

Level of tobacco dependence among tobacco users in an urban slum of Puducherry: A pilot study

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ABSTRACT

Context: Successful tobacco quit by the tobacco users can avoid millions of premature death. However, the physical dependence on tobacco use results in frequent relapse most commonly due to withdrawal symptoms. **Aims:** The aim of this study was to study the level of tobacco dependence among tobacco users in an urban slum of Puducherry. **Materials and Methods:** This facility-based descriptive pilot study was conducted among patients aged 15 years or above attending an urban health and training center in an urban slum of Puducherry. A total of 90 consecutive current tobacco users were included after obtaining verbal informed consent and interviewed using a pretested questionnaire. The information on tobacco dependence was collected using Fagerstrom Addiction Scale for smokers and smokeless tobacco users separately. **Results:** Of the 90 current tobacco users, 95% were daily tobacco users. Of the current tobacco users, 48.8%, 45.6%, and 5.6% were smokers, smokeless tobacco users, and dual users, respectively. Majority of the smokers (61%) and most of the smokeless tobacco users (41%) had medium dependence for tobacco use. However, physical dependence was much higher among smokeless tobacco users (41.3%) than smokers (20.4%). **Conclusion:** Proportionately high physical dependence on tobacco is a concern in the study population. Community-based interventions are required to curb the problem; however, study with representative sample should be carried out before that.

Keywords: Addictive, behavior, smokeless, smokers, tobacco, tobacco use disorder

Introduction

Globally, tobacco kills nearly 6 million people every year, of which nearly 5 million are due to direct use of tobacco. About four-fifth of the total smokers in the world live in low- and middle-income countries.^[1] Nearly 90% of the global smokeless tobacco users reside in the World Health Organization (WHO)-South East Asia region.^[2] Overall the prevalence of tobacco use in India is 34.6%. Of these, 20.6% use only smokeless form, 8.7% only smoked form, and 5% use both. More than three-fourth smokers are daily users.^[3] Jha *et al.* estimated around 1 million deaths annually among tobacco users in India by 2010.^[4] Tobacco-related deaths are estimated

by WHO to contribute nearly 13% of all-cause mortality in India by 2020.^[5]

Tobacco addiction in any form is most commonly associated with cancers and other noncommunicable diseases (NCDs) and communicable diseases. Smokeless form (chewing tobacco) and smoking form are most commonly associated with cancers of oral cavity and larynx/lungs, respectively.^[6,7] There exists a dose-response relationship between frequency of tobacco chewing and hypopharyngeal cancers ($P < 0.001$).^[8] Tobacco-addicted individuals do not refrain from tobacco use due to nicotine dependence.^[9] Nicotine dependence is a compulsion and tobacco users continue using tobacco despite knowledge of serious health problems associated with it.^[5]

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Young smokers who smoke daily are more likely to be dependent on tobacco than their elder counterparts.^[10] Early initiation of tobacco use, low socioeconomic status, low education, and smokeless tobacco use were reported to be independently associated with nicotine dependence.^[5] There is an increased persistence of smoking among nicotine-dependent smokers aged 15 years to 54 years.^[10] A study by Mohesh and Vijayakumar reported higher nicotine dependence among tobacco users belonging to lower socioeconomic status than higher socioeconomic status.^[11] Withdrawal symptoms following quitting tobacco use are quite common and are among the common reasons for relapse. These withdrawal symptoms are more common with tobacco users who are physically dependent on tobacco.^[12] Physical dependence on tobacco is associated with poorer quality of life, functional impairment, and one or other mental disorder such as major depression and anxiety disorder.^[13,14]

The physical dependence is also associated with frequent relapse despite the great motivation from the tobacco user to quit tobacco. The tobacco-dependent individuals despite being aware of health hazards of tobacco use make frequent unsuccessful quit attempts. Understanding the nicotine dependence is important for developing and individualizing tobacco cessation services.^[15] It is reported that low nicotine dependence and high self-efficacy can lead higher smoking cessation.^[16] The attending physician should move away from general advice on quitting tobacco to individualized approach of behavioral counseling and pharmacologic therapy.^[17]

With this background, the present study was conducted to study the level of tobacco dependence among tobacco users in an urban slum of Puducherry.

Materials and Methods

We conducted this hospital-based descriptive pilot study in the Urban Health and Training Centre (UHTC), Kurusukuppam, attached to the Department of Preventive and Social Medicine of a Tertiary Care Institution in Puducherry, during the month of June and July 2015. The UHTC provides family folder-based comprehensive primary health care to a population of around 9,000 residing in four urban wards, namely, Kurusukuppam, Vazhakulam, Chinnayapuram, and Vaithikuppam. Apart from routine out-patient health care, emergency, and outreach health services, the UHTC also provides clinic-based specialty health care on specified day. On every Wednesday, disease specific health care which includes follow-up services also is provided for patients with NCDs. All the patients attending NCD clinic are given health education on lifestyle modification which includes deterrence from tobacco use. The needing specialized care for tobacco and alcohol dependence patients are referred to the parent tertiary care institution where Department of Psychiatry provides institution based counseling services and pharmacotherapy.

We approached all the individuals above 15 years of age attending the UHTC during the study period and after building rapport

screened him or her for tobacco use. Prospective participants were included in the study after obtaining verbal informed consent. The participants were ensured of confidentiality of identity and data, and same was maintained throughout the study. We included a total of 90 consecutive current tobacco users irrespective of the forms of tobacco use. Using a pretested questionnaire, information on sociodemographic details, forms of tobacco use, age of initiation, age of initiation daily, and frequency of tobacco use were noted. The Fagerstrom Addiction Scale and Modified Fagerstrom Addiction Scale were applied to assess the dependence on tobacco use among current smokers and smokeless tobacco users, respectively.^[18]

All the data collected were entered in MS excel and descriptive analysis was done using SPSS Version 16.0 (SPSS Inc. Released 2007. SPSS for Windows, Version 16.0. Chicago, SPSS Inc). Tobacco dependence was classified as very low, low, medium, and high dependence. The maximum possible score (16) that could be obtained from Modified Fagerstrom Addiction Scale was divided into four quartiles. Each quartile represents the level of dependence as very low (score: 0–4), low (score: 5–8), medium (score: 9–12), and high (score: 13–16). The cut off score for physical dependence of tobacco use (nicotine) was taken as 7 for smokers^[18] and 9 for smokeless tobacco users.

Results

A total of 90 current tobacco users were included in the study. The sociodemographic detail of the studied population is given in Table 1.

Maximum (48.9%) numbers of tobacco users were smokers. Almost 95% of the current tobacco users were daily tobacco users. In an average, smokers were using tobacco products more frequently than smokeless tobacco users [Table 2]. The age of

Table 1: Socio-demographic details of study population (N=90)

Variable	Category	Frequency (N)	Percentage
Gender	Male	56	62.2
	Female	34	37.8
Age (years)	<30	14	15.6
	>30	76	84.4
Education	No formal education	24	26.7
	Studied up to class X	51	56.7
	Studied more than class X	15	16.6
Occupation	Unemployed	15	16.7
	Employed	62	68.9
	Housewife	4	4.4
	Student	9	10
Family type	Nuclear	76	84.4
	Joint	14	15.6
Ration card type* (Socio-economic status)	Red	72	80
	Yellow	18	20

*Ration card type was taken as proxy for socio-economic status

initiation and age of initiation daily was 21.72 (standard deviation 6.62) and 24.18 (standard deviation 7.26) years, respectively.

Maximum of both smokers (61%) and smokeless tobacco users (41%) had medium dependence for tobacco use [Figure 1]. The physical dependence among smokers and smokeless tobacco users was found to be 20.4% and 41.3%, respectively. Among the five dual tobacco users, two had physical dependence for smoked tobacco. None of the dual tobacco users had physical dependence for smokeless tobacco. All the smokers who had physical dependence for tobacco were male. About three-fourth of the smokeless tobacco users who had physical dependence for tobacco were females.

Discussion

Tobacco use is the most common behavioral factors affecting health. In India, tobacco use is the most prevalent lifestyle risk factors for NCD. Although awareness on harmful effects of tobacco use is increasing in India, the proportionate attempted quit (42%) and successful quit (42% of attempted quit) are still low.^[19]

This paper examined the dependence on tobacco among 90 tobacco users. Maximum of smokers and smokeless tobacco users had medium dependence for tobacco use. Parashar et al. also have reported maximum number of tobacco users to have medium dependence for tobacco use.^[5] Although the dependence on tobacco use (medium dependence) was higher

among smokers (61%) than smokeless tobacco users (41%), the proportionate physical dependence was higher among smokeless tobacco users (41.3%) than smokers (20.4%). A significant proportion of tobacco users is physically dependent on tobacco. Similarly, other studies also have reported high physical dependence on tobacco (Fagerstrom Test of Nicotine Dependence score >7) which varies from 10% to 27% among tobacco users.^[5,20-22]

Similar to our study, Aryal et al. also have reported higher nicotine dependence among smokeless tobacco users compared to smokers.^[23] The physically tobacco-dependent individuals frequently relapse mostly due to withdrawal symptoms. They need more than just health education on harmful effects and advice on quitting tobacco use. The efforts should be toward individualizing the behavioral change counseling and considering pharmacotherapy on case to case basis, especially for individuals physically dependent on tobacco. The current strategy of just creating awareness on harmful effects of tobacco and giving health education in general would not work in encouraging tobacco users to quit. The future research should focus on estimating the burden and attributes of tobacco dependence directing the further plan of action.

This study had adopted the standard Fagerstrom Addiction scale and pretested to measure level of dependence. The study participants were interviewed after ensuring privacy and confidentiality to avoid social desirability bias. Since the pilot study was conducted in hospital setting, the social desirability bias cannot be completely avoided.

Table 2: Details of current tobacco use among the study population (N=90)

Variable	Category	Frequency	Percentage
Forms of tobacco	Smoking	44	48.8
	Smokeless	41	45.6
	Dual	5	5.6
Frequency of tobacco use	Less than daily	5	5.6
	Daily	85	94.4
Frequency of tobacco use (Median & Range)	Smoking (44)	9 (2-25)*	
	Smokeless (41)	6 (2-20)**	

*Number of bidis/cigarettes per day, **Number times the person was consuming smokeless tobacco products per day, not the number of packets

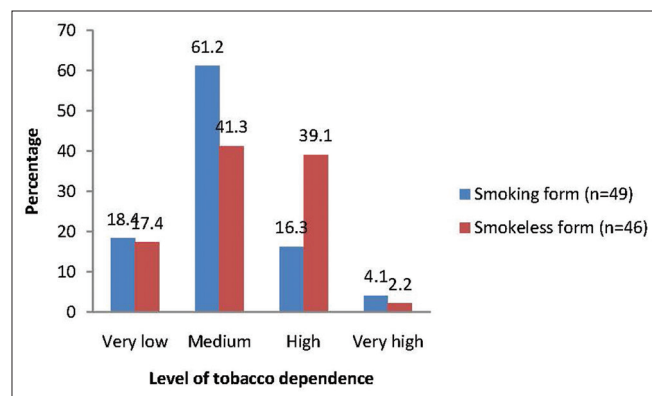


Figure 1: Level of tobacco dependence among the study population attending the Urban Health and Training Center, Kurusukuppam

Conclusion

Although tobacco dependence was medium, the physical dependence of tobacco use was high for both smokeless tobacco users and smokers. Knowing the level of physical dependence will help in setting up of referral services or tobacco cessation clinic in the community. However, further study in the community with adequate sample and appropriate sampling strategy need to be done to find out the level of tobacco dependence, and to estimate the prevalence of physical dependence on tobacco in the community.

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Conflicts of interest

There are no conflicts of interest.

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