

FACTORS ASSOCIATED WITH SMOKING QUIT ATTEMPTS AMONG TOBACCO SMOKERS

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Abstract

Despite more than one-third of tobacco users attempting to quit tobacco each year, only 4–6 % of them succeed to remain abstinent after one year.

The aim: This study aims to estimate the proportion of smokers who attempt to quit tobacco smoking and determine factors associated with quitting behaviour.

Methods: This community-based, cross-sectional study was conducted among 720 smokers aged 18 years and above residing in a rural area of Haryana state of India. A chi-square test determined the association between various variables under study and quitting attempts among study subjects. Factors found to be statistically significant using a chi-square test were entered into a binary logistic regression analysis to obtain determinants of smoking quitting attempts among the respondents.

Results: 28.5 % of the respondents had attempted to quit smoking during the past 1 year. The majority of them, i.e., 73.7 %, had attempted once, whereas 21.0 % and 5.4 % of respondents had made 2 and 3 attempts, respectively, to quit smoking during the last 1 year. Factors independently associated with quitting behaviour were educational level (AOR=1.851, p=0.028), age of initiation (AOR=0.620, p=0.026), reasons for smoking (AOR=1.681, p=0.016), money spent on smoking (AOR=1.700, p=0.003), family pressure to quit smoking (AOR=1.725, p=0.006) and advice from health professionals to quit smoking (AOR=2.104, p<0.001).

Conclusion: Around one-third of smokers have attempted to quit tobacco smoking in the past year. Hence there is a need to formulate policies towards a targeted intervention for smokers who have not attempted to quit smoking in the past 1 year for effective tobacco control

Keywords: tobacco, smoking, quitting, rural, attempts, determinants, recreation, health professional advice

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1. Introduction

According to the GATS 2009-10 report, India is the world's second-largest consumer and third-largest producer of tobacco products, with one-third of the adult population using tobacco in one form or the other [1]. India also has the second-highest number of female smokers [2]. Globally, 22.3 % of people were using tobacco in 2020, and 36.7 % of all men and 7.8 % of the world's women were tobacco users [3]. In addition, the National Family Health Survey-5 (NFHS-5) show that nearly 39 % of men and 4 % of females between the ages of 15–49 in India are tobacco users. Rural areas show a higher proportion of tobacco users than urban ones [4].

Tobacco use has been related directly to significant health problems like cardiovascular problems, chronic lung diseases, and cancers, to name a few [5]. Tobacco kills more than 8 million people yearly, of which 7 million deaths are due to direct tobacco use. At the same time, around 1.2 million are the result of non-smokers being exposed to second-hand smoke [3]. In addition, almost 40 per cent of tuberculosis deaths in India are associated with smoking [6].

The central government of India enacted the *Cigarettes and Other Tobacco Products Act (COTPA)* on May 1, 2004. This legislation includes a ban on public smoking, a ban on the advertisement of tobacco products, ban on selling tobacco products to a person below the age of 18, among others. Despite this, data from the 2009–2010 Global Adult Tobacco Survey shows that around one-third of the respondents reported exposure to second-hand smoke while visiting a public place during the past 30 days [1].

Despite 40 % of smokers making an attempt to quit each year, only 4–6 % of smokers making an aided attempt manage to remain abstinent after one year. In comparison, 25 % of those using medicines remain abstinent for 6 months [7]. According to NFHS-5, during 2019-20, around 30 % of men and 32 % of women aged 15–49 years tried to stop smoking or using tobacco in any other form in the past 12 months [4]. Research has shown that quitting by the age of 30 prevents almost all long-term health-related effects of smoking [8]; hence targeting interventions early can save people from major tobacco-related morbidity and mortality.

In this context, this study was conducted to determine the quitting behaviour of tobacco smokers among smokers aged 18 years and above in the rural area of Haryana and determine the factors associated with the attempt to quit smoking in the past year.

The study aimed to estimate the proportion of smokers who attempted to quit smoking in the past year and determine factors associated with quitting attempts.

2. Material and methods

Study design

This is a community-based, cross-sectional study

Study area

The study was conducted in a rural area of Haryana state of India for 1 year, from Feb 2018 to Jan 2019.

Study population

The study population included current tobacco smokers aged 18 years and above residing in the study area.

Sample Size

The sample size was calculated to be 714 subjects taking the prevalence of quitting attempts in the last 1 year at around 35 % per GATS-1 [1] and 10 % as the allowable error.

Data collection

Each subject was explained the motive behind the study and asked the questions in a language they understood. The questions were put up in the vernacular language of the participants and, in case of difficulty, were explained to the best of our ability.

Data about socio-demographic factors, like age sex, occupation, and education were obtained. In addition, the subjects were asked about the history of any attempt to quit tobacco smoking during the previous year and the number of attempts in the same year. Information regarding the type of tobacco product used for smoking, age of smoking initiation, the reason for smoking, money spent for smoking, any smoker in the family, whether family members nag to quit, awareness regarding harmful effects of smoking, health professional advice received for quitting smoking and history of any chronic disease was also collected from the respondents.

Ethics approval

Prior approval of the institutional ethical committee of MMIMSR was sought through No. IEC/MMIMSR/18/219 Dated: 19.07.2018. Informed written consent was taken from all the participants, and they were assured of the confidentiality of the information obtained from them.

Statistical Analysis

Data were entered into Microsoft Excel and analyzed in the Statistical package for social sciences (SPSS version 20). First, a descriptive analysis was performed with the use of percentages. Then, the Chi-square test was used to determine factors associated with quitting attempts in the last year. Factors found to be statistically significant were entered into Binary Logistic regression analysis (Enter method) to determine factors independently associated with the quitting behaviour. Odds ratios with 95 % confidence intervals were obtained, and p-values less than 0.05 were considered statistically significant.

3. Results

Table 1 shows that out of a total of 720 subjects, 86.3 % were male subjects, while the rest, 13.7 %, were females. Only 6.4 % of the subjects were aged up to 20 years, 11.5 % were above 60 years of age, and the majority were between 20–60 years of age. 32.1 % of the respondents were

illiterate, and only 3.8 % and 5.3 % had an educational level of higher secondary and graduation. The majority of the subjects were employed (67.5 %)/self-employed (17.6 %), whereas 13.5 % of respondents were unemployed and 1.4 % were retired. Most of the subjects used a bidi (64.3 %) form of tobacco smoking.

Table 1
Background characteristics of respondents

| Characteristics | No. | % |
|---------------------|-----|--------|
| <i>Age in years</i> | | |
| Up to 20 | 46 | 6.4 % |
| 21–40 | 308 | 42.8 % |
| 41–60 | 283 | 39.3 % |
| Above 60 | 83 | 11.5 % |
| <i>Gender</i> | | |
| Male | 621 | 86.3 % |
| Female | 99 | 13.7 % |
| <i>Education</i> | | |
| Illiterate | 231 | 32.1 % |
| Middle School | 227 | 31.5 % |
| High School | 197 | 27.4 % |
| Higher Secondary | 27 | 3.8 % |
| Graduate and above | 38 | 5.3 % |
| <i>Employment</i> | | |
| Unemployed | 97 | 13.5 % |
| Employed | 486 | 67.5 % |
| Self-employed | 127 | 17.6 % |
| Retired | 10 | 1.4 % |
| <i>Product Used</i> | | |
| Bidi | 463 | 64.3 % |
| Cigarette | 78 | 10.8 % |
| Hookah/Others | 179 | 24.9 % |

Table 2 shows that 28.5 % of the respondents had attempted to quit smoking in the last year. The majority of them, i.e., 73.7 %, had attempted once, whereas 21.0 % and 5.4 % of respondents had made 2 and 3 attempts, respectively, to quit smoking during the last 1 year.

Table 2
Tobacco smoking quitting attempts among respondents

| Quitting Attempts during the last 1 year | No. | % |
|--|-----|--------|
| <i>Attempted to quit</i> | | |
| Yes | 205 | 28.5 % |
| No | 515 | 71.5 % |
| <i>No. of attempts to quit</i> | | |
| 1 | 151 | 73.7 % |
| 2 | 43 | 21.0 % |
| 3 | 11 | 5.4 % |

Table 3 shows factors associated with quitting attempts for smoking during the previous year. Age ($p=0.019$), education ($p=0.002$), age of smoking initiation ($p=0.014$), reasons for smoking ($p=0.003$), money spent on smoking ($p=0.001$), family pressure to quit ($p<0.001$), history of any chronic disease ($p=0.009$) and advice received from a health professional for quitting smoking ($p<0.001$) were found to be significantly associated with attempts to quit smoking during the previous year on univariate analysis.

Table 3 also shows factors independently associated with quitting attempts in the last year using binary logistic regression analysis. Respondents with the educational status of above matric had significantly ($p=0.026$) higher odds (AOR=1.851; 95 % CI=1.075–3.188) of attempting to quit smoking than those below matric. Higher age of smoking initiation was associated with lower odds of quitting attempt (AOR=0.620; 95 % CI=0.407–0.944). Other factors significantly showing higher odds of quitting attempt were ‘Habitual/Recreation/Time pass’ as a reason for smoking, ‘more money spent on smoking’, ‘family pressure to quit’, and advice received from a health professional for quitting smoking.

Table 3

Factors associated with tobacco smoking quitting attempts among respondents

| Attempted to quit | | UOR (95 % CI) | p-value | AOR (95 % CI) | p-value |
|-------------------------------|------------|---------------------|---------|---------------------|---------|
| Variables | n (%) | | | | |
| Age in years | | | | | |
| Up to 30 | 40 (21.7) | 1 | | 1 | |
| Above 30 | 165 (30.8) | 1.131 (1.028–1.243) | 0.019 | 1.378 (0.906–2.097) | 0.134 |
| Gender | | | | | |
| Male | 183 (29.5) | 1 | | – | – |
| Female | 22 (22.2) | 0.907 (0.807–1.019) | 0.138 | – | – |
| Education | | | | | |
| Up to matric | 176 (26.9) | 1 | | 1 | |
| Above matric | 29 (44.6) | 1.320 (1.056–1.650) | 0.002 | 1.851 (1.075–3.188) | 0.028 |
| Employment | | | | | |
| Employed | 178 (29.0) | 1 | | – | – |
| Unemployed/Retired | 27 (25.2) | 0.949 (0.841–1.071) | 0.421 | – | – |
| Age of initiation | | | | | |
| Up to 25 years | 165 (30.9) | 1 | | 1 | |
| Above 25 years | 40 (21.5) | 0.880 (0.801–0.967) | 0.014 | 0.620 (0.407–0.944) | 0.026 |
| Reason for smoking | | | | | |
| Habitual/Recreation/Time pass | 154 (26.7) | 1 | | 1 | |
| Stress relief/Relaxation | 51 (35.7) | 1.139 (0.999–1.300) | 0.033 | 1.681 (1.103–2.563) | 0.016 |
| Money spent on smoking/month | | | | | |
| Less than Rs 500 | 113 (24.4) | 1 | | 1 | |
| More than Rs 500 | 92 (35.9) | 1.181 (1.063–1.312) | 0.001 | 1.700 (1.193–2.423) | 0.003 |
| Smoker in family | | | | | |
| None | 77 (30.4) | 1 | | – | – |
| Yes | 128 (27.4) | 0.958 (0.868–1.058) | 0.390 | – | – |
| Family pressure to quit | | | | | |
| No | 47 (19.9) | 1 | | 1 | |
| Yes | 158 (32.6) | 1.189 (1.088–1.299) | <0.001 | 1.725 (1.166–2.552) | 0.006 |
| H/O Chronic disease | | | | | |
| No | 165 (26.7) | 1 | | 1 | |
| Yes | 40 (39.2) | 1.206 (1.025–1.419) | 0.009 | 1.049 (0.635–1.732) | 0.853 |
| Awareness | | | | | |
| No harm | 8 (26.7) | 1 | | – | – |
| Harmful | 197 (28.6) | 1.026 (0.823–1.280) | 0.823 | – | – |
| Health professional advice | | | | | |
| Not received | 100 (21.8) | 1 | | 1 | |
| Received | 105 (40.2) | 1.309 (1.172–1.462) | <0.001 | 2.104 (1.432–3.092) | <0.001 |

4. Discussion

Overall, 28.5 % of current smokers had attempted to quit smoking during the previous year, which is almost similar to the NFHS-5 report of India, according to which around 31 % of men and women aged 15–49 years from rural areas of India tried to stop smoking or using tobacco in any

other form in the past 12 months in 2019–20 [4]. As per GATS-2, 35.5 % of smokers attempted to quit nationally in the past 12 months [9].

In our study, higher quitting behaviour was observed among male smokers compared to female smokers, as 29.5 % of men attempted to quit smoking compared to only 22.2 % of women. However, this is in contrast to the NFHS-5 report, in which 22.3 % of men and 42.3 % of women aged 15–49 years from Haryana state had attempted to quit tobacco use in the past 1 year [4]. In addition, a study from Bangladesh also reported significantly higher quitting behaviour among males than females, as found in our study [10].

However, in our study, gender was not associated with quit attempts among respondents, which is in concordance with previous studies [11, 12]. However, some studies have reported gender as a predictor of smoking quitting, with male smokers having higher attempt rates than female smokers [9, 13, 14]. On the contrary female smokers have also been found to have higher quitting attempts than males [15]. Therefore, though quit rates were quite different among males and females, we could not determine a significant association, probably due to fewer females in our study.

Attempts to quit smoking did not depict any association with age; the same has been reported in previous studies [12, 16, 17]. Though ill health among the elderly seems to have more effect on quitting attempts among the elderly, this does not seem to affect smoking cessation.

Smokers with lower education were less likely to make quit attempts, consistent with findings of GATS-1 of India [1, 16] and other countries [12, 17]. Subjects with lower literacy levels may have lower awareness regarding the ill effects of smoking and hence may show lower quitting behaviour. On the contrary, smokers did not show any significant association between quitting attempts and awareness, which was also observed in GATS-2 [9]. However, some studies reported a significant association with awareness [12, 18, 19].

Early smoking initiation was found to have a significant impact on smoking quitting behaviour in our study, as shown by more serious quit attempts among those with early age of smoking initiation. Furthermore, according to a study conducted on smoking cessation in young adults by N Breslau et al., it was found that the likelihood of cessation was higher in those individuals who started smoking after the age of 13 [20].

Higher monthly expenditure on smoking and increased family pressure to quit smoking was also associated with an increased likelihood of an attempt to quit smoking in our study. Similar findings were reported in another study in a West Bengal rural area [21]. In addition, increasing the cost of tobacco products may be beneficial for smoking cessation programs, as one study by Bader P et al. showed that prices hike can help people quit [22].

Health professional advice also influences quitting behaviour of smokers, as smokers who had received such advice had significantly higher quitting attempts. Srivastava S et al. also reported significantly higher odds of attempts to quit smoking among smokers who had received health professionals' advice to quit smoking [16]. Individuals develop a higher intention to quit smoking when they receive health professionals' advice and subsequently attempt to quit [23, 24].

In a review done by David Hammond, it was found that health warnings published on the packets and boards have a considerable effect on health knowledge and perception of risk [25]. It suggested that comprehensive warnings are adequate amongst the youth and may help in delaying initiating or promoting cessation. Moreover, picturesque warnings were found to be more effective than obscure text-only warnings.

Limitations of the study. Some of the essential correlates, like duration of smoking and intensity of smoking, were not assessed in the study subjects. In addition, psychological problems like depression and anxiety, which may predispose to smoking, were also not evaluated.

Prospects for further research. Although significant results were obtained regarding factors associated with quitting attempts of tobacco smokers, the results are based on a cross-sectional study design. Therefore, there is a definite scope for conducting similar research using a follow-up study design to determine the effect of time on determinants of tobacco cessation. Further, other factors like psychological factors such as depressive/anxiety disorders and alcoholism may also have an association with quit attempts that need to be evaluated.

5. Conclusion

Educational level, reasons for smoking, money spent on smoking, family pressure to quit smoking and advice from health professionals to quit smoking were associated with quitting attempts for smoking cessation in our study. These factors should be taken into consideration during the formulation and implementation of tobacco control strategies. As only around one-third of the smokers attempted to quit smoking, targeted interventions directed towards those smokers who did not attempt to quit smoking can prove to be a successful tool for tobacco control.

Conflict of interest

The authors declare that there is no conflict of interest in relation to this paper, as well as the published research results, including the financial aspects of conducting the research, obtaining and using its results, as well as any non-financial personal relationships.

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