PREVALENCE OF TOBACCO USE AND SUCCESSFUL TOBACCO QUITTING AMONG PERSONS OF KAGESHWORI-MANOHARA MUNICIPALITY IN KATHMANDU, NEPAL

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ABSTRACT

Tobacco use is the leading modifiable behavioural risk factor contributing to non-communicable diseases and preventable deaths. The most effective way for tobacco users to avoid or minimize the harmful effects is to quit tobacco use. This study aimed to determine the prevalence of tobacco use and successful tobacco quitting among persons aged 15 years and above. A community based quantitative cross-sectional study was conducted among 300 persons (m=191, f=109) in Bhadrabas area of Kageshwori-Manohara Municipality from September 2023 to February 2024. Participants were selected using simple random sampling technique. A semi-structured questionnaire based on the WHO STEPS survey questionnaire was used during the face-to-face interviews to collect the data. Almost half of the participants 142 (47.3%) were ever tobacco users and 121 (40.3%) were current tobacco users. Among ever tobacco users, majority of the respondents used smoked tobacco 122 (85.9%) and only 20 (14.1%) of them used smokeless tobacco. More than three fourth of the ever tobacco users 112 (78.9%) used cigarette (filtered & non-filtered) and mean age of initiation of tobacco use was 18.7±7.6 years. Out of 98 (69.0%) ever tobacco users who had tried to quit tobacco use, 21 (21.4%) had successfully quit the tobacco usage. Majority of the participants 279 (93.0%) reported that tobacco use was injurious to health but only 26 (18.3%) of ever tobacco users sought help to quit tobacco. Binary logistic regression models revealed that tobacco use was significantly associated with age, sex, marital status, ethnicity, education status, family type and comorbidities. Male participants (OR: 3.76, 95% CI: 1.98-7.12), married persons (OR:7.09, 95% CI: 2.10-23.86), persons without formal schooling (OR: 3.78, 95% CI: 1.75-8.15), participants belonging to nuclear family (OR: 1.99, 95% CI: 1.13-3.52) and unemployed participants (OR:1.73, 95% CI: 0.81-3.72) had increased odds of tobacco use. There was significant association between the type of family (p=0.026) and those who sought help to quit tobacco (p=0.011) with successful tobacco quitting. Strict policy implementation and counseling on cessation of tobacco usage as per WHO package of essential non-communicable (PEN) disease interventions should be carried out effectively to help the community people to quit the tobacco use.

KEYWORDS

Tobacco use, successful tobacco quitting, attempts to quit, Kathmandu, Nepal

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INTRODUCTION

Tobacco consumption is characterized as utilizing any tobacco item, either smoked or smokeless.[1] Tobacco smoking is named as the burning of the tobacco leaves and breathing in of the smoke. Chewing tobacco, wet snuff, and dry snuff are examples of smokeless tobacco consumed through the mouth or nose without combustion or burning.[2] The tobacco epidemic is one of the biggest public health threats the world has ever faced, killing over 8 million people a year around the world. More than 7 million of those deaths are the result of direct tobacco use while around 1.3 million are the result of non-smokers being exposed to second-hand smoke.[3] All forms of tobacco use are harmful, and there is no safe level of exposure to direct and second-hand tobacco smoke. Cigarette smoking is the most common form of tobacco use worldwide. Around 80.0% of the 1.3 billion tobacco users worldwide live in low- and middle-income countries,[3,4] where the burden of tobacco-related illness and death is heaviest. In nationwide representative Nepal STEPS survey 2019, 28.9% of adults 15-69 years of age (48.3% of men, 11.6% of women) were current users of tobacco, in any form. Out of which, 17.1% of adults were current smokers of tobacco and 18.3% of adults were current users of smokeless tobacco and 6.5% of them used both smoked and smokeless tobacco products. Regarding cessation of tobacco use, 1 in 5 current smokers (19.4%) and 17.9% of current smokeless users tried to stop smoking and use of smokeless tobacco, respectively in the last 12 months. Average age at initiation of tobacco smoking was 17.8 years.[5] Tobacco use contributes to poverty by diverting household spending from basic needs such as food and shelter to tobacco and this spending behaviour is difficult to curb because tobacco is so addictive.[3]

Tobacco use is one of the leading modifiable behavioural risk factors contributing to non-communicable diseases (NCDs).[5] Smoking is considered the main risk factor for cardiovascular disease, lung cancer, stroke etc., and is also the major cause of preventable deaths, globally.[6,7] Second-hand smoke also causes serious cardiovascular and respiratory diseases, including coronary heart disease and lung cancer, and kills around 1.3 million people prematurely every year.[8] Almost half of children regularly breathe air polluted by tobacco smoke in public places, and 65,000 die anually from illnesses attributable to second-hand smoke. Furthermore, smokeless tobacco use is highly addictive and damaging to health as it contains many cancer-causing toxins and its use increases the risk of cancers of the head, neck, throat, oesophagus and oral cavity (including cancer of the mouth, tongue, lip and gums) as well as various dental diseases.[9] Different varieties of tobacco products are used in Nepal in both smoking and smokeless forms. The smoking forms are cigarette, *bidi, hookah, sulfa* and *chillum* or *kankad*. The smokeless tobacco products include *surti* leaves, *khaini, gutkha* and *paan* with tobacco ingredients. Dry tobacco-areca nut preparations such as *gutkha* and *paan masala* are popular in Nepal. Smoking is often seen as a symbol of independence and a modern fashion statement among the urban population, especially urban women and young people. Among rural women, tobacco chewing is more socially acceptable than smoking, and among smokers *bidi* smoking is more popular than cigarette smoking.[10]

Among smokers who are aware of the dangers of tobacco, most want to quit. The most effective way for smokers to avoid or minimize the harmful effects is to quit smoking.[8] Counselling and medication can more than double a tobacco user's chance of successful quitting. National comprehensive cessation services with full or partial cost-coverage are available to assist tobacco users to quit in only 32 countries, representing around a third of the world's population.[3] It has been estimated that for every year that a smoker over the age of 40 years continue to smoke, their life expectancy reduces by 3 months.[11] Although in general, 25 to 48% of the smokers attempt to quit smoking in a year, only a small proportion succeed long term.[12] In response to tobacco epidemic, Nepal has signed the WHO Framework Convention on Tobacco Control (WHO FCTC) on 2003. WHO MPOWER which is a policy package to reverse the tobacco epidemic was passed on 2010[10] and passed Tobacco Control and Regulatory Bill in 2011 by Parliament.[5] Even after a decade of robust anti-tobacco policies[13] prevalence remains high,[14] which indicates the frangible implementation of such policies. As the country braces to address the burden of non-communicable diseases in Nepal, it is crucial to incorporate tobacco cessation programs in the national health system to meet the global target of bringing tobacco consumption to less than 5.0% by 2040.[15] Hence, the aim of this study was to determine the prevalence of tobacco use and successful tobacco quitting among persons residing at Kageshwori-Manohara Municipality.

MATERIALS AND METHODS

A community based quantitative cross-sectional study was conducted among 300 persons aged 15 years and above in Bhadrabas area (Ward No. 3) of Kageshwori-Manohara Municipality

in Kathmandu District, Nepal from September 2023 to February 2024. Data was collected during community diagnosis program of second year MBBS students. Participants were selected using simple random sampling technique. A semi-structured questionnaire was used during the face-to-face interviews. Questionnaire included questions about socio-demographic characteristics such as age, sex, ethnicity and education status. Questions on tobacco use were ascertained using the questions based on the WHO STEPS survey questionnaire. The participants also provided information about smoking behavior; type of the tobacco use, age of initiation of tobacco use, whether they had ever tried to quit tobacco use, had successfully quit smoking and their monthly expenditure on purchasing cigarette. Severely ill and who were unwilling to participate were excluded from the study. Ethical clearance was taken from the Nepal Medical College Institutional Review Committee of Nepal Medical College (Ref. No.: 23-080/081). Verbal consent from each participant was taken prior to the interview. Confidentiality of the participants was maintained. Ever tobacco user referred to a person who used at least 1 smoked/smokeless tobacco product (cigarettes, *bidis*, *khaini* etc.) during their lifetime. Current tobacco user was defined as one who had used smoked/smokeless tobacco products daily or occasionally during the past 30 days preceding the survey. Non-smoker was defined as one who had never used smoked/smokeless tobacco products in their lifetime. Person who has successfully quit tobacco was defined as one who had quit any form of tobacco use for past 12 months preceding the survey. Tobacco users included smoked and smokeless tobacco use.

Sample size was calculated using formula Z^2pq/d^2, where prevalence (p) of current tobacco users was taken in reference to the Nepal STEPS Survey (2019)[5] as 28.9% and margin of error (d) was taken as 6%. The minimum sample size calculated was 220 at 95% confidence interval. However, we collected data from 300 persons. Statistical analysis of the collected data was carried out using SPSS 16. Descriptive statistics were applied to calculate mean, median, frequency and percentage. Association of tobacco use and successful tobacco quitting with independent variables were tested using Chi-square test, Fisher's exact test and logistic regression test. P value less than 0.05 was taken as significant.

RESULTS

A total of 300 persons were recruited in the study of which 191 (63.7%) were male and 109 (36.3%) were female. About two-fifths the participants 119 (39.7%) were between the age group 35 to 54 years and the mean age was 48.75 ± 17.85 years. *Brahmin/Chhetri* was the predominant ethnicity 228 (76%). Majority of them 281 (93.7%) were Hindu by religion and 265 (88.3%) had their own house. Over three fourths of the participants 236 (78.7%) had attained primary or higher education level but over a fifth 64 (21.3%) of them had no formal schooling. Elaborating on the educational status, one fifth 61 (20.3%) of the participants had attained primary education and 12 (4.0%) of them had attained professional degree. One fifth of the participants 61 (20.4%) were homemakers followed by 48 (16.0%) of them were agriculturists and 13 (4.3%) were unemployed. Majority of the participants were married 266 (88.7%) and half of them 50 (50%) belonged to nuclear family. Median of total family income per month was Rs. 40,000 with an interquartile range (IQR) of Rs. 25,000 – 50,000 (Table 1).

Table 2 revealed that, out of total participants, 142 (47.3%) of the participants were ever tobacco users and 121 (40.3%) were current tobacco users. Among ever tobacco users, 103 (72.5%) were male and 39 (27.5%) were female. Majority of the respondents used smoked tobacco 122 (85.9%) and 20 (14.1%) of them used smokeless tobacco. More than three fourth of the respondents 112 (78.9%) used cigarette (filtered & non-filtered). The majority of them 124 (87.3%) smoked daily and 85 (59.9%) smoked 5 or more sticks per day. More than half of them 78 (54.9%) initiated tobacco use at below 18.7 years of age. Mean age of initiation of tobacco use was 18.7 ± 7.6 years. Monthly expenditure in tobacco purchase was Rs 1800 with IQR of Rs. 500 - 3000. Most of the tobacco users 82 (83.6%) made 1 to 4 attempts to quit tobacco and only 16 (16.3%) of them made 4 or more attempts to quit the tobacco. Out of 98 (69.0%) ever tobacco users who had tried to quit tobacco use, 21 (21.4%) had successfully quit the tobacco use whose duration since quitting tobacco was more or equals to 12 months.

Fig. 1 showed that among the ever tobacco users (n=142), median age of initiation of tobacco among male and female was almost the same i.e, 18.7 years with similar IQR of 13 to 22 years. Among males, maximum age of starting of tobacco use was 35 years with few of them starting even at the age of 49 years. Whereas among females, maximum age of starting of tobacco use was 28 years with a very few of them starting at 40 years.

Regarding knowledge on harm caused due to tobacco use, majority of the respondents 279

Table 1: Socio-demographic profile of study participants (n=300)

Characteristics	n	%
Sex		
Male	191	63.7
Female	109	36.3
Age (years)		
15 to 34	74	24.7
35 to 54	119	39.7
55 to 74	77	25.6
≥ 75	30	10.0
Mean ± SD: (48.75 ± 17.85)		
Ethnicity		
Brahmin/Chhetri	228	76.0
Adivasi-Janajati	64	21.3
Dalit	8	2.7
Religion		
Hindu	281	93.7
Buddhist	15	5.0
Christian	4	1.3
House		
Own	265	88.3
Rent	35	11.7
Educational status		
No formal schooling	64	21.3
Primary school	61	20.3
Middle school	24	8.0
High school	53	17.7
Intermediate	48	16.0
Graduate	38	12.7
Professional degree	12	4.0
Occupational status		
Unemployed	13	4.3
Business	31	10.3
Student	25	8.3
Homemaker	61	20.4
Agriculture	48	16.0
Government service	12	4.0
Private service	46	15.3
Labour	19	6.4
Retired from job	45	15.0
Marital status		
Married	266	88.7
Unmarried	34	11.3
Type of family		
Nuclear	150	50.0
Joint/extended	150	50.0
Total family Income per month (NRs)		
<40,000	145	48.3
≥ 40,000	155	51.7
Median (IQR): 40000 (25000-50000)		

Table 2: Prevalence of tobacco use, successful in tobacco quitting and other tobacco related variables

Characteristics	n	%
Ever tobacco users (n=300)		
Yes	142	47.3
No	158	52.7
Current tobacco users (n=300)		
Yes	121	40.3
No	179	59.7
Type of tobacco used (n=142)		
Cigarette (filtered & non-filtered)	112	78.9
Khaini	15	10.6
Bidi	10	7.0
Tobacco with lime	3	2.1
Gutkha	2	1.4
Daily tobacco use (n=142)		
Yes	124	87.3
No	18	12.7
Quantity of smoked tobacco per day (n=122)		
< 5 sticks	37	30.3
≥ 5 sticks	85	69.7
Age at initiation of tobacco use (n=142)		
< 18.7 years	78	54.9
≥ 18.7 years	64	45.1
Mean ± SD (years): 18.7 ± 7.6		
Monthly expenditure in tobacco purchase (NRs.) (n=142)		
< 1800	73	51.4
≥ 1800	69	48.6
Median (IQR) (NRs): 1800 (500-3000)		
Ever tried to quit tobacco (n=142)		
Yes	98	69.0
No	44	31.0
Duration since quitting (n=98)		
<12 months	77	78.57
≥ 12 months	21	21.65
Quit attempts made lasting longer than 24 hours within 12 months (n=98)		
1 - 4	82	83.6
≥ 4	16	16.3
Successful in quitting (n=98)		
Yes	**21**	**21.42**
No	**77**	**78.58**

(93.0%) reported that tobacco use was injurious to health. Most of them told that tobacco use may cause cough 188 (62.7%), asthma 158 (52.7%), lung cancer 158 (52.7%), and few of them thought it may lead to gum problem 96 (32.0%), teeth problem 94 (31.3%), mouth ulcer 100 (33.3%) and chest pain/heart disease 115 (38.3%). When participants were asked if they had any comorbidities, 84 (28.0%) of them reported having comorbidities such as diabetes, hypertension, COPD, asthma, coronary heart disease, etc. (Table 3).

Only 26 (18.3%) of the ever tobacco users sought help to quit tobacco whereas 116 (81.7%) did not seek any help. Few of them 13 (9.2%) were counseled by health care workers to quit tobacco. Regarding tobacco use cessation approaches, only one of them (0.7%) used nicotine replacement therapy, vape by 2 (1.4%), traditional medicine by 2 (1.4%) and other approaches by 2 (1.4%) of respondents like chewing cardamom, cloves, etc. However, 39 (27.5%) of them tried to quit tobacco without any assistance (Table 4).

Table 3: Knowledge of respondents on harm caused due to tobacco use and presence of comorbidities

Characteristics	n	%
Tobacco use is injurious to health (n=300)		
Yes	279	93.0
No	21	7.0
If yes, health problems caused by tobacco use (n=279) Cough*		
Yes	188	62.7
No	112	37.3
Asthma*		
Yes	158	52.7
No	142	47.3
Gum problem*		
Yes	96	32.0
No	204	68.0
Teeth problem*		
Yes	94	31.3
No	204	68.0
Lung cancer*		
Yes	158	52.7
No	142	47.3
Mouth ulcer*		
Yes	100	33.3
No	200	66.7
Chest pain/heart disease*		
Yes	115	38.3
No	185	61.7
Comorbidities (n=300)		
Yes	84	28.0
No	216	72.0

*MCQs

Table 4: Tobacco use cessation approaches among ever tobacco users (n=142)

Characteristics	n	%
Sought any help to quit tobacco		
Yes	26	18.3
No	116	81.7
Counselling by any health care workers		
Yes	13	9.2
No	129	90.8
Nicotine replacement therapy		
Yes	1	0.7
No	141	99.3
Vape		
Yes	2	1.4
No	140	98.6
Traditional medicine use		
Yes	2	1.4
No	140	98.6
Others		
Yes	2	1.4
No	140	98.6
Tried to quit without assistance		
Yes	39	27.5
No	103	72.5

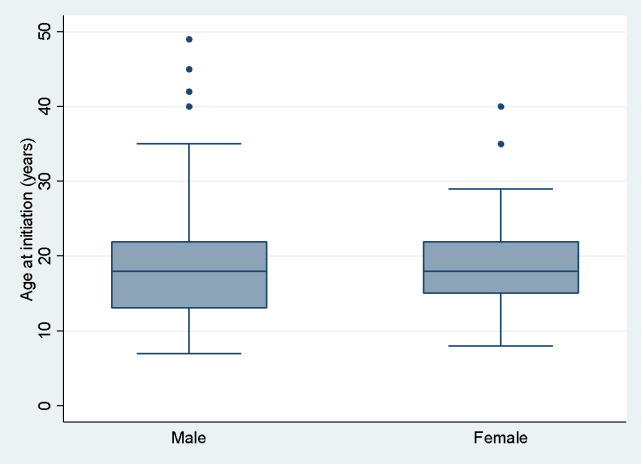

Fig 1: Age at initiation of tobacco use with respect to gender (n=142)

Binary logistic regression models revealed that tobacco use was significantly associated with age, sex, marital status, ethnicity, education status, family type and comorbidities. In crude model, age of participants less than 48.75 years had increased odds of tobacco use in

Table 5: Factors associated with tobacco use among the participants (among ever tobacco users and tobacco non users) (n=300)

Characteristics	Crude OR (95% CI)	[a]P value	Adjusted OR (95%CI)	[b]P value	[c]P value
Age of participants <48.75 / ≥ 48.75	3.05 (1.91-4.88)	**0.0001****	0.48 (0.25-0.94)	**0.034***	0.845*
Sex Male / Female	0.47 (0.29-0.77)	**0.002***	3.75 (1.98-7.12)	**0.0001****	
Marital status Married / Unmarried	0.12 (0.04-0.36)	**0.0001****	7.08 (2.10-23.86)	**0.002***	
Ethnicity *Brahmin / Chhetri* / others	2.85 (1.63-4.97)	**0.0001***	0.38 (0.19-0.75)	**0.005***	
Education status No formal schooling / literate	0.34 (0.19-0.62)	**0.0001***	3.78 (1.75-8.15)	**0.001***	
Occupation status Unemployed / employed	0.36 (0.19-0.66)	**0.001***	1.73 (0.81-3.71)	0.158	
Type of family Nuclear / joint or extended	0.65 (0.41-1.02)	0.064	1.99 (1.13-3.52)	**0.017***	
Comorbidities Yes / No	3.51 (2.04-6.00)	**0.0001****	0.04 (0.23-0.82)	**0.0118***	

[a]P-values for chi-square test.
[b]P-values from Binary logistic regression analyses
[c]P-value for Hosmer and Lemeshow Test
*P-values are statistically significant and **P values are highly significant.

comparison to 48.75 years or above persons (OR: 3.05, 95.0% CI:1.91-4.89). *Brahmin/Chhetri* ethnic group had higher odds of tobacco use than others (OR: 2.85, 95% CI: 1.63-4.97). Participants with comorbidities had higher odds of tobacco use than those without comorbidities (OR: 3.51, 95.0% CI: 2.04-6.00). However, male participants had lower odds of tobacco use than female participants (OR: 0.47, 95.0% CI: 0.29-0.77). Participants with no formal schooling had lower odds of tobacco use as compared to literates (OR: 0.34, 95.0% CI: 0.19-0.62). Similarly, married respondents (OR: 0.12, 95.0% CI: 0.04-0.36), unemployed respondents (OR: 0.36, 95% CI: 0.19-0.66), respondents belonging to nuclear family (OR: 0.65, 95.0% CI: 0.41-1.02) had lower odds of tobacco use. After adjusting for all the factors, male participants had higher odds of tobacco use than the female participants (OR: 3.75, 95.0% CI: 1.98-7.12). Similarly, married persons (OR: 7.08, 95.0% CI: 2.10-23.86), persons without formal schooling (OR: 3.78, 95.0% CI: 1.75-8.15), participants belonging to nuclear family (OR: 1.99, 95.0% CI: 1.13-3.52) and unemployed participants (OR: 1.73, 95 % CI: 0.81-3.71) had higher odds of tobacco use. However, there were lower odds to tobacco usage by age below 48.75 years participants, *Brahmin/Chhetri* ethnic group and who had comorbidities. These changes in results could be due to effect modification by the predictors. The Hosmer-Lemeshow goodness-of-fit test was used to assess how well the logistic regression model fits the observed data. In our case, the model predicts tobacco use. Hosmer-Lemeshow chi-square statistic was 4.12 with 8 degrees of freedom. Significant P value 0.845 which is well above 0.05. Therefore, there is no evidence of poor fit. The logistic regression model for predicting tobacco use appears to have a good fit (Table 5).

Table 6 revealed that there was a significant association between the type of family (p=0.026) and those who sought help to quit tobacco (p=0.011). Respondents belonging to joint/ extended family had two times increased odds of successfully quitting the tobacco use than those belonging to nuclear family (OR: 2.93, 95.0% CI: 1.11-7.81). The participants who had attempted to quit tobacco less than 4 times had higher odds of successfully quitting tobacco (OR: 3.12, 95.0% CI: 0.96 – 10.17). However, no significant association was found between age, sex, religion, education, occupation status, income, knowledge on health problems caused by tobacco, comorbidities and successful quitting of tobacco.

Table 6: Factors associated with successful tobacco quitting among ever tobacco users (n=142)				
Characteristics	**Successful tobacco quitting**		**Crude OR (95.0% CI)**	**P value**
	Yes (%)	**No (%)**		
Age of participants				
<48.75 years	5 (9.3)	49 (90.7)	2.17 (0.74-6.33)	0.146
≥ 48.75years	16 (18.2)	72 (81.8)		
Sex				
Male	12 (11.7)	91 (88.3)	2.27 (0.87-5.92)	0.087
Female	9 (23.1)	30 (76.9)		
Religion				
Hindu	21 (15.9)	111 (84.1)	0.84 (0.78-0.90)	0.172
Others	0	10 (100)		
Ethnicity				
Brahmin/Chhetri	15 (16.0%)	79 (84.0%)	0.75 (0.27-2.08)	0.583
Others	6 (12.5%)	42 (87.5%)		
Education				
No formal schooling	9 (21.4)	33 (78.6)	0.50 (0.19-1.29)	0.149
Literate	12 (12.0)	88 (88.0)		
Occupation				
Unemployed	9 (23.1)	30 (76.9)	0.44 (0.16-1.14)	0.087
Employed	12 (11.7)	91 (88.3)		
Type of family				
Joint or extended	14 (22.2)	49 (77.8)	2.93 (1.10-7.80)	**0.026***
Nuclear	7 (8.9)	72 (91.1)		
Income per month				
<40,000	10 (14.1)	61 (85.9)	1.11 (0.44-2.82)	0.813
≥40,000	11 (15.5)	60 (84.5)		
Quit attempts (n=142)				
<4	16 (12.7)	110 (87.3)	3.12 (0.96-10.17)	0.049
≥4	5 (31.2)	11 (68.8)		
Tobacco use is injurious to health				
Yes	20 (15.2)	112 (84.8)	0.62 (0.07-5.18)	0.658
No	1 (10.0)	9 (90.0)		
Sought any help				
Yes	8 (30.8)	18 (69.2)	0.28 (0.10-0.78)	**0.011***
No	13 (11.2)	103 (88.8)		
Comorbidities				
No	10 (11.9)	74 (88.1)	1.73 (0.68-4.39)	0.244
Yes	11 (19.0)	47 (81.0)		

*Chi-square significant P value <0.05

DISCUSSION

Tobacco consumption is a rapidly growing problem of public health concern, leading to the causes of preventable morbidity, disability and mortality. Implementation of effective tobacco cessation program is important to discourage tobacco users. In this study, a total of 300

persons were recruited in which 191 (63.7%) were male and 109 (36.3%) were female. Over a third of the participants 119 (39.7%) were between the age group 35 to 54 years and the mean age was 48.75 ± 17.85 years. *Brahmin/ Chhetri* was the predominant ethnicity 228 (76.0%). A fifth of the respondents 61 (20.3%) had attained primary education and only 12 (4.0%) had attained professional degree. Most of the participants 242 (80.7%) were employed and 58 (19.3%) of them were unemployed and majority of them were married 266 (88.7%). Similar findings were reported by a community based study conducted among smokers aged 15–69 years in Bharatpur Metropolitan City, Nepal which found that more than two-third of participants (78.2%) were male and rest (21.8%) were female. The majority of participants (46.8%) were of age group 20–39 years followed by (30.0%) participants of age groups 40–59.[16] Likewise, majority of the patients were aged 60+ years (46.0%), men (61.0%), had primary-level education (41.0%), employed (54.0%) and married (73.0%).[17] This result differs with the findings of a qualitative study conducted among current smokers in Fiji, Melanesia which showed that most of the participants were male (57.0%), single (54.0%), had attained tertiary education level (69.0%), were of Christian religion (77.0%), and unemployed (63.0%).[18] In present study, prevalence of ever tobacco user was 47.3%, among which 103 (72.5%) were male and 39 (27.5%) were female. Prevalence of current tobacco user was 40.3%. Among ever tobacco users, mean age of initiation of tobacco use was 18.7 ± 7.6 year which was comparable to the findings of a cross-sectional study carried out among students of Bangladesh. They found the overall prevalence of tobacco smoking was 60.2%, where males smoked at higher rates than females (68.8% and 19.6%, respectively). The average age of initiating tobacco smoking for both males and females was 17.91 years (SD: 2.1)[19] and in another study, the overall median age at smoking initiation was 16.[16] Hang *et al*[20] conducted a survey among patients with chronic diseases found the current smoking prevalence to be 26.2% which was lower as compared to our study. Similarly, six percent of the study participants were current tobacco users, while 40% were former users.[17] The prevalence of tobacco usage was found to be 22.8% (males 37.2%, females 8%) among students in Nepal.[21] The higher prevalence of smoking among males might be due to its cultural acceptance as a masculine behavior.[22] Furthermore, under-reporting among female consumers might be another factor.[14] In this study, the majority of the ever tobacco users 124 (87.3%) used tobacco products daily. Among smoked tobacco users, 85 (59.9%) of them smoked 5 or more sticks per day. Average monthly expenditure in tobacco purchase was Rs. 1800 with IQR of Rs. 500 - 3000 which was consistent with the findings of a study done in Africa, in which the average number of cigarettes smoked was 7.7 sticks per day.[17] Average number of cigarettes smoked per day was 6.5. Average monthly expenditure on cigarettes was Rs. 1049.[5] Higher proportions of participants were from the nuclear family (70.7%).[23] The nuclear family type was found to be common among the participants, followed by a joint type of family[24] but in our study, half of the participants belonged to nuclear family and half of them belonged to joint/extended family.

In this study, majority of the ever tobacco users used smoked tobacco 122 (85.9%) and 20 (14.1%) of them used smokeless tobacco. More than three fourth of the respondents 112 (78.9%) used cigarette (filtered and non-filtered). Age, sex, marital status, ethnicity, education, occupation and comorbidities were statistically associated with tobacco use. These findings were comparable with the study done by Sharma *et al*[21] in which cigarette (75.5%) and hookah (74.5%) were the most common type of tobacco consumed by the participants. Gender, family type, occupation, and pocket money were associated with tobacco usage ($p<0.05$). In contrast to the findings of our study, more than one-third of the total participants had smoked cigarettes ever (39.9%), and 11.7% of participants currently used other tobacco products like chewing tobacco, snuff, *bidis*, *hookah*, cigar, or pipes were found in another study carried out in Dharan Muncipality.[23] Majority (56.3%) of the tobacco users belonged to nuclear family followed by joint family (47.9%) in India.[24] However, in another study by Chand *et al*,[25] smoking status was not associated with family type. In our study, majority of the respondents 279 (93%) reported that tobacco use was injurious to health. Most of them told that tobacco use may cause cough 188 (62.7%), asthma 158 (52.7%), lung cancer 158 (52.7%), and few of them thought it may lead to gum problem 96 (32.0%), teeth problem 94 (31.3%), mouth ulcer 100 (33.3%) and chest pain/heart disease 115 (38.3%). Similar findings were found in a study done in Bangladesh in which majority of the students (95.8%) were knowledgeable about the link between smoking cigarettes and chronic diseases, which was encouraging for future programs targeting smoking cessation. Logistic regression models identified that smoking-related attitudes, potential health problems, and family members dying from cardiovascular disease and cancer were

significantly associated with tobacco smoking.[19] In another study done among Nepalese students reported that although the majority of students were aware of the negative health impacts of tobacco use, the usage of tobacco products was still prevalent among them. School-based health education and intervention programs should be implemented to reduce the habit of tobacco consumption.[21] Another study suggested that health literacy, comorbidity of diseases, and psychological counseling should be considered when developing targeted tobacco prevention strategies. Strengthening tobacco control measures in public places such as rural medical institutions will be effective.[16] Comorbidities were present in 28.0% of the participants. Most (92.0%) of the patients had been diagnosed with tobacco related illnesses (TRI) within the previous five years, most frequent TRI were oral pharyngeal cancer (36.0% [725/2,032]), nasopharyngeal cancer (12.0% [246/2,032]) and lung cancer (10.0% [202/2,032]).[17] In our study also, 84 (28.0%) of the participants had comorbidities such as diabetes, hypertension, COPD, asthma, coronary heart disease, etc.

Most of the participants 82 (83.6%) made 1 to 4 attempts to quit tobacco and only 16 (16.3%) of them made 4 or more attempts to quit the tobacco in our study. Out of 98 (69.0%) of tobacco ever users who had tried to quit tobacco use, 21 (21.4%) had successfully quit the tobacco use which correlates with a survey conducted in China which found that about 64.3% of smokers with chronic diseases attempted to quit smoking, 21.0% of which successfully quitted.[20] Other studies done in Nepal showed higher proportions of participants who attempted to quit tobacco.[23,26] Higher cessation rate, 41.3% was reported in the study done in West of Iran.[27] Overall, 59 (50.0%) of current smokers and 14 (58.0%) of smokeless tobacco users had attempted to quit the preceding 12 months. The most common quitting approaches were counselling, which was adopted by 39.0% of smokers and 57.0% of smokeless tobacco users.[17] However, in the present study, only 13 (9.2%) respondents were counseled by the health care workers to quit tobacco use and 39 (27.5%) of them tried to quit tobacco usage on their own without any assistance. In a study conducted among the public health students in Nepal, of the current smokers (n=65), 47.7% wanted to stop smoking cigarettes now, 52.3% had ever tried to stop smoking cigarettes, and 73.8% of them had ever received help or advice to stop smoking cigarettes.[25] The majority of smokers who try to quit do so without assistance, only 3.0–6.0% of quit attempts without assistance are successful.[28] Cessation rates are very low when compared with the proportion of smokers who wish to stop and repeatedly try to do so. This disparity could be attributed to the addictiveness of nicotine and the withdrawal symptoms which confront the would-be quitter. To date, the most effective adjunctive aid for smokers trying to quit is nicotine replacement therapy but even when abstinence for several months has been achieved, the risk of relapse remains high.[12] The use of medications and behavioral counseling both increase the success rates, and a combination of both medication and behavioral interventions has been shown to be even more effective.[29] In present study, male participants had higher odds of tobacco use than the female participants (aOR: 3.7, 95.0% CI: 1.9-7.1), married persons (aOR: 7.0, 95.0% CI: 2.1-23.8), illiterates (aOR:3.7, 95.0% CI: 1.7-8.1), participants belonging to nuclear family (aOR:1.9, 95.0% CI: 1.1-3.5) and unemployed participants (aOR: 1.7, 95.0%, CI: 0.8-3.7) had higher odds of tobacco use. However, there were lower odds to use tobacco by age below 48.75 year participants, *Brahmin/Chhetri* ethnic group and who had comorbidities which were contradictory to the findings of a study which found that male students (aOR: 15.4; 95.0% CI: 4.9–47.8), students with higher age (aOR: 2.4; 95.0% CI: 1.0–5.4), students belonging to non-*Brahmin/Chhetri* ethnic group (aOR: 2.3; 95.0% CI: 1.2–4.4), and those staying without family (aOR: 2.0; 95.0% CI: 1.1–5.0) had higher odds of being current smoker.[25] A study conducted by Karmacharya *et al*,[26] found that the *Brahmins* were less likely to have quit smoking (former smoker) compared to *Newars* (OR: 0.41, 95.0% CI: 0.18-0.90) which was similar to our study which found that *Brahmin/Chhetri* had lower odds of quitting tobacco use (OR: 0.75, 95.0% CI: 0.27-2.08). Univariate analysis showed a negative correlation between education levels and smoking cessation which is similar to our study. However, multivariate analysis showed that female gender, older age and higher education were related to increased likelihood of smoking cessation[27] whereas in our study, male gender and age above mean age and belonging to joint/extended family had increased likelihood of tobacco cessation. In conclusion, there is a remarkable prevalence of tobacco use among people, mostly by males, in Kageshwori Manohara Municipality, Kathmandu District despite of majority of them having knowledge on harmful effects of its use. Most of them initiated the tobacco use at their early age, cigarette being the most commonly preffered tobacco. Although most of them tried to quit tobacco use, only few of them were successful in quitting it. Hence, there is the necessity to reinforce the children at the school level about harmful effects of tobacco so that they don't initiate its use at their early age.

Tobacco consumption control laws and policies should be strictly implemented, especially in public places, to decrease the prevalence of tobacco users and henceforth to prevent the second- hand smoke in Nepal. Further, as per WHO PEN disease interventions,[30] counseling on cessation of tobacco usage by applying 5As should be strongly implemented at primary health care level to motivate and help the community people to quit the tobacco use.

There are some limitations of this study. The information provided were self-reported, which could be subject to recall bias. Furthermore, we had a relatively small sample size hence the results of our study may not be fully representative of other parts of the country.

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