Original Article

A Health Education Intervention Study on Tobacco Consumption Among the Urban Slum Residents of Central India

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Abstract

Background: Tobacco is one of the world's leading avoidable causes of premature death, disease, and disability. According to the World Health Organization (WHO) survey 2020, there are about 120 million tobacco users in India, and WHO estimates that about 4.9 million die due to tobacco annually, and that by 2020 it will be the principal cause of death and disability. This study is done with objectives to access the prevalence of tobacco consumption, evaluate the impact of health education and intervention. **Methods:** It was community-based health educational interventional study conducted in urban slum setting in Bhopal India, comprising 1598 subjects, and out of these 520 participants were assessed for final outcome with 3 months study duration. A predesigned, pretested questionnaire proforma was developed containing the study variables including socio-demographic, education, age, occupation, type of tobacco product consumed and so on and distributed to all study participants in pre-interventional phase and only in tobacco consumers of post-interventional phase and then was finally evaluated. **Results:** The prevalence of tobacco use was 32.50% among the tobacco user; 87% were males and rest were females. In post-interventional phase there was a significant difference ($P < 0.0001$) observed in tobacco consumption frequency, impact of staring with criticism, condemnation, denigration and total number of tobacco quitter. **Conclusion:** After the health educational interventional motivation, majority of users are ready to quit, so we have to help them in quitting which must include the effectual intervention to control the tobacco use by making an effective strong policy by increasing their knowledge by means of IEC and health education.

Keywords: *Area, health education, intervention, poverty, poverty area, prevalence, slums, tobacco uses, tobacco product*

Introduction

Worldwide tobacco consumption is one of the primary preventable causes of morbidity as well as mortality.[1] Globally, there are nearly 1.1 billion smokers and it is estimated that by 2025 the number would rise to 1.6 billion, with tobacco-attributable deaths being 4.83 million in 2000. According to the World Health Organization (WHO) survey 2020, there are about 120 million tobacco users in India and tobacco-related deaths are projected to increase to 10% of all deaths; it being more rampant in urban slums of developing countries.[2,3] In India, approximately 1 million individuals die each year because of tobacco-associated illness, which in 2020 is expected to increase to 13% of total deaths.[4,5] Globally the rising pattern of tobacco-related disease and deaths is producing an alarming situation especially in India. Tobacco can germ broad spectrum of ill effects and diseases which include oral cancer, unfavorable conceptive results, and premature loss of life.[6] Tobacco is an individual risk factor for non-communicable disease (NCD) not only in rural India but also among the urban poor living in slums.[7] According to recent estimates, by 2019 in India, states of Maharashtra, Uttar Pradesh, Andhra Pradesh, and Madhya Pradesh could have largest slum inhabitants with tobacco-related disease/NCDs; with Bhopal having its 35% of population dwelling in urban slums.[8,9] As a well-known variety, the urban-slum population is a newly emerged section of the society pertaining to health-related issues.[10] Hence this health educational interventional study was planned to appraise tobacco usage among the urban-slum community, consequently identifying the determinants (income, education, age, employment,

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and so on) associated with tobacco usage and knowledge regarding its harmful effects.

The study findings will be valuable in planning and implementing effective strategies for tobacco consumption cessation in the population.

Methods

Study was community-based educational interventional study conducted in the Indrapuri Labour Colony near Urban Health & Training Centre under the Department of Community Medicine, Peoples College of Medical Science & RC, Bhopal with the assurance that confidentiality of all study participants will be maintained. Study contained three phases, namely pre-interventional phase (Phase-1), health education interventional phase (Phase-2), and post-interventional assessment phase (Phase-3). In Phase-1, data collection from study subjects were done by using the self-administered questionnaire proforma which was predesigned, pretested for external validity and test–retest reliability containing structured and non-structured questions with study variables including socio-demographic, education, age, occupation, type of tobacco product consumed, and so on. Following the collection of baseline information, in Phase-2 health education concentrated on well-being risks and factors impacting inception of tobacco consumption, as well as strategies for quitting and ways of controlling tobacco consumption were imparted to the subjects consuming tobacco products. Education of all tobacco consuming participants was done through verbal lecture, one-to-one query solving, and audio-visual aids to illustrate diverse health hazard of tobacco use in any form along with techniques on how to quit tobacco. In Phase-3, the same questionnaire proforma was given to study participants who were involved in Phase-2 aspect of study and comparative results of both the phases were evaluated.

Study tools and technique

Initially 1598 study subjects were chosen by simple random sampling technique, out of them 634 subjects were found to be consuming tobacco in any form and were willing to participate in the present study. Those willing were recruited, but during interventional Phase-2, 114 participants were lost to follow up. Therefore, a total of 520 study subjects continued for 3 months of total study duration.

Prior to recruiting the study subjects; informed consent was taken from all the participants; assuring to maintain their confidentiality. Study subjects were selected based on following inclusion criteria: their age (10–75 years), tobacco consumption of any form, and their residence in the study urban slum and those who were not willing to participate were excluded from the study.

Statistical analysis

The data were entered in the Microsoft office excel format which was later imported into the statistical software known as the Statistical Package for the Social Sciences (SPSS) version 20.0 Armonk, NY: IBM Corp, then study outcomes were analyzed. The prevalence rates of tobacco user and other descriptive statistics were determined by simple percentages and numbers. To determine the impact of health education and other associated factors, the chi-square test of significance was used for analysis whenever it was applicable.

Results

The study comprise 1598 subject with the prevalence of tobacco use was 32.50% and 67.50% were non-tobacco users. Among the tobacco users (520 study subjects), 87% were males and rest 13% were females and among these 55% of subjects were married, 43% were unmarried, and 1% were widows/divorced. Age distribution of 520 subjects who were tobacco consumers confirms that 46.73% of subjects belong to age group of 21–40 years followed by 33.07% belong to age group of 41–60 years; thus mean age of the subject was 23.375 years [Table 1].

Socio-economic status of study subjects shows that more than half (57%) belongs to lower middle class followed by nearly one-fifth (19.80%) in middle class. Nearly 36% of tobacco consumers were illiterate and a very few only 3% had studied up to graduate or higher level. Half of the study subjects residing in slum area originally belonged from that area, whereas others were migrant either from other urban area or rural area. Nearly half of subjects were handcart pullers by occupation followed by auto driver [Table 1].

Among the tobacco users 44% of them consumed gutkha/zarda, followed by 29% were bidi /cigarette smokers, and remaining 27% were addicted to both bidi and zarda. Most of the study subjects; nearly half (46%) started using tobacco products at the age of 10–20 years followed by 21–30 years (30%) and the main reason for consuming/smoking was peer pressure (54%) and other less common reasons were to influence the opposite sex, families influence, and difficulties in life [Table 1 and Chart 1].

Frequency of tobacco consumption in pre- and post-health educational interventional phase was found to be highly

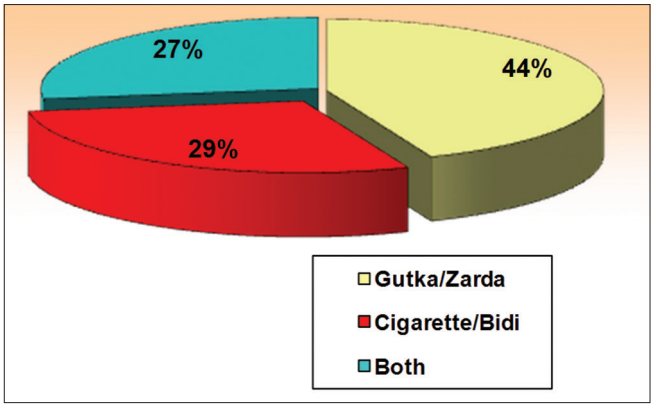

Chart 1: Distribution of form of tobacco consumed by tobacco users

Table 1: Socio-demographic variable of study participants (*n*=520)

Determinants	Categories	Number (frequency) (%)
Age group	0-20 years	47 (9.03)
	21-40 years	243 (46.73)
	41-60 years	172 (33.07)
	>61 years	58 (11.15)
Gender	Male	452 (87)
	Female	68 (13)
	Transgender	0 (0)
Socio-economic status[11]	Upper class	2 (0.38)
	Upper middle class	28 (5.38)
	Middle class	103 (19.80)
	Lower middle class	299 (57.50)
	Lower class	88 (16.92)
Educational status	Illiterate	189 (36.34)
	Primary	142 (27.30)
	Middle	82 (15.76)
	High secondary	91 (17.50)
	Graduate	16 (3.07)
Originally belongs from	Urban	209 (40.19)
	Urban slum	283 (54.42)
	Rural	28 (5.38)
Occupation	Handcart puller	276 (53.07)
	Auto driver	189 (36.34)
	Manual unskilled labor	55 (10.57)
Marital status	Married	286 (55.0)
	Unmarried	227 (43.65)
	Widow/divorce	07 (1.34)
Age of tobacco initiation	10-20 years	242 (46.53)
	21-30 years	160 (30.76)
	31-40 years	82 (15.76)
	41-50 years	36 (6.92)
Reasons for the consumption	Peer pressure	284 (54.61)
	To influence the opposite sex	62 (11.92)
	Familial influence	114 (21.92)
	Difficulties in life	60 (11.53)

Socio-economic status (SES) was determined by using modified Kuppuswami classification of SES

significant difference ($P < 0.0001$), whereas there was no significant difference in comparison of both of the phases regarding the type of tobacco product consumed [Table 1].

Staring with criticism, condemnation, and denigration resulted in significant difference in 60% of subjects due to fear or by trying to quit. In comparison between the pre- and post-interventional phases, the staring with criticism, condemnation, and denigration, significant difference was found ($P < 0.0001$) [Table 2].

Impact of health education demonstrating the harmful effect of tobacco, it was found that in pre-interventional phase those who were not willing to quit any form of tobacco (52%) were only 22% in post-interventional phase. Overall impact of health education intervention was found to be highly significant ($P < 0.0001$) [Table 2].

Discussion

Tobacco use is an emerging public health problem; more so in the urban slums. Control of the tobacco epidemic is a major challenge in the urban slum population due to their socio-economic determinants of illiteracy and their occupation. The present study was conducted in an urban slum area comprising 1598 sample size with the prevalence of tobacco use at 32.50% which was relatively higher or close to higher prevalence than other previous studies. Prevalence of smoking in preferred population in Kochi, Kerala was 16.5%;[12] tobacco use in urban area of Chennai city was 19.4%,[13] whereas the Global Adult Tobacco Survey (GATS) India revealed that 35% of adults in India use tobacco in some form or the other.[14] The prevalence of tobacco use among urban male of Hyderabad by Gupta *et al*. was 48.3%,[15] whereas in the current study prevalence of tobacco use among males was 87%. This prevalence is higher than those reported in previous published study, which was 41.3% in Delhi, 45% in Chennai,[16] and possibly is highest tobacco use in central India as compared to other parts of the country.[17] Gutka/zarda was the most well-known tobacco item utilized (96%) in the current assessment in both the gender; followed by bidi/cigarette consumption; which is higher than different studies done in urban, semi-urban, and provincial zones of Chennai (77%) by Chockalingam *et al*. and studies done in Karachi (34.4%).[13,16] Nearly half of tobacco users in the current study belong to the age group of 21–40 years while in a similar study conducted by Rani *et al*. the more tobacco products utilization expanded up to the age of 50 years from 8.6% (15–24 years) to 45.1% (40–59 years) and either leveled or declined (60+ years had 38.1% prevalence).[18] Nearly three-fifth of tobacco user were from lower middle class of socio-economic status which is similar to the previous study finding but contradicting some other study findings wherein smokeless tobacco consumption was significantly more in businessmen (10.63%) than others.[19] Although multiple tobacco use (smokeless tobacco and bidi) consumption was high in medium-to-low income tertile.[20] In the present study most of the consumers are illiterate (more than 1/3) but some other studies suggest that relationship between instructive level and volume of tobacco utilization is conflicting.

Most of the handcart pullers in the current study, almost more than half were tobacco user as also evaluated in the study conducted by Kahar *et al*. which shows that tobacco consumption varied by occupation; that is, those who were self-employed (79.6%) and employed for wages

Table 2: Tobacco and interrelated factors in pre- and post-interventional comparative phase

Characters	Pre-interventional phase (*n*=520) (%)	Post-interventional phase (*n*=475) (%)	*P*
Tobacco frequency			*P*<0.00001
Habitual	414 (79.61)	293 (56.34)	
Occasional	66 (12.69)	156 (30.00)	
Irregular	40 (7.69)	71 (13.65)	
Types of tobacco products contain consumable and non-consumable nicotine			
Gutka/zarda	228 (43.84)	223 (42.88)	*P*=0.7533
Bidi/cigarette	128 (24.61)	126 (24.23)	
Both	142 (27.30)	154 (29.61)	
Nus manjan	22 (4.23)	17 (3.26)	
Impact of staring with criticism, condemnation, and denigration			
Fear	110 (21.15)	127 (24.42)	*P*=0.0060
No impact	189 (36.34)	141 (27.11)	
Trying to quit	202 (38.84)	239 (45.96)	
Shift to other substance.	019 (3.65)	13 (2.5)	
Impact of health education demonstrating harmful effect of tobacco			
Trying to quit	202 (38.84)	184 (35.53)	*P*<0.00001
Not willing to quit	273 (52.5)	118 (22.69)	
Quitted and started again	045 (8.65)	045 (8.65)	
Quit tobacco completely	00 (0.0)	173 (33.26)	

were more likely to use tobacco than those who were unemployed.[21] Marital status had no significant difference in tobacco consumption; which could be explained by fact that both the married and unmarried subjects of the study area used to go out of home for their work.

In the post-interventional phase habitual tobacco chewers decreased by 23% as compared to 79% in pre-interventional phase, this could be explained by the fact that most of them either converted to occasional or irregular tobacco user.

As per their age of initiation of consuming tobacco product in any form, it was 10–20 years and it was experiential that similar pattern is seen in age of initiation of tobacco consumption in any form in a study by Narain *et al*.[22]

Peer pressure followed by familial influence were common reasons for using tobacco product in both the phases, which after delivering the health education lecture had major difference which was found to be significant. These finding match previous study done at Bihar among the medical students.[23] Impact of staring with criticism, condemnation, and denigration; done by seeking support of parents/spouse and non-tobacco consuming friends/colleagues who were involved in the health education during intervention phase; was found to have significant difference when compared with two phases; and this short-term impact needs to be converted to long-term impact by making policies and conducting regular focused group discussion involving family members, co-workers, etc.

Overall impact of health education was successful among the research participants who had already quit or were trying to quit the tobacco when it was assessed in post-interventional phase. Other previous study done at Ernakulam, Kerala, and Nigeria shows that health education using personal and mass media communication at regular interval have an affirmative role in helping people to quit tobacco.[24,25]

The National Tobacco Control Program now covers 108 districts in 31 states of the country. The main component of the National Tobacco Control Program at national level is "public awareness/mass media campaigns for awareness building and behavior change." The Cigarettes and other Tobacco Products Act, 2003 (Prohibition of Advertisement and Regulation of Trade and Commerce, Production, Supply and Distribution) was passed by the parliament in April, 2003 and notified in the Gazette of India on 25th February, 2004. The legislation prohibits among other acts, smoking in public places (came into force from the 2nd October, 2008); tobacco promotional material in any form and different merchandise; sale of cigarette and different tobacco products to an individual below the age of 18 years. The legislation mandates from 1st April, 2016, depiction of statutory warnings on eighty fifth of principle

show space of tobacco product put on either side (60% of image and twenty fifth of text).

Incessant efforts on part of the Ministry of Health and Family Welfare (MOHFW), 34 states/UTs have issued orders for effectuation of the Food Safety rules prohibition manufacture, sale, and storage of gutka and pan masala-containing tobacco or its products within the year 2014–2015.[26]

Since these were mainly government or administrative orders, they lacked the power of a legal instrument. Without clear enforcement guidelines and awareness of the citizens to their right to smoke-free air, the implementation of this directive remained largely ineffective.

Strengths and limitations

This is the community-based study showing complex relationship of tobacco user in only urban slum of the society but in rural areas and urban affluent society we could not conclude any such relationship. We tried health education intervention for a short period, which if had been tried for a longer duration at repeated regular interval then we would have been able to make more research participants quit tobacco. The lacuna of the present study was that we were able to intervene only through health educational in various forms, and missed the focus group discussion (FGD), self-help groups (SHGs), and in-depth interview of respondents.

Conclusions

Present study clearly imitates the continued high prevalence rates of tobacco consumption among urban slums. Significant differences were observed after post interventional health educational phase, consequently we recommend that health educational interventions in the form of role playing, drama, audio-visual aids, group discussions including involvement of media should be employed for creating awareness; along with involvement of local health volunteers, school teachers, anganwadi workers, and non-governmental organizations at a regular interval. Similarly health policies regulating ban of smoking and spitting in public places and selling of tobacco containing products should be implemented adequately and effectively. This will help in making tobacco users aware about the harmful effects of tobacco and thereby help in reducing tobacco consumption, thus subsequently plummeting morbidity and mortality cause by tobacco related disease among these slum dwellers. Policymakers should consider all the above factors for future planning of preventive and promotive measures for tobacco control among these vulnerable groups. In conclusion, the well-being instruction has been incontestable to be effective in upping the information of jeopardy due to tobacco consumption and it also had changed their stance toward tobacco product as many of them now wish to quit tobacco.

Ethical approval

The study was approved by the institutional ethical committee of Peoples College of Medical Science & RC, Bhopal, Madhya Pradesh, India. Written informed consents were also taken from subjects after an oral explanation of the study.

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Conflicts of interest

There are no conflicts of interest.

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