



Knowledge of Tobacco Cessation among Adult Patients Visiting a Rural Satellite Center: A Cross-Sectional Study

Sergio Atanzio Aurobindo Garcia Abranches¹ Supriya Bhat¹ Deesha Kumari² Sankalpa Shetty¹

¹Department of Oral Medicine and Radiology, A B Shetty Memorial Institute of Dental Sciences, Nitte (Deemed to be University), Mangalore, Karnataka, India

²Department of Public Health Dentistry, A B Shetty Memorial Institute of Dental Sciences, Nitte (Deemed to be University), Mangalore, Karnataka, India.

Address for correspondence Supriya Bhat, MDS, Department of Oral Medicine and Radiology, A B Shetty Memorial Institute of Dental Sciences, Nitte (Deemed to be University), Mangalore, 575018, Karnataka, India (e-mail: dr.supriyabhat@gmail.com).

J Health Allied Sci^{NU}

Abstract

The prevalence of all types of tobacco use among men has been reported to be high in most parts of India (generally exceeding 50%). Nearly 95 to 100% of tobacco users develop periodontal diseases that have a diminishing effect on oral health.

A structured paper-based self-administered questionnaire comprising 15 close-ended questions was formulated for the purpose of data collection for this cross-sectional survey and a sample size of 323 was estimated. Total enumeration sampling method was followed. A significant gender-wise and socioeconomic-status-wise difference was observed based on the form of tobacco used. In this cross-sectional study, 54 (16.7%) individuals began the habit before the age of 15 years, of which 14.2% of the individuals used the smoked variant and 2.4% of the individuals used the smokeless variant of tobacco.

Total 265 (82%) individuals were aware that the habit was injurious to their health, of which 90% males and 86.4% females were aware of the harmful effects of the habit. While the awareness among the upper socioeconomic group was higher, the lower socioeconomic group displayed a lower level of awareness.

To advocate effective tobacco cessation programs, understanding the dependence on tobacco habit and their knowledge and attitude toward quitting tobacco plays a major role. Hence the present study was conducted with an objective to assess the knowledge and attitude of the patients toward tobacco cessation.

Keywords

- ▶ smoking
- ▶ tobacco
- ▶ tobacco cessation

Introduction

India is the world's second-largest tobacco user. In most states of the country, the popularity of all forms of tobacco consumed by men has been found to be high (usually greater than 50%).¹ In addition, a nationwide assessment (survey) of tobacco use in India found that 20.5% of people are tobacco chewers and 16.2%

are current smokers. According to this poll, *beedi* is the most prevalent method of tobacco use, followed by cigarette smoking. *Pan* along with tobacco is a highly preferred combination among tobacco chewers.² This has contributed to a rapid increase in tobacco-associated oral problems.

Studies have revealed that India has the highest risk of oral cancer in the world.

DOI <https://doi.org/10.1055/s-0044-1782633>.
ISSN 2582-4287.

© 2024. The Author(s).

This is an open access article published by Thieme under the terms of the Creative Commons Attribution License, permitting unrestricted use, distribution, and reproduction so long as the original work is properly cited. (<https://creativecommons.org/licenses/by/4.0/>)

Thieme Medical and Scientific Publishers Pvt. Ltd., A-12, 2nd Floor, Sector 2, Noida-201301 UP, India

Annually, roughly 7% of all cancer deaths in males and 4% in females are attributable to tobacco-related oral malignancies.³ Similarly, estimates indicate that 56,000 new cases of tobacco-related oral malignancies emerge every year, which would result in more than 100,000 people suffering from these illnesses in society at large in any given year. Nearly 95 to 100% of cigarette smokers acquire periodontal disorders, which have a negative impact on their dentition. Therefore, the manifestation of tobacco-related oral disease has a detrimental effect on the patient's oral health and standard of living.⁴

While tobacco usage is falling in many first-world countries, it continues to grow in emerging countries like India. According to the recent Global Adult Tobacco Survey (GATS), India comprised of 275 million active users of tobacco in 2009 to 2010 (nearly 35% of adults): most of them utilized smokeless tobacco (164 million), and 42 million consumed both types of tobacco.⁵ An approximated one million individuals die annually owing to tobacco-linked ailments in India. In order to decrease the impact of tobacco-related diseases and fatalities, we require a combination of approaches targeted at averting the initial consumption of tobacco by nonusers and the discontinuation of tobacco use among existing users. More than half of current tobacco users may die from tobacco-linked illnesses if they do not quit.⁶ Giving up tobacco is the only strategy to help existing tobacco users avoid tobacco-related death and morbidity in the near future.

Frequent consultation is important in reinforcing the need of quitting tobacco at every clinical visit, which occurs by means of counseling by health workers, which not only increases quitting rates but is also relatively cost-effective, because health care services are used by a large percentage of tobacco users.⁷ Increased understanding of the public health hazards of tobacco consumption, specifically smoking, has directed the establishment of the World Health Organization-Framework Convention on Tobacco Control, and numerous preventives and awareness building along with treatment initiatives are being implemented globally. These approaches are likely to reduce tobacco consumption among the general population. However, smoking rates for people with a drug use disorder remain high and constant.⁸

To advocate effective tobacco cessation programs, understanding the dependence on tobacco habit and their knowledge and attitude toward quitting tobacco plays a major role. Hence the present study was conducted with an objective to assess the knowledge and attitude of the patients toward tobacco cessation.

Materials and Methods

The present study was conducted in a rural satellite center belonging to a tertiary dental school in South India. Ethical clearance was procured from the Institutional Ethics Committee (Ref. No. ETHICS/ABSMIDS/293/2022). A structured self-administered questionnaire consisting of 15 close-ended questions was created for the purpose of data collection for this cross-sectional survey. A total enumeration sampling

method was followed and all patients reporting with tobacco chewing habit were included in the study. Based on the pilot study that was conducted, estimating a proportion of 0.3, precision of 5%, and desired confidence level of 95%, a sample size of 323 was estimated.

After an exclusive literature review, an English draft questionnaire underwent evaluation for content and face validity by a panel of experts, utilizing a 9-point criterion suggested by Oluwatayo.⁹ The subject matter experts objectively scored the questionnaire, resulting in a face validity score of 1.7 out of 3, indicating above-average validity. The experts assessed clarity, comprehensiveness, and appropriateness of the questionnaire's constructs, and an Aiken's V index score of 1.0 highlighted unanimous agreement among raters, reinforcing the instrument's reliability with a Cronbach's α of 0.8.

Given the study's rural satellite center location where Kannada was predominantly spoken, the questionnaire underwent transliteration into Kannada. The translation process involved forward translation by the primary investigator and a Kannada Professor, followed by a bilingual expert panel addressing inadequacies and discrepancies. The translated instrument was then back-translated into English by an independent translator, resulting in a refined Kannada version. The Kannada questionnaire underwent face and content validity assessment, mirroring the process used for the English version. Face validity scored 1.8 out of 3, and an Aiken's V index of 1.0 reiterated reliability with a Cronbach's α of 0.8. The final questionnaire, divided into demographic and knowledge/attitude sections, was administered to 323 respondents, with 22.3% receiving the English version and 77.7% the Kannada version.

The collected responses were entered into Microsoft Excel and statistical analysis was done using IBM SPSS Version 23.0 (IBM Corp., Armonk, New York, United States). Descriptive and inferential statistics like chi-squared and Fisher's exact tests were applied.

Results

Total 323 subjects responded to the questionnaire with a mean age of 40.03 ± 13.15 years. The study was dominated by males, which accounted for nearly 3/4ths of the total participation, while the females accounted for just over 25% participation. Just over 75% of the participants were married while the remainder were single. The participants were grouped based on their socioeconomic status (SES) using the modified Kuppaswamy socioeconomic scale.¹⁰ The greatest representation belonged to the upper-lower (33.1) and the lower-middle (30.3) SES groups, while the lowest representation came from the upper (3.7) socioeconomic group.

The smoked tobacco was used by 171 (52.9%) participants followed by smokeless the form, 72 (22.3%). Among the participants, 58.2% males preferred smoked tobacco and 37.8% females preferred smokeless form of tobacco. All the participants belonging to the upper class preferred the smoked form of tobacco as compared to the 76.5% from

the upper-middle class, 55.1% from lower-middle, and 41.1% from the upper-lower class (► **Table 1**). A significant gender-wise (► **Supplementary Table S1**) and SES-wise difference was observed based on the form of tobacco used ($p=0.000$; ► **Supplementary Table S2**). The age of initiation of the habit for majority of the individuals was 16 to 30 years (236 [73.1%]); 54 (16.7%) individuals started the habit before the age of 15 years. The age of initiation for majority of both males and females was 16 to 30 years with no statistical difference between the same ($p=0.175$; ► **Table 1**). Among the SES groups, majority of the participants reported an initiation age of 16 to 30 years in all the groups with no statistically significant difference ($p=0.082$). Overall, 158 (48.9%) individuals had an exposure of less than 10 years to the habit and 103 (31.9%) had an exposure of 11 to 20 years; 45.1% males and 60% females had 0 to 10 years of exposure to the habit. However, this difference was not statistically significant ($p=0.058$). According to the SES, 58% of the upper class, 54.6% of the upper-middle, 43.8% of the lower-middle, and 59.8% of upper-lower-class individuals had an exposure of 0 to 10 years whereas 33.33% of the lower class had an exposure of 20 to 30 years, and this difference was statistically significant ($p=0.000$; ► **Supplementary Table S2**). On assessing the habit of reading warning labels on tobacco products, 90.9% males and 86.4% females read the warning labels. No significant difference based on gender-wise difference was present ($p=0.378$; ► **Table 1**). Similarly, majority of the individuals in all SES groups read the warning labels and this difference was not statistically significant ($p=0.100$). Also, 90% males and 86.4% females were aware of the harmful effects of the habit and this difference was statistically significant ($p=0.016$; ► **Supplementary Table S1**). While the awareness among the upper SES was higher (100%), the lower SES group displayed a lower level of awareness (71.4%) as compared to the other SES groups, and this difference was statistically significant ($p=0.008$; ► **Supplementary Table S2**). Further, 204 (63.2%) individuals had never tried quitting the habit in the past. Among the males 37.6% individuals had tried to quit the habit whereas only 34.5% females had tried to quit, which was not statistically significant ($p=0.624$). Precisely, 51.5% of the upper-middle-class group had tried quitting the habit, followed by 50% of the upper and lower SES groups, and this difference was statistically significant ($p=0.003$; ► **Supplementary Table S2**). However, on assessing the willingness to quit tobacco, only 127 (39.3%) individuals were willing to quit tobacco and 71 (22%) individuals were not sure whether they wanted to quit or not. Moreover, 17.2% of females and 31.8% of males were not willing to quit tobacco, and this difference was statistically significant ($p=0.041$; ► **Supplementary Table S1**). Among the SES groups, 66% of the upper-class individuals, followed by 57.8% of upper-middle class were willing to quit, whereas only 28.5% of the lower-middle-class individuals expressed their willingness to quit the habit, and this difference was significant ($p=0.002$; ► **Supplementary Table S2**). While 39.25% males expressed that they did not want professional help in quitting the habit, 45.67% females expressed their desire to obtain professional help in quitting the habit, but this difference was not

statistically significant ($p=0.321$; ► **Table 1**). Among the SES groups, 58.3% of the upper-class people wanted professional help in quitting whereas only 30.9% of the lower-class people wanted professional help in quitting, and this difference was significant ($p=0.026$). On assessing the factors affecting the quit rate, addiction was the most common factor cited by 45.8% males and 49.3% females followed by work pressure in males (28.5%) and lack of will power in females (24.6%). This difference in factors in males and females was significantly significant ($p=0.000$; ► **Supplementary Table S1**). According to the SES groups, addiction was the common factor cited among all groups followed by work pressure among the upper-middle, lower-middle, and upper-lower groups, and this difference was significant ($p=0.000$). Also, 52.9% males and 56.8% females were aware of the tobacco cessation program in the country. However, no gender-wise difference was observed here ($p=0.316$). Besides, 78% of the upper-middle class was aware of the tobacco cessation program and only 28.5% of the lower-middle-class group was aware of the program. This was statistically significant ($p=0.000$; ► **Supplementary Table S2**).

Discussion

In this study smoked tobacco was consumed by 141 (43.6%) males and 30 (9.2%) females while smokeless tobacco accounted for 41 (12.6%) males and 31 (9.5%) females, which is in accordance with the findings of Varghese et al,¹¹ who stated that between 29.8 and 63.1% of males and 0.4 and 15% of women smoke, and between 1.3 and 38% of men and 4.6 and 27.9% of women use smokeless tobacco. A significant gender-wise and SES-wise difference was observed based on the form of tobacco used. The study conducted by Chockalingam et al agreed that a greater number of men preferred tobacco smoking (28.4%) as well as smokeless tobacco (11.1%) when compared to the same, 0.1% and 4.9% respectively, among women.¹²

In this cross-sectional study, 54 (16.7%) individuals began the habit before the age of 15 years, of which 14.2% of the individuals used the smoked variant and 2.4% of the individuals used the smokeless variant of tobacco. This can be compared to the GATS, where 12.2% of the individuals used the smoked variant and 12% used the smokeless variant of tobacco when they started the habit before the age of 15.¹³ On assessing the habit of reading warning labels on tobacco products, 290 (89.8%) individuals read the warning labels, which is in contrast to the GATS where only 78.4% of bidi smokers and 71.6% of smokeless tobacco users noticed these health warning.¹³

Total 265 (82%) individuals were aware that the habit was injurious to their health, of which 90% males and 86.4% females were abreast of the detrimental effects of the habit and this corresponded to a study carried out by Gupta and Kumar.¹⁴ Similarly, 92.4 and 95.6% of adults, respectively, reported that the use of smoking and smokeless tobacco causes health hazards.¹³ While the awareness among the upper socioeconomic group was higher, the lower socioeconomic group displayed a lower level of awareness (71%). According to a study by Kankaria et al, respondents from the

Table 1 Responses given by the subjects of the study to the questionnaire

	Gender		Socioeconomic status						p-Value	X ²	p-Value
	Male	Female	Upper	Upper-middle	Lower-middle	Upper-lower	Lower				
Form of tobacco consumed	Smoked	141	30	12	49	54	45	11	48.442	0.000 ^a	
	Smokeless	41	31	0	6	19	31	16			
	Both	60	20	0	9	25	31	15			
Age of habit initiation	<15 years	46	8	4	7	16	24	3	19.258	0.082	
	16–30 years	171	65	8	53	74	69	32			
	31–45 years	21	8	0	3	8	11	7			
> 45 years	4	0	0	1	0	3	0				
Duration of exposure to the habit	0–10 years	109	49	7	35	43	64	9	37.464	0.000 ^a	
	11–20 years	81	22	3	17	36	34	13			
	20–30 years	37	9	1	10	14	7	14			
	> 30 years	15	1	1	2	5	2	6			
Read warning labels on the packets	Yes	220	70	12	61	80	100	37	13.369	0.100	
	No	22	11	0	3	18	7	5			
Aware of habit being injurious to health	Yes	205	60	12	61	71	91	30	20.696	0.008 ^a	
	No	37	21	0	3	27	16	12			
Tried quitting the habit	Yes	91	28	6	33	26	33	21	16.112	0.003 ^a	
	No	151	53	6	31	72	74	21			
Willingness to quit the habit	Yes	91	36	8	37	28	39	15	24.714	0.002 ^a	
	No	77	14	2	10	40	26	13			
	Do not know	74	31	2	17	30	42	14			
Need professional help in quitting the habit	Yes	90	37	7	37	34	36	13	17.472	0.026 ^a	
	No	95	30	2	21	41	44	17			
	Do not know	57	14	3	6	23	27	12			
Factors preventing quitting of habit	Addiction	111	40	8	33	49	51	10	57.845	0.000 ^a	
	Lack of will power	24	20	3	4	8	17	12			
	Work pressure	69	8	1	22	30	21	3			
Awareness of tobacco cessation programs	No interest	38	13	0	5	11	18	17			
	Yes	128	46	7	50	50	55	12	26.647	0.000 ^{a,b}	
	No	114	35	5	14	48	52	30			

^aSignificant difference; ^bChi-squared test.

lowest wealth quintile showed little awareness of the harmful effects of tobacco.¹⁵ Potential under-reporting of the status of tobacco usage has been identified as a limitation of this study.

Conclusion

Despite the fact that 82% of individuals in our study were aware that tobacco usage was detrimental to health and 53.9% of the individuals were aware of the tobacco cessation program in the country, only 39.3% were willing to quit tobacco. Addiction and work pressure were regarded as hindrances that affected the quit rate. Regardless of the clear and ominous warning labels adorning tobacco products, it remains a paradoxical reality that many individuals continue to indulge in tobacco consumption. The stark images of damaged lungs, dire health risks, and the unequivocal message of impending harm seem to be powerless against the addictive allure of nicotine. The phenomenon underscores the formidable challenge of breaking free from addiction and highlights the need for comprehensive public health initiatives to tackle this enduring and deeply entrenched societal issue. Hence, we should not become complacent because of our gains in the war against tobacco and aim to eradicate this bane of modern society once and for all and strive toward a tobacco-free society.

Ethical Approval

Ethical Clearance was obtained from the Institutional Ethics Committee (Cert. No. ABSM/293/2022).

Conflict of Interest

None declared.

References

- 1 Mishra GA, Majmudar PV, Gupta SD, Rane PS, Uplap PA, Shastri SS. Workplace tobacco cessation program in India: a success story. *Indian J Occup Environ Med* 2009;13(03):146–153
- 2 Rani M, Bonu S, Jha P, Nguyen SN, Jamjoum L. Tobacco use in India: prevalence and predictors of smoking and chewing in a national cross sectional household survey. *Tob Control* 2003; 12(04):e4
- 3 Shah NM, Ray SC, Arora M. Quick Reference Guide for Dentists. Helping Your Patients Remain Tobacco-Free New Delhi: Ministry of health and Family welfare, Government of India; 2006:1–40
- 4 Chaly PE. Tobacco control in India. *Indian J Dent Res* 2007;18(01): 2–5
- 5 Ministry of Health and Family Welfare. New Delhi, Government of India; 2010. International Institute for Population Sciences (IIPS), Mumbai. Global adult tobacco survey India (GATS India), 2009–2010. Accessed February 6, 2024 at: <https://ntcp.mohfw.gov.in/assets/document/surveys-reports-publications/Global-Adult-Tobacco-Survey-India-2009-2010-Report.pdf>
- 6 Shafey O, Eriksen M, Ross H, Mackay J. The Tobacco Atlas. 3rd ed. Atlanta, Georgia, USA: American Cancer Society; 2009
- 7 Heydari G, Masjedi M, Ahmady AE, et al. A comparative study on tobacco cessation methods: a quantitative systematic review. *Int J Prev Med* 2014;5(06):673–678
- 8 Stark MJ, Campbell BK. Cigarette smoking and methadone dose levels. *Am J Drug Alcohol Abuse* 1993;19(02):209–217
- 9 Oluwatayo JA. Validity and reliability issues in educational research. *J Educ Soc Res* 2012;2(02):391–400
- 10 Sood P, Bindra S. Modified Kuppuswamy socioeconomic scale: 2022 update of India. *Int J Community Med Public Health* 2022;9 (10):3841–3844
- 11 Varghese C, Kaur J, Desai NG, et al. Initiating tobacco cessation services in India: challenges and opportunities. *WHO South-East Asia J Public Health* 2012;1(02):159–168
- 12 Chockalingam K, Vedhachalam C, Rangasamy S, et al. Prevalence of tobacco use in urban, semi urban and rural areas in and around Chennai City, India. *PLoS One* 2013;8(10):e76005
- 13 Ministry of Health and Family Welfare. New Delhi, Government of India; 2017. Tata Institute of Social Sciences (TISS), Mumbai. Global adult tobacco survey India (GATS India), 2016–2017. Accessed February 6, 2024 at: <https://ntcp.mohfw.gov.in/assets/document/surveys-reports-publications/Global-Adult-Tobacco-Survey-Second-Round-India-2016-2017.pdf> (GATS-2, PG 40,141–142,176)
- 14 Gupta B, Kumar N. A cross-country comparison of knowledge, attitudes and practices about tobacco use: findings from the global adult tobacco survey. *Asian Pac J Cancer Prev* 2014;15 (12):5035–5042
- 15 Kankaria A, Sahoo SS, Verma M. Awareness regarding the adverse effect of tobacco among adults in India: findings from secondary data analysis of Global Adult Tobacco Survey. *BMJ Open* 2021;11 (06):e044209