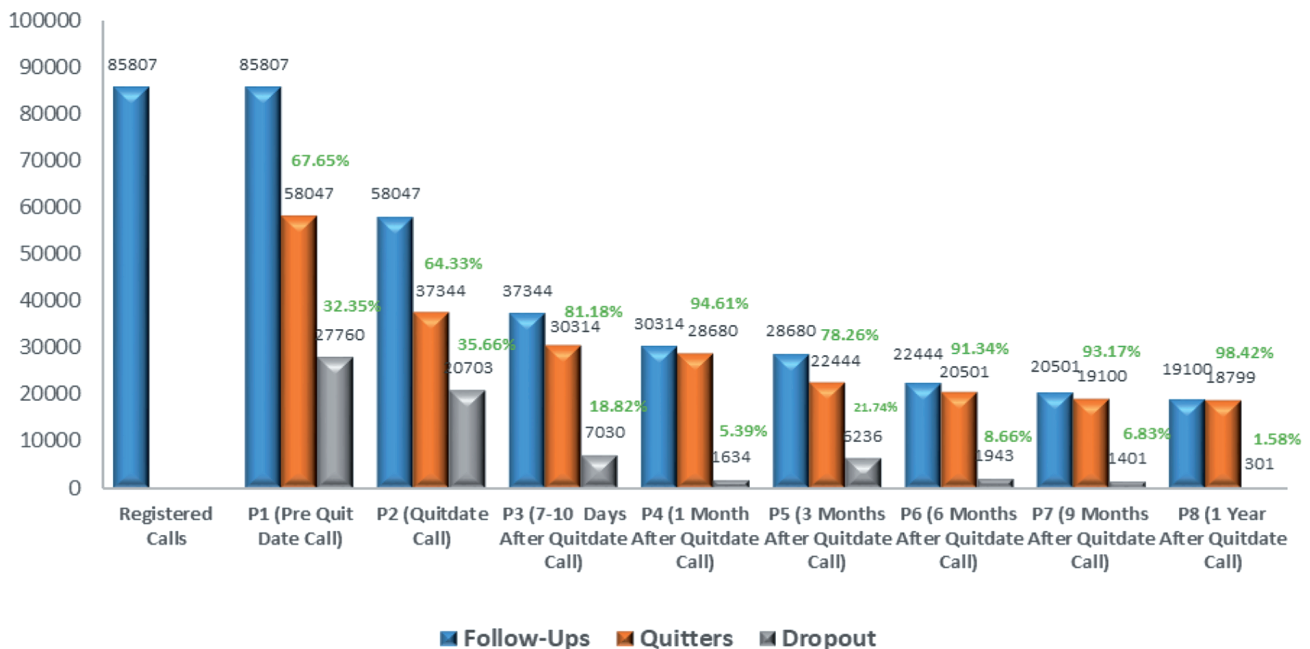


Figure 3. The periodic abstinence rate of registered callers who have completed at least 1 year of follow-ups.



reduces birth weight substantially, which is associated with infant mortality and illness. It also increases the risk of miscarriage, still-birth, and premature birth. Women are at risk from the same tobacco-related diseases as men, and are also affected by other particular conditions, such as the increased hazards of infertility and menstrual disorders [13]. In the Indian context, societal taboo deeply exists, and consequently, women are highly dependent on their families [14]. It could be a probable reason that they are hesitant to approach the cessation process, as it risks confidentiality [15]. Another probable reason for the low prevalence rate of tobacco consumption among women is that they are mostly housewives [16]. Prevalence of SLT use was comparatively lower among women with family income above Rs. 5000 per month [17]. According to this study, Betel-tobacco quit was found to be fairly popular in Karnataka, with prevalence being 14.2% (26.9% among males and 0.6% among females) in Karnataka [13].

For the dimension of marital status, nearly equal percentages reported in terms of tobacco usage among those who are married as compared to those who are unmarried. Since the research focuses on the aspect of quitting, *i.e.*, the willingness to approach the tobacco quitline and quit, apparently, there is more or less similarity in the percentage of the two sub-dimensions. Studies have shown results of the prevalence of tobacco use among these sub-categories; however, no such strong evidence has been found regarding quitting. Different sub-dimensions for the variable of 'education and tobacco use' are also a focus area of this research. Tobacco is significantly associated with education (Table 1). The major tobacco users who approach the quitline to quit tobacco have an educational level up to class 12. About 65% of the tobacco users belong to this educational range. In addition to this, the research study found that only 3.4% of the tobacco users are illiterate. Whereas many studies show that tobacco use, both smokeless and smoking, is inversely related to education, tobacco users are more likely to be illiterate [14]. It is probable that the illiterate does not have enough information or awareness to access the toll-free number and approach the quitline to initiate the process of tobacco cessation. Secondly, it is also possible that illiterate people are unaware of the harmful consequences that tobacco has on the mental and physical health of the person. Further, this study shows that illiterate people were less likely to try quitting tobacco and think of quitting tobacco as compared to their counterparts. Similar to this finding, Garg *et al.* reported that low educational status was associated with poor quitting behavior [17]. Islam *et al.* inferred that intention to quit was higher among more educated people [18]. Rosenthal *et al.* reported that a lower education level was associated with difficulty in quitting tobacco [16]. In other studies, the same is pointed out: "the illiterate cannot read statutory health warnings. Among the more educated and urban population, tobacco use seems to be more in response to peer pressures and advertising, while some knowledge of possible health consequences is laid aside as irrelevant for the present. Thus, this research highlights the importance of community outreach programs, wherein the people are made aware of the harmful consequences of tobacco use and the possible methods to quit its use". The statistical analysis shows that tobacco use is more prevalent among those who are illiterate, and it gradually decreases as the level of education increases. According to the Indian smoke-free law, the Cigarettes and Other Tobacco Products Act, there is a mandatory provision of health warning on tobacco products [19,20]. The present study found that illiterates were less likely to notice health warnings on cigarette packets and SLT pouches. This finding is supported by a study conducted by Hammond *et al.*, wherein it was reported that less educated respondents were less likely to be

exposed to health warnings [21]. The other reasons that lead to the engagement of the poor in using tobacco include low-cost sources of pleasure, using tobacco as a relief for a number of problems like sleep problems, toothache, constipation, gastric complaints, *etc.* Hence, it is not just a lack of education or insufficient guidance but also a lack of awareness that one develops from education. The NTQLS has witnessed several calls wherein the caller is completely unaware of why the toll-free number was given on the packet and the importance of printed warnings.

Lower income is significantly associated with a higher number of tobacco users. In this study, it was found that of all the tobacco users, 46.9% tobacco users have no income or an income of less than 10,000 per month. In many studies, it was found that the tobacco consumption for poor and underprivileged people is significantly larger [22]. In a review by Hiscock, it was reported that population with low socioeconomic status are more likely to be exposed toward tobacco consumption and quit attempts are less likely to be successful in these individuals mainly due to reduced community support for quitting, less motivation to quit, very strong addiction, greater likelihood of not completing pharmaceutical and behavioral intervention for tobacco quitting, psychological problems such as lack of self-efficacy, and tobacco industry marketing [23]. Recently, Kumar *et al.* observed the deeper understanding of health behaviors in communities, guiding the development of targeted interventions for better respiratory health outcomes [24].

In this study, we have found a variation in the tobacco use by age category. The most tobacco users registered were in the age group of 15-24 years (youth) and 25-64 years (adults), with 44.83% and 53.78% respectively; whereas children (14 years or less) and seniors (65 years and above) are lower, with 0.45% and 0.95%. This suggests that youth and adults are more prone to tobacco use and seek help to quit the tobacco use habit. Studies show similar results where an increase in tobacco use was seen with age for males up to the age of 59, and then a significant decline is observed. It was observed that most of the registered callers are the least educated and have very low-income levels. The estimates of registered tobacco users of the age group 15-25 among all tobacco users in this study were 45.5%. The Global Adult Tobacco Survey (2016-2017) found that among 266.8 million tobacco users, 28.6% tobacco users are adults above the age of 15 [6,25]. Tobacco use among uneducated people or very little educated people (up to class 10) was found to be very common in this study, 43.81%. Uneducated males and females are more likely to be exposed to the risk of tobacco use. This can often be attributed to less knowledge and awareness among the uneducated people. Lower income is significantly associated with a higher number of tobacco users; in this study, it was found that of all the tobacco users, 46.9% have no income or an income of less than 10,000 per month. In many studies, it was found that the tobacco consumption for poor and underprivileged people is significantly larger [22].

Quit rates in different countries

The prolonged abstinence rate of registered callers after one month and 1 year in NTQLS was found to be 33.42% and 21.91% respectively. The Vietnam national telephonic counseling for smoking cessation has reported a 31.6% abstinence rate for 7 days [5]. The 3-month abstinence rate for clients in China is about 20% [5]. In Korea, the 1-year abstinence rate of clients is 26% [5]. The New Zealand quitline achieved a 24.2% self-reported quit rate at 3 months and 20.9% at 12 months [5]. In California, the rates of abstinence for 1, 3, 6, and 12 months, according to an intention-to-treat analysis, were 23.7%, 17.9%, 12.8%, and 9.1%, respectively [5].

Taiwan has reported 6-month point prevalence abstinence rates in 2005 and in 2014 were 41.7% and 38.7% [5].

Conclusions

NTQLS provide standardized and professional telephonic counseling to tobacco users across the country and thereby acquaints them with the knowledge, need, and ways to reduce tobacco usage. This paper highlights the prevalence of tobacco consumption and the importance of quitlines in tobacco cessation. Therefore, effective advocacy campaigns should be implemented to publicize the quitline for a greater reach. Several protocols need to be developed to cover different sub-populations so that a better service is provided to the larger public.

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