

A Community-based Assessment of Exposure to Tobacco Advertising, Promotion and Sponsorship (TAPS) among Adults Residing in an Urbanized Village in Delhi, India

Yukti Bhandari^{1*}, Jugal Kishore², Abhilasha Yadav³, Aritrik Das¹

Abstract

Background: A comprehensive ban on tobacco advertising, promotion, and sponsorship (TAPS) is known to significantly reduce tobacco consumption and has been incorporated into the Framework Convention on Tobacco Control since 2003. Though Indian legislation also comprehensively bans TAPS, existing literature indicates poor and non-uniform implementation across the country. This study aims to assess the exposure to TAPS among adults residing in an urbanised village in South Delhi. **Methods:** It was a community-based cross-sectional house-to-house survey conducted in Aliganj, Delhi, between Apr 21 and Jun 21. 490 residents aged ≥ 15 years were included in the study. The interview was conducted using the Global Adult Tobacco Survey questionnaire. Data was analyzed using SPSS 21. Multivariable logistic regression analysis was conducted to identify the channels of communication where exposure to messaging encouraged thoughts of quitting. **Results:** Out of 490 study participants, 93(18.9%) were exposed to TAPS for smoked tobacco products, 88(17.9%) for smokeless tobacco products, and 74(15.1%) for both smoked and smokeless tobacco on various platforms. Exposure to TAPS for smokeless tobacco was more likely at stores where the products are sold (aOR = 2.19;95% C.I.-1.19-3.98), on television (aOR = 4.12;95% C.I.-1.49-11.39), billboards (aOR = 3.48;95% C.I.-1.18-10.29), and posters (aOR = 3.04;95% C.I.-1.22-7.60). Among smokers, 77.1%, and smokeless tobacco users, 75.4% had to quit thoughts triggered by packet warnings. Education and employment were found to be significantly associated. **Conclusion:** Almost one-fifth of the participants were exposed to TAPS through various channels. Our findings indicate that implementing the TAPS ban remains partial in our study area, especially regarding smokeless tobacco products, compared to state and national level estimates. Focusing on mass media anti-tobacco campaigns for both smoked and smokeless products, through television, newspapers, and magazines, in addition to comprehensive TAPS ban enforcement, can contribute effectively to reducing tobacco consumption in our study population.

Keywords: Tobacco use- Tobacco Industry- Tobacco control- Legislation

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Introduction

The WHO Framework Convention on Tobacco Control (WHO FCTC) is an important global accord established and supported by the World Health Organization (WHO). It was adopted on May 21, 2003, and came into full effect on February 27, 2005. Since its inception, the treaty has been widely and swiftly accepted, making it one of the most embraced treaties in the United Nations' history, with India being one of its early signatories [1]. The primary purpose of the WHO FCTC has been to address the rampant tobacco epidemic on a global scale.

The tobacco industry employs diverse methods to promote products, encompassing direct marketing, public relations, sales promotion, personal selling, and

interactive online marketing [2]. Tobacco companies claim that their marketing is to persuade smokers to adopt their specific brand. However, evidence shows that these campaigns associate smoking with attractive images, including independence, glamour, and machismo [3]. Tobacco advertising, promotion, and sponsorship (TAPS) is used to discourage smokers from quitting, to encourage new smokers, and to undermine restrictions on tobacco marketing [4]. To effectively curtail this, a broad and all-encompassing approach is necessary. Comprehensive TAPS bans must cover traditional and emerging marketing platforms, including print media, branded packaging, billboards, point-of-sale displays, online and social media, event sponsorship, surrogate marketing, apparent 'corporate social responsibility' campaigns, direct mail,

¹Department of Community Medicine and School of Public Health, Post Graduate Institute of Medical Education and Research, Chandigarh, India. ²Department of Community Medicine, Vardhman Mahavir Medical College and Safdarjung Hospital, Delhi, India. ³Department of Psychiatry, Vardhman Mahavir Medical College and Safdarjung Hospital, Delhi, India.
*For Correspondence: dr.yuktibhandari@gmail.com

free giveaways and price promotions [4]. Article 13 of the Convention explicitly acknowledges that a partial advertising ban would only have minimal impact on tobacco consumption and highlights the vital significance of enforcing a complete prohibition on tobacco advertising, promotion, and sponsorship [1].

The patterns of tobacco promotion have been extensively researched, and it has been consistently associated with an increase in smoking behaviour, especially among the youth [5-8]. At the same time, comprehensive TAPS bans could reduce tobacco consumption by up to 16%, while partial advertising bans have had negligible effect on tobacco consumption [9]. Globally, 46 countries have adopted comprehensive TAPS legislation, including 32 low and middle-income countries [10]. This includes India, where the Government of India enacted the Cigarettes and Other Tobacco Products Act, 2003 (COTPA) in 2004, incorporating a comprehensive TAPS ban framework. This was strengthened by the National Tobacco Control Program (NTCP) in 2007, comprehensive tobacco-free film and movie rules in 2012, and a national campaign to boost awareness of the various provisions of COTPA in 2017 [11, 12]. However, the implementation of NTCP and COTPA has remained partial and uneven, primarily owing to the lack of an execution plan and suboptimal engagement of the stakeholders, including the community [13].

Partial and poorly implemented TAPS bans have consistently been shown to be ineffective, as they allow the tobacco industry to reallocate its resources to take advantage of the loopholes in the legislation or the gaps in its implementation [5, 14]. Evidence indicates that adults were less aware of tobacco advertising and promotion where TAPS bans were implemented comprehensively [15]. On the other hand, previous studies have found that it is possible to reduce tobacco consumption by raising awareness through various communication channels, including mass media, social media, and health warnings on tobacco packets [16, 17]. Considering the uneven implementation of TAPS bans in different parts of India and the evolving patterns of tobacco consumption, there has been a dearth of recent community-based studies investigating the potential variations at the local levels. With the significance of the above in mind, the present study aims to assess the exposure to TAPS among adults residing in an urbanised village in the southern part of Delhi. In addition, the study aims to identify effective channels for communication of cessation messages for tobacco users among this population.

Materials and Methods

A community-based cross-sectional house-to-house survey was conducted in Aliganj, an urbanized village in Delhi, India, between April 2021 and June 2021, among individuals aged ≥ 15 years, residing in Aliganj for more than 6 months. The population of an urbanised village provides a heterogeneous sample owing to its migrant composition and fluctuating nature. The sample size was calculated based on proportions using the prevalence of adults noticing any kind of advertisements or promotion

for bidi in Delhi, which was 17.9%, as reported by the Global Adult Tobacco Survey (GATS) 2 2016-17 [17]. Accounting for a relative error of 15% and a non-response rate of 10%, the final sample size was calculated to be 490.

For recruitment, a simple random sampling technique was employed. A number was assigned to every individual ≥ 15 years old residing in Aliganj for more than 6 months, as per the household enumeration list available with the community health worker. Random numbers were generated to select 490 individuals from this list. Three attempts were made to contact unavailable participants on different days and times. If the participant was unavailable even after three attempts, the next participant was chosen.

Interviews were conducted using the Global Adult Tobacco Survey (GATS) developed by the Centers for Disease Control and Prevention, Johns Hopkins Bloomberg School of Public Health, RTI International, CDC Foundation, University of North Carolina, Gillings School of Public Health, and WHO. [18] It was designed to produce estimates of tobacco use among adults at national and subnational levels. It was used to collect data on exposure to tobacco advertising, promotions, and sponsorships in the last 30 days and if the respondent noticed information or news stories from various sources about the dangers of tobacco products or messages that encouraged quitting in the past 30 days. This was used to estimate the prevalence of exposure to TAPS among the study population. In addition, data was collected on the socio-demographic characteristics of the study participants, including age, gender, religion, education, occupation, marital status, literacy, and tobacco use status. These variables were explored for possible associations with exposure to TAPS and to identify channels of communication where the study participants were most commonly exposed to tobacco quitting messages.

Each participant was enrolled in the study only after explicitly explaining the purpose of the study to the primary author, after which informed written consent was obtained. Ethical clearance was obtained from the Institutional Ethics Committee. All the tobacco users identified were enrolled in the tobacco cessation clinic and counselled for tobacco cessation. Participants not using tobacco themselves but having a smoker at home were encouraged to enroll the user in the tobacco cessation clinic.

The data collected was checked for errors after entering it into Microsoft Excel and analyzed using SPSS-21. Socio-demographic details of the study population have been appropriately categorised and described using frequencies and percentages. Chi-square and Fisher's Exact tests of significance have been used to study the association between the variables of interest and their potential predictors, and p-values of less than 0.05 have been taken as significant. Multivariable logistic regression analysis was conducted to identify significant TAPS channels as well as channels of communication significantly associated with triggered thoughts of quitting among users. The analysis was adjusted for all socio-demographic factors, including age, sex, education, occupation, religion, marital status, and socio-economic status, owing to the heterogeneity of the study population.

Results

Socio-demographic details

Table 1 describes the socio-demographic profile of the study participants. The median age of participants was 35 [IQR= 26.75-47], with the range 15-84 years. The majority of the study participants were Hindu, literate, educated up to high school, married, and belonged to the middle class. Of the 490 study participants, there were 98 (20%) current tobacco users, of which 35 (7.1%) smoked tobacco, 52 (10.6%) used smokeless tobacco, and 11 (2.2%) used both smoked and smokeless tobacco.

Exposure to TAPS

Of 490 study participants, TAPS exposure was reported among 93 (18.9%) study participants for smoked tobacco products and 88 (17.9%) for smokeless tobacco products on various platforms. A total of 74 (15.1%) of the study participants were exposed to TAPS for both smoked and smokeless tobacco products. Table 2 shows the prevalence of exposure to TAPS through various platforms among the study participants.

Among those who were exposed to TAPS in the last 30 days, tobacco users were found to be significantly more likely to notice TAPS for smoked tobacco on television (aOR = 3.14; 95% C.I. 1.19-8.29) and posters (aOR = 2.78; 95% C.I. 1.13-6.83) and TAPS for smokeless tobacco at stores where the products are sold (aOR = 2.19; 95% C.I. 1.19-3.98), television (aOR = 4.12; 95% C.I. 1.49-11.39), billboards (aOR = 3.48; 95% C.I. 1.18-10.29), and posters (aOR = 3.04; 95% C.I. 1.22-7.60).

Advertisements encouraging quitting tobacco

For smoked tobacco, 63.2% of participants observed such advertisements in newspapers and magazines, 77.1% on television, 56.1% on radio, and 56.4% on billboards. Participants also saw such advertisements on the internet (19), hospitals (7), movies (5), bus stops (3), public transport (3), school (3), tobacco-selling shops (2), books (1), college (1), and marketplaces (1). For smokeless tobacco, 59.5% of participants observed such advertisements in newspapers and magazines, 51.6% on television, 51.4% on radio, and 54.7% on billboards. Participants also saw such advertisements on the internet (19), hospitals (7), movies (5), bus stops (3), public transport (3), school (3), tobacco-selling shops (2), books (1), college (1), and marketplaces (1).

Tobacco users were significantly more likely to notice advertisements encouraging quitting tobacco on television. This included advertisements for quitting smoked tobacco (aOR = 2.57; 95% C.I. 1.10-6.27) and smokeless tobacco (aOR = 3.15; 95% C.I. 1.20-8.24). A greater proportion of tobacco users also noticed advertisements encouraging quitting tobacco in newspapers, magazines, and billboards, but the difference was not found to be statistically significant (Table 3).

Health warnings on tobacco packets and thoughts of quitting

Figure 1 [(a)-(d)] shows the exposure to health warnings on tobacco packets and its influence on triggering quitting thoughts among tobacco users.

Among smoked tobacco users, education (p-value = 0.016) and occupation (p-value = 0.016) were

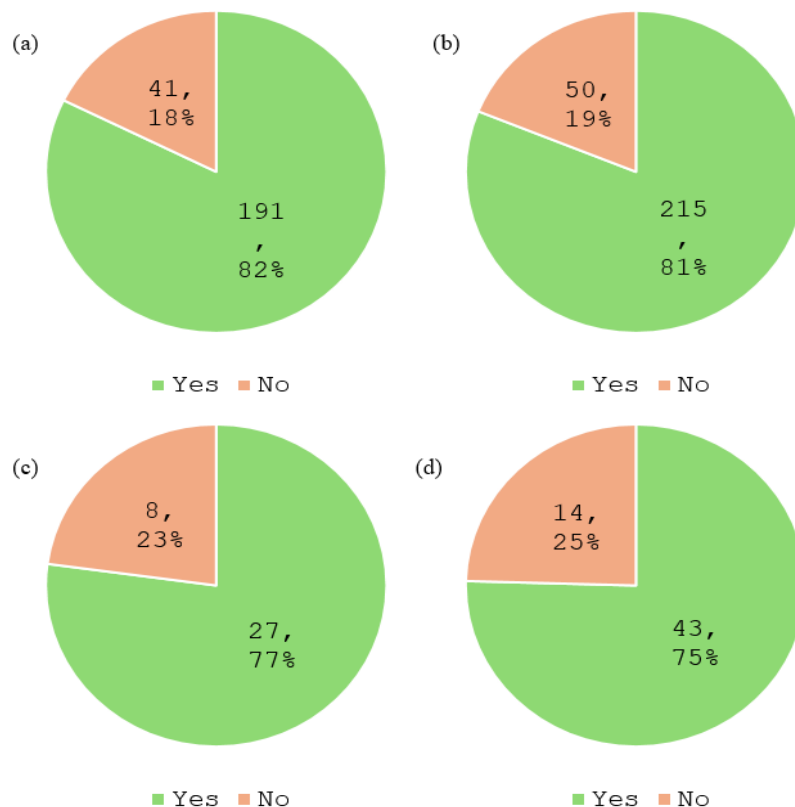


Figure 1. Exposure to Health Warnings on Tobacco packets (a) smoked tobacco (b) smokeless tobacco and its influence on trigger quitting thoughts (c) among smokers and (d) smokeless tobacco users.

Table 1. Socio-Demographic Profile of Participants

	Frequency	Percentage
Sex (N=490)		
Male	241	49.2
Female	249	50.8
Age (N=490)		
15-24 years	94	19.2
25-44 years	246	50.2
45-64 years	135	27.6
≥65 years	15	3.1
Education (N=489)*		
No formal schooling	92	18.8
Primary school completed or less	70	14.3
High school completed or less	278	56.9
College/University Degree or higher	49	10
Occupation (N=489)*		
Employed	227	46.4
Student	52	10.6
Homemaker	168	34.4
Retired/Unemployed	42	8.6
Religion (N=489)*		
Hindu	443	90.6
Others	46	9.4
Marital Status (N=489)*		
Married	356	72.8
Single/Separated/Divorced/Widowed	133	27.2
Can Read/Write (N=489)*		
Yes	371	75.9
No	118	24.1
Current Tobacco Use (N=490)		
Smoked tobacco user only	35	7.1
Smokeless tobacco user only	52	10.6
Both smoked and smokeless tobacco user	11	2.2
Non-user	392	80
Socio-Economic Status (N=490)		
Upper class	8	1.6
Upper middle class	101	20.6
Middle class	209	42.7
Lower middle class	167	34.1
Lower class	5	1

*1 participant refused to answer

found to be significant factors behind triggering thoughts of quitting on exposure to health warnings on tobacco packets. Out of the 27 smokers who thought of quitting, 20 (74.1%) were educated up to high school, and 25 (92.6%) were employed. Among the 43 smokeless tobacco users who thought of quitting, 24 (55.8%) were educated up to high school, and 41 (95.3%) were employed, but the association was not statistically significant.

Discussion

This community-based cross-sectional study provides

Table 2. Exposure to TAPS in the Last 30 Days

Location	Smoked n (%)	Smokeless n (%)
Stores where products are sold (n=363)	61 (16.8)	55 (15.2)
Television (n=327)	20 (6.1)	17 (5.2)
Radio (n=107)	4 (3.7)	3 (2.8)
Billboard (n=287)	11 (3.8)	14 (4.9)
Posters (n=383)	21 (5.5)	20 (5.2)
Newspapers or magazines (n=190)	8 (4.2)	9 (4.7)
Cinemas (n=127)	3 (2.4)	3 (2.4)
Internet (n=258)	7 (2.7)	5 (1.9)
Public transportation vehicles or stations (n=239)	5 (3.1)	9 (3.8)
Public walls (n=394)	10 (2.5)	11 (2.8)
Branding with sports or sporting events (n=477)	3 (0.6)	4 (0.8)
Free sample distribution (n=475)	6 (1.3)	4 (0.8)
Selling at sale prices (n=470)	8 (1.7)	7 (1.5)
Coupons for purchasing (n=471)	3 (0.6)	3 (0.6)
Free gifts or special discount offers on purchase (n=471)	6 (1.3)	5 (1.1)
Branding on clothes or other items (n=474)	3 (0.6)	6 (1.3)
Promotion in mail (n=474)	6 (1.3)	6 (1.3)

a unique insight into the effectiveness and implementation of several aspects of the COTPA Act in an urbanized village in New Delhi, the national capital of India. Almost 20% of the study participants were exposed to TAPS for smoked or smokeless tobacco products. This indicates that the current legislation and its implementation are lacking in terms of a comprehensive TAPS ban. Apart from the stores where tobacco products are sold, television, billboards, posters, and public walls were reported as areas where both tobacco users and non-users have noticed advertisements. More than half the study participants noticed advertisements encouraging tobacco quitting on major channels such as newspapers, magazines, radio, and billboards. Health warnings on tobacco packets triggered thoughts of quitting among more than three-fourths of the tobacco users who noticed these warnings.

Data on exposure to TAPS, though available on the WHO GATS Atlas, is non-uniform both in terms of the countries it is available for, and the time period considered [19]. Globally, exposure to TAPS for smoked tobacco products is widely variable depending on the extent of TAPS ban implementations, ranging from 0.3% in Ethiopia to 45.6% in Indonesia [19]. As per the GATS 2, 17.9% of adults in Delhi are exposed to TAPS for smoked tobacco products, as compared to 18.9% reported in our study [17]. This is particularly high considering the legislation aiming for comprehensive TAPS bans, and far higher than the overall findings for India (5.3% exposure to TAPS for smoked tobacco). Despite COTPA provisions, the TAPS bans appear to be partial and poorly implemented in Delhi, an effect that is also evident in our study population.

Globally, data for exposure to TAPS for smokeless tobacco is scarce [19]. As per the GATS 2 findings in India,

Table 3. Exposure to Advertisements Encouraging Quitting Tobacco in Last 30 Days among Tobacco Users and Non-Users

Type of tobacco product and location	Tobacco non-users n (%)	Tobacco users n (%)	p-value*	aOR (95% C.I.)#
Smoked tobacco				
Newspapers and magazines (n=190)	89 (61.4)	31 (68.9)	0.383	1.39 (0.68-2.85)
Television (n=327)	206 (74.9)	46 (88.5)	0.032**	2.57 (1.10-6.27)
Radio (n=107)	47 (56)	13 (56.5)	1	--
Billboards (n= 287)	121 (55.3)	41 (60.3)	0.487	1.23 (0.71-2.14)
Smokeless tobacco				
Newspapers and magazines (n=190)	82 (56.6)	31 (68.9)	0.166	1.70 (0.84-3.47)
Television (n=327)	206 (74.9)	47 (90.4)	0.018**	3.15 (1.20-8.24)
Radio (n=107)	43 (51.2)	12 (52.2)	1	--
Billboards (n= 287)	118 (53.9)	39 (57.4)	0.676	1.15 (0.67-1.99)

*, Chi-square test of significance was applied; **p-value < 0.05 was taken as significant; #, The analysis was adjusted for all sociodemographic factors

exposure to TAPS for smokeless tobacco products was limited to 5.7%. In comparison, our study found threefold greater exposure to TAPS for smokeless tobacco (17.9%) [17]. This difference might be due to the preference towards smokeless tobacco in this particular community residing in the urbanized village, and the strategies of TAPS may have been modified to suit the target audience. The differences are specifically local as the findings are greater even in comparison to Delhi (12%). This is supported by existing literature, which highlights the uneven implementation of different provisions of the COTPA Act across the national capital and the country [13, 20-23]. Comprehensive TAPS bans can only be ensured through stringent and uniform implementation of the relevant provisions, which can eventually contribute to an effective reduction in tobacco consumption [4]. Globally, exposure to TAPS has been consistently low in countries such as Russia and China, ranging between 0.3-7.9% [19]. Exploring the feasibility of adopting the best practices in such countries while considering varying local contexts is warranted [4].

As per the GATS 2 report, promotion of smoked (28.7%) and smokeless products (27.3%) was also high in places other than points of sale [17]. Our study also identified promotion in certain channels with significantly greater reach among tobacco users, such as televisions, billboards, and posters. Surveys also identified these channels in Mexico, Argentina, and several Southeast Asian countries [19]. Monitoring and regulations surrounding these channels must be stepped up as part of comprehensive TAPS bans to have a tangible impact.

The channels where messages encouraging quitting tobacco were noticed most were the television for smoked tobacco (77.1%) and newspapers and magazines for smokeless tobacco (59.5%). These findings were comparable to most countries globally in Europe and the Americas and were greater than in other Southeast Asian countries [19]. While the findings for smoked tobacco were comparable to GATS 2 findings from Delhi and India, the proportion of study participants who noticed similar messages for smokeless tobacco was less than 55% across all channels in our study as

compared to 65.7% in Delhi as per GATS 2 [17]. This is again indicated by varying local preferences, which may be behind the poor reception of the current anti-tobacco messaging for smokeless tobacco. Investing in tailored mass media campaigns using media such as television, newspapers, and magazines is also backed by existing literature [15, 16]. Evidence-based, culturally appropriate, and contextually relevant tobacco cessation messages designed for television, newspapers, and magazines may be an important focus point, besides comprehensive TAPS bans for the consolidated strengthening of our overall tobacco control policy.

Our study found that health warnings on tobacco packets triggered thoughts of quitting among 77% of smokers and 75% of smokeless tobacco users in our study population, compared to 61.9% among smokers and 46.2% among smokeless tobacco users across India [17]. Our findings are also markedly higher than the findings for Delhi (61.5% for smokers; 55.3% for smokeless tobacco users) [17]. When compared globally, these findings exceed all other national estimations [19]. Not only do these findings reiterate the importance of the visibility and the content of the health warnings on tobacco packets, but they also indicate that there has potentially been an underestimation of the effect of such health warnings on tobacco consumption behaviors. It is imperative to conduct community-based studies to understand cultural and contextual influences before tobacco policy implementation. High school education and employment were significant factors among those considering quitting tobacco products. This has been corroborated by similar studies in India and globally [20, 21]. Previous studies have found that sustained anti-tobacco advertising strongly increases the odds of quitting [22]. Health warning labels that effectively deliver the message, accompanied by strict implementation of the relevant COTPA Act provisions ensuring that the guidelines are followed, are paramount.

The study was a community-based house-to-house survey, which ensured representativeness of the unique and heterogeneous socio-demographics of the area. Globally, there exists a limited body of work exploring

the implementation and enforcement of TAPS laws and regulations, especially at the local level [23]. Our findings can help identify the local gaps in grassroots-level implementation of TAPS bans. A standardized and validated tool was used for this study, ensuring comprehensive and quality data collection and findings that could be compared globally.

The study also had some limitations. Firstly, owing to its cross-sectional nature, causal inferences cannot be established based on these findings. Secondly, the responses are subject to social desirability bias among the study participants and may have resulted in underreporting of tobacco consumption and exposure to TAPS. Thirdly, the study did not explore aspects of digital media influence and electronic cigarette usage in the study population. Fourthly, the study was conducted during the COVID-19 pandemic, during which there were changes in patterns of tobacco use owing to its availability, price, and other factors, which may have affected some of our findings [24].

Almost one-fifth of the study participants were exposed to TAPS through various channels. Our findings indicate that implementing the TAPS ban remains partial in our study area, especially regarding smokeless tobacco products, compared to state and national findings. The type and effectiveness of TAPS strategies may vary based on cultural and locally relevant factors, and community-based assessment of the current enforcement and effectiveness of TAPS bans is essential. Focusing on mass media anti-tobacco campaigns for both smoked and smokeless products through television, newspapers, and magazines, in addition to comprehensive TAPS ban implementation, can contribute effectively to reducing tobacco consumption in our study population. The importance of strong health warnings on tobacco packets cannot be emphasized enough. Stringent and uniform implementation of the various provisions of the COTPA Act through a holistic inter-ministerial approach is the need of the hour [25]. Further research into the impact of digital media and other potential channels for tobacco cessation and the incorporation of global best practices feasibly into local contexts to improve TAPS bans' role in overall tobacco control is warranted.

Author Contribution Statement

The project was jointly conceptualized by YB, JK, AY and AD. Methodology was handled by YB, JK and AY. Formal analysis and investigation were undertaken by YB and AD. JK and AY supported in providing resources. While YB and AD wrote the original draft all (YB, JK, AY and AD) were involved in the reviewing and editing process. Visualization was carried out by YB and AD, under the supervision of JK and AY. Project administration was handled by YB and JK.

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Ethical Declaration

Ethical clearance was obtained from Institute Ethics Committee of Vardhman Mahavir Medical College & Safdarjung Hospital, New Delhi.

Each subject enrolled in the study was explicitly explained about the purpose of the study by the investigator and an informed written consent was obtained, prior to inclusion. All the tobacco users identified were enrolled into the tobacco cessation clinic and counselled for tobacco cessation. Participants not using tobacco themselves but having a smoker at home were encouraged to enroll the user into the tobacco cessation clinic.

Data availability

Data with concealed participant identification is available on reasonable request from the corresponding author.

Conflict of interest statement

Authors have no competing interests to declare.

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