Tobacco Use, Dependence and Psychiatric Comorbidity in the Community of Dharan

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Abstract

INTRODUCTION

Though there are studies in the past done to assess the prevalence of tobacco use in the country, little is known about the state of nicotine dependence among tobacco users and the co-occurrence of nicotine dependence and psychiatric disorders in Nepal.

Objectives

To estimate the prevalence of tobacco use, the level of nicotine dependence among the users and the psychiatric disorder-specific prevalence among tobacco users in a community setting.

Methodology

A cross-sectional study was conducted in the community of Dharan. One hundred twenty-eight cases (size) were enrolled from different wards of Dharan using the Population proportionate random sampling technique. The Fagerström Test for Nicotine Dependence (FTND) was applied to assess the level of nicotine dependence and the Mini International Neuropsychiatric Interview (M.I.N.I.) was for the diagnosis of Psychiatric disorders.

Result

The prevalence of tobacco use was 41.4%. Tobacco use was more common among males and those with a family history of tobacco use and psychiatric illness (p-value< 0.05). The smoking form was more common than smokeless one. Most tobacco users had moderate nicotine dependence and started the use in their 20s. Among tobacco users, 23 cases had comorbid psychiatric diagnoses, common being alcohol and other substance, depression and anxiety disorders.

Conclusion

The prevalence of tobacco use was high in the community. Young persons in their 20s should be given special attention while conducting educational and awareness programs regarding tobacco prevention. Psychiatric comorbidities should be assessed routinely among tobacco users.

KEYWORDS

Dharan, Nicotine Dependence, Psychiatric comorbidities, Tobacco

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INTRODUCTION

Tobacco use is very common throughout the world. Assessing nicotine dependence is of utmost importance in tobacco users, as a better understanding of nicotine dependence will assist in appropriate treatment approaches directed at quitting tobacco.[1] Tobacco/nicotineis among the most addictive psychoactive substances, with a highest prevalence of dependence among the users.[2] Assessment of psychiatric comorbidities is essential in such a population as previous literature from developed countries has shown the high association between nicotine dependence and psychiatric disorders.[3] But, little is known about the prevalence of tobacco use, nicotine dependence among tobacco users and co-occurrence of nicotine dependence and psychiatric disorders in developing countries including Nepal. Health surveys and studies at different points in time have shown a high prevalence of tobacco use in Nepal. In 2000, the overall estimated tobacco use prevalence in Nepal was 44.7%, twice among males, 58.1% compared to females 38.1%.[4] Similarly, another study showed the prevalence of any form of tobacco

use in Nepalese men was 51.9%.[5] This study was carried out in the community of Dharan to estimate the prevalence of tobacco users and nicotine dependence among users. We also aimed to estimate the psychiatric disorder-specific prevalence among tobacco users.

MATERIALS AND METHODS

This is a cross-sectional study conducted in the community of Dharan. This study was conducted in the study period of one year from March 2014 to February 2015. This study was approved by the Ethical Review Board of Research Committee of B. P. Koirala Institute of Health Sciences (BPKIHS), one of the authorized institutions of Nepal Health Research Council, Kathmandu.

Sample size and study population

Keeping the estimated prevalence of tobacco users in the community at 45%[4] with β error at 0.2, the sample size comes out to be 117. An additional 10% of subjects will be taken for better representation. The sample size calculated comes out to be 128. For sampling, a population proportionate random sampling technique was applied. Samples from these randomly selected wards were taken considering the total population and individual population of these respective wards. The sampling interval was selected by dividing number of households by the No. of samples to be taken from those wards. The first household was randomly selected after the sampling interval was considered. All individuals from the selected household fulfilling the inclusion criteria and exclusion criteria were enrolled.

Instruments

A Semi-structured proforma including information about socio-demographic and clinical variables was used. Fagerström Test for Nicotine Dependence/ Fagerström Test for Nicotine Dependence-Smokeless Tobacco (FTND-ST) was applied to those who consumed any form of tobacco. This test consists of total score of 10, and classified with 1-2 = low dependence, 3-4 = low to moderate dependence, 5-7 = moderate dependence, 8+ = high dependence. Nepali translation of Mini International Neuropsychiatric Interview (M.I.N.I.) English Version 6.0.0 was used for the psychiatric diagnoses which had been used in a previous community survey of psychiatric disorders.[6] The collected data were entered in Microsoft Excel, tabulated and analyzed using SPSS. Statistical analysis was done using parametric and non-parametric statistical techniques for measures of central tendency, standard deviation, and other tests of significance as appropriate.

RESULTS

Table 1. Distribution of Socio-demographic characteristics

Characteristics	Category	No. (%)
Age (years)	15- 25 26- 35 36- 45 46 and above	13 (10.2) 42 (32.8) 24 (18.8) 49 (38.3)
Sex	Male Female	66 (51.6) 62 (48.4)
Marital Status	Married Unmarried/ Separated/ Widow	83 (64.8) 45 (35.2)
Religion	Hindu Kirat Buddhist/ Christian/ Muslim	55 (43.0) 56 (43.8) 17(13.3)
Caste	Brahmin and Chhetri Janajati Madhesi/ Dalit and others	24 (18.8) 94 (73.4) 10 (7.8)
Education	Illiterate and under SLC SLC and above	66 (51.6) 62 (48.4)
Occupation	Housewife Business/ Service Farmers/ Others Unemployed	38 (29.7) 26 (20.3) 42 (32.8) 22 (17.2)
Type of Family	Nuclear Joint	90 (70.3) 38 (29.7)

Table 2: Distribution of Tobacco users according to Age group

Age group (years)	Tobacco use		Total N (%)	p-values
	Present N (%)	Absent N (%)		
15- 25	1(7.7)	12(92.3)	13 (100)	0.030
26- 35	18(42.9)	24(57.1)	42 (100)	
36- 45	14(58.3)	10(41.7)	24 (100)	
46 and above	20(40.8)	29(59.2)	49 (100)	
Total	53(41.4)	75(58.6)	128 (100)	

Prevalence of tobacco users among the patients was 41.4%. Among them, the prevalence of tobacco users was found to be highest in 36-45 years age groups (58.3%).

Table 3: Distribution of Tobacco users according to Sex

Sex	Tobacco use		Total N (%)	p-values
	Present N (%)	Absent N (%)		
Male	39(59.1)	27(40.9)	66 (100)	<0.001
Female	14(22.6)	48(77.4)	62 (100)	
Total	53(41.4)	75(58.6)	128 (100)	

Table 4: Distribution of Tobacco users according to Type of family

Type of Family	Tobacco use		Total N (%)	p-values
	Present N (%)	Absent N (%)		
Nuclear	32(35.6%)	58(64.4%)	90 (100%)	0.039
Joint	21(55.3%)	17(44.7%)	38 (100%)	
Total	53(41.4%)	75(58.6%)	128 (100%)	

Table 5: Distribution of Tobacco users according to family history of psychiatric illness

Family history of Psychiatric illness	Tobacco use		TotalN (%)	p-values
	PresentN (%)	AbsentN (%)		
Present	45(52.3%)	41(47.7%)	86 (100%)	<0.001
Absent	8(19.0%)	34(81.0%)	42 (100%)	
Total	53(41.4%)	75(58.6%)	128 (100%)	

Table 6: Distribution of Tobacco users according to family history of tobacco use

Family history of tobacco use	Tobacco use		Total N (%)	p-values
	Present N (%)	Absent N (%)		
Present	51(52.0%)	47(48.0%)	98 (100%)	<0.001
Absent	2(6.7%)	28(93.3%)	30 (100%)	
Total	53(41.4%)	75(58.6%)	128 (100%)	

Forms, First Use and Nicotine Dependence Among Tobacco Users

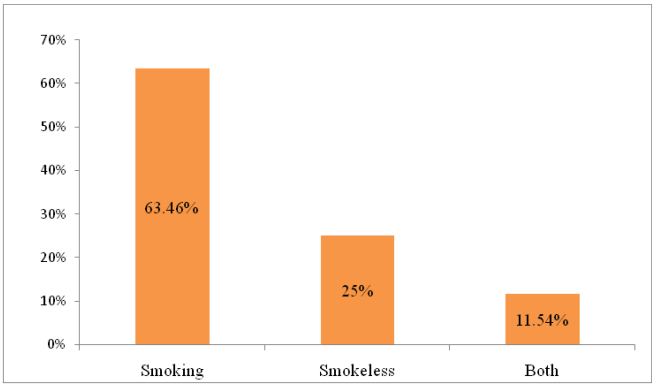

Figure 1: Distribution of tobacco users according to form of tobacco

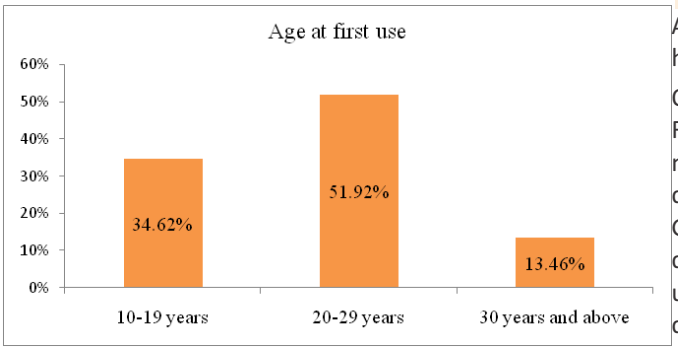

Figure 2: Distribution of tobacco users according to their age at first use

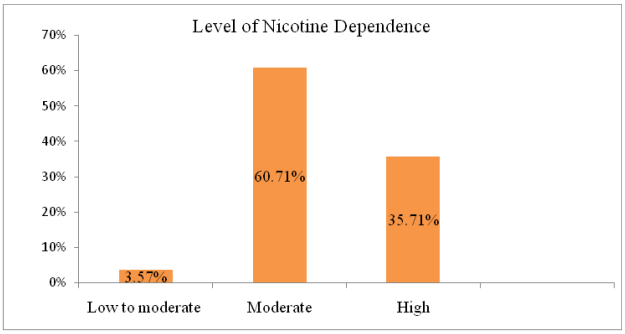

Figure 3: Distribution of Tobacco users according to their level of nicotine dependence

Most of the tobacco users had moderate dependence of nicotine assessed bytheFagerstorm Test for Nicotine Dependence.

PSYCHIATRIC DISORDERS SPECIFIC PREVALENCE AMONG NICOTINE USERS

Table 7: Distribution of Psychiatric disorders among tobacco users

Diagnosis	Tobacco use		Total	p-value
	Present	Absent		
Major depressive disorder	4	2	6	0.198
Mania/Hypomania plus non-alcohol substance use	1	0	1	0.232
Generalized Anxiety disorder	2	5	7	0.478
Psychotic disorder	2	1	3	0.369
Major depressive disorder and Panic disorder	1	0	1	0.232
Alcohol dependence	6	0	6	0.003
Non-alcohol dependence psychoactive dependence	5	0	5	0.007
Major depressive disorder and Alcohol dependence	1	0	1	0.232
Panic disorder and Alcohol dependence	1	0	1	0.232
No psychiatric diagnosis	30	67	97	0.001
Total	**53**	**75**	**128**	

Among tobacco users in community, 30(56.6%) cases did not have any psychiatric diagnosis.

Out of 53 tobacco users, 23 cases had psychiatric diagnoses. Four cases out of these had dual diagnoses. The most number of tobacco users got the diagnosis of Alcohol dependence; followed by major depressive episode. Generalized Anxiety disorder, Panic disorder and Psychotic disorder were found equal. The association between tobacco use and people with no psychiatric diagnosis, alcohol dependence and non-alcohol dependence came out to be significant (p value < 0.05).

DISCUSSION

Our study showed the prevalence of tobacco users to be 41.4%. Fifty-six patients consumed one or other forms of tobacco. Most of the cases were from the age group of 46 years and above but tobacco use was seen more in age group (36-45) years. There was equal participation from both the genders; the use of tobacco in the male population (59.1%) was significantly higher than in females (22.6%). This finding was statistically significant ($p< 0.05$). Schmitz N et al. reported the population prevalence of current smoking as 36.2% in a study on the German population.[7] A similar study done in the Andaman and Nicobar islands of India reported that the current tobacco use in any form was 48.9%.[8] Our finding is similar in this regard. Khanal et al. showed in 2011 that the prevalence of consuming any form of tobacco in Nepal was 51.9% and in the eastern region, it was estimated to be 51.7%.[5]However, this study included only males and in our study, prevalence of tobacco use is 59.1% among males.This study by Khanal et al also showed that tobacco use was common in the age group of (36-49) years (70%) which is consistent with our finding. A recent study from BPKIHS showed the overall proportion,including nicotine use and dependence combined, increased for Nicotine (34.05 to 48.03%) among the psychiatric patients admitted in psychiatric ward from 2019 to 2020. Our finding is consistent with this proportion.[9]

Sree ramamareddy et al. in Demographic and Health Survey (2006) in the Nepalese population, however, had shown the overall prevalence of tobacco use as 30.3% and in the eastern region of Nepal was 31%, which is lower than our prevalence.[10] This might be due to the reason that we included both 'current user' and 'ever user' in our study whereas; only 'current user' was assessed in that study.

Participants from a joint family in our study consumed tobacco higher than those in the nuclear family. This finding was statistically significant ($p< 0.05$). This may reflect that in this type of family, supervision is less and as there are many family members; obligations and responsibilities may be comparatively lesser than in a nuclear family, so, people might have a habit of consuming tobacco.

Our study also revealed that there was a higher prevalence of tobacco use in persons who had a family history of psychiatric illness (52.3%) when compared with negative family history (19%). Similarly, tobacco use was prevalent significantly more among those with a positive family history of tobacco use (52% vs. 6.7%). Both of these findings were statistically significant ($p< 0.05$). This implies the fact that a positive family history of psychiatric illness and tobacco use may predispose the person to tobacco-consuming habits. The underlying factor, however, needs to be investigated into.

Among tobacco users, 63.46% consumed the smoking form of tobacco and 25% were consuming the smokeless form of tobacco. And, 11.5 % were using both forms of tobacco. Niraula SR et al. study on the female population in Dharan found the overall prevalence of the smokeless form of tobacco was slightly higher than the smoking form (14.1% chewing form vs. 12.9% smoking form).[11] However, a health survey in 2006 in Nepal showed the overall prevalence of a smoking form of tobacco was higher than the smokeless form i.e. 20.7 % smoking and 14.6% chewing form.[10] In our study, there was a minimal number of participants who consumed other forms of smokeless tobacco such as gutka, paan masala, surti, zarda etc. This form of tobacco is more common in youths and the population who are residing in areas bordering India. Their participation was less in our study which might have resulted in higher smoking prevalence.

Most cases in our study started their consumption in their 20s. Our finding of the age at first use differs from other previous studies done regionally and internationally where the age at first use was in the adolescent period.[8,12] This might be due to reporting bias by the participants as most of our participants were from 46 years and above age group. Because of various other factors; such as level of awareness, their social and professional status, difficulty in accepting, and minimizing their substance-taking behaviour etc.; participants might have not reflected their true age at first use and the actual duration of their tobacco consumption.

Most of the tobacco users had moderate nicotine dependence (60.71%). One-third (35.71%) of tobacco users had high nicotine dependence. Only 3.5% of tobacco users were having low dependence. A prevalence study on nicotine dependence has given different results. Schmitz et al. study on the German population found the population prevalence of current smoking as 36.2% and the 1-year prevalence of nicotine dependence as 9.4%.[7]Unlike our study, the figure of nicotine dependence was assessed from the overall general population in this study,not among tobacco users. Another study by Manimunda et al. in India, using an FTND tool like ours, found overall nicotine dependence in 6.4% of the study population and 13.1% among current tobacco users.[8] However, to the best of our knowledge, there are no studies in our country to assess nicotine dependence in the population. Assessment of nicotine dependence in tobacco users is essential because highly dependent individuals are at more risk of health-related problems and may have more difficulty in quitting tobacco than those who are not dependent or have low dependence.

Out of 53 tobacco users, 23 cases got psychiatric diagnoses. Four cases had dual diagnoses, making it a total of 27 diagnoses. Most of the cases had alcohol dependence as the primary diagnosis. Major depressive episode and non-alcohol psychoactive substance use which was in equal proportion was the second most common diagnosis. Anxiety disorder (Generalized anxiety disorder, Panic disorder) and psychotic disorder were the third most common diagnosis among tobacco users. Our study has shown the significant association between tobacco use and alcohol and other substance use. In the clinical setting of BPKIHS, which provides service to the community of Dharan, studies done in the Psychiatry services facility have shown tobacco use was the commonest substance for those coming for treatment and tobacco was also the commonest other substance used

by Alcohol dependent patients.[13,14] Though we are aware that there is a strong association between tobacco use and psychiatric illness but the interrelationship between them is complex and it is difficult to attribute to one or other as a contributing factor. Grant et al. study in the US population reported that in nicotine-dependent individuals; the 12-month prevalence of any Alcohol use disorder was 8.5%, Major depression was 7.1%, Generalized anxiety disorder was 2.1%, Panic disorder with agoraphobia 0.6% and panic disorder without agoraphobia 1.5% and any drug use disorder 2%.[15] This study assessed the prevalence of psychiatric illness only among nicotine-dependent individuals and those who consumed smoking forms of tobacco. Therefore, though there is some consistency with our findings; the data may not be comparable due to the above-mentioned reasons.

In our study, the mean age of participants was 42.30 ± 15.58 years. The minimum age was 16 years of age and the maximum was 80 years. This finding is nearly consistent with the study of Gilani et al. in Pakistan where the mean unweighted age of participants was 34±10 years (Range 18-90 years), and the weighted mean age was 35 years.[16] Most of the participants in our study were from the age group of 46 years and above where both genders had almost equal participation; i.e. 66 (51.6%) males and 62 (48.4%) females. This finding is also consistent with the same study by Gilani et al in Pakistan where 51.2% were males and 48.8% were females.[16]

There are certain limitations in our study. This study was conducted in wards of a city in eastern Nepal, among small sample size though calculated. Hence, caution should be exercised while generalizing the finding to whole population. Information provided by the participants in the community may be biased as compared to the hospital setting in which there was a detailed and thorough assessment. Because of socio-cultural aspects, confidentiality issues, defense mechanisms like denial or minimization of substance-taking behaviour, and stigma with psychiatric illness; under reporting may be possible.

CONCLUSION

The finding of our study corresponds with that of previous studies which show the prevalence of tobacco use in the community is high. Further studies should be done time and again, which may guide us in tobacco-controlling measures. Significant proportions of tobacco users were nicotine dependent. Nicotine dependence should be routinely assessed in tobacco users as it may have implications for management. Comorbidity is high among those using tobacco and clinicians who are involved in the treatment of tobacco-related physical complications should also assess and manage psychiatric problems. Special attention and education should be imparted to the young population which is the vulnerable period starting tobacco consumption.

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COMPETING INTERESTS

None.

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