

Socio-demographic Predictors of Tobacco Use among Women of Nepal: Evidence from Non Communicable Disease Risk Factors STEPS Survey Nepal 2013

Bista B,¹ Mehata S,² Aryal KK,¹ Thapa P,¹ Pandey AR,¹ Pandit A,¹ Dhakal P,¹ Dhimal M,¹ Karki KB¹

¹Nepal Health Research Council (NHRC), Ramshah Path, Kathmandu, ²Nepal Health Sector Support Programme (NHSSP), Ministry of Health and Population, Kathmandu, Nepal.

ABSTRACT

Background: Globally, tobacco use is most common public health problem. Similar is the situation of Nepal where thousands of lives are lost annually. Both sexes are affected by tobacco use but women share different and unique problems. Hence, in this paper we made an attempt to understand socio-demographic predictors of tobacco use among women of Nepal.

Methods: A cross-sectional study was carried out with a sample of 2797 women (15-69 years) recruited through multistage cluster sampling technique. This study used sub-set of data of non-Communicable diseases risk factors survey 2013 of Nepal. Bivariate and multivariable regression analyses were carried out to determine predictors of tobacco use among women of Nepal.

Results: Among total women, 14% were having at least one form and pattern of tobacco use. Furthermore, 10 % were smoker and 4 percent were using any form of chewing tobacco user. As compared to 15-29 years women, 45-69 years age group were 5 times (OR=4.7, 95% CI =2.7-8.0) more likely to be tobacco user. Similarly, urban women were 40% (OR=0.6, 95% CI=0.38-0.95) less vulnerable than rural women. In addition, higher educated women were found to be at 1% (OR=0.01, 95% CI=0.01-0.01) less risk of being tobacco user.

Conclusions: Age, area of residence, and education level were found to be significant socio-demographic predictors for tobacco use among women in Nepal. Therefore, tobacco control programme should target these groups for interventions.

Keywords: Chewing tobacco; Nepal; smoking; socio-demographic; women.

INTRODUCTION

Tobacco use is one of the major public health threats and most common preventable cause of premature death around the world.¹ Globally, tobacco kills nearly 6 million people each year of which five million deaths are attributed by direct tobacco use.² Similarly in Nepal, 10.9 percentage of males and 9 percentage of females death are contributed by tobacco use which is about 15,000 lives every year.^{3,4} Furthermore, national studies have also shown prevalence of any form of tobacco use is increasing in both sex.^{5,6} Though the tobacco use

effects both sex, but its effect on women is unique and different like hip fractures, postmenopausal problems, ectopic pregnancy etc.^{7, 8} There are very few publications about smoking habits of women with reference to socio-demographic strata in Nepal. Hence, this paper aims to assess women smoking habits with reference to socio-demographic data.

METHODS

This cross sectional study represents subset of large scale Non-communicable risk factor: STEPS

Correspondence: Dr Khem Bahadur Karki, Nepal Health Research Council, GPO Box 7626, Ramshahpath, Kathmandu, Nepal, Email: kkarki@nhrc.org.np, Phone : 9851054190.

survey of Nepal 2013. This national survey was carried out among 4200 Nepalese adults of age 15 to 69 years selected through multistage cluster sampling method. A total 70 out of 921 Illakas which represented Mountain (5 Illakas), Hills (30 Illakas) and Terai (35 Illakas) were selected as primary sampling unit. Three wards from each cluster were selected using Probability Proportionate to Size (PPS) method with total of 210 wards and 20 households were selected from each ward using systematic sampling method. One participant from the eligible candidates (15-69 years) of each household was selected through the Kish method.⁹ The study obtained ethical approval from an independent Ethical Review Board (ERB) of the Nepal Health Research Council (NHRC). The written informed consent was taken from each research participants before enrollment in the study. The detail description of methodology is available elsewhere.¹⁰

Data were collected among 2807 women using Personal Digital Assistants (PDAs). The digital data were transferred to Microsoft Excel 2007 in personal computers. Data cleaning was done using SPSS 16.0. Further more weighted frequency was calculated then, univariate and multivariable analysis were performed using STATA 13 version considering 95% of Confidence intervals (CIs). The weight was calculated adjusting the probability of selections of primary sampling unit (PSU), secondary sampling unit (SSU), Tertiary Sampling Unit (TSU), individual respondents and non-response given the study used multistage sampling. Firstly, the probabilities of selections at individual level was calculated and multiplied in order to get a final probability. Finally, inverse of selection probability was used as sample weight.

The tobacco-related questions were adopted from WHO STEPS instrument for Non-Communicable Disease Risk Factor Surveillance. Respondents were asked about current and daily use of any tobacco products (Smoking-cigarettes, pipes, water-pipes, Smokeless- chewing tobacco, snuffing by nose etc). For our analysis purpose only chewing tobacco was considered as smokeless. Current tobacco users (smoking or smokeless) were identified by questioning smoking or smokeless tobacco use of any amount or any kind of factory-made cigarettes,

hand-made cigarettes or cigars and chewing tobacco in the past 30 days. 'Current tobacco user (smoker and smokeless)' who consumed daily, were considered as 'daily tobacco user'. Form of tobacco use was considered as 'smoke and smoke less', and pattern of tobacco use was categorized as 'current and daily'

RESULTS

A total of 2807 (un-weighted) women were included in this study, out of them 14 percent were tobacco user (smoke-ten percent and smokeless- four percent).

The majority of current smoking women belonged to 45-69 (22.6%) years, Mountain (17.9%), rural (11.2%), no formal education (18.5%) and divorced/widowed/separated (26.0%) group (Table 1).

Among current daily smoking women, majority belonged to 45-69 years (21.8%), mountain (17.3%), rural (10.5%), no formal education (5.8%) and divorced/widowed/separated (24.4%) group (Table 1).

In line to previous findings on current daily smoking, current use of any form of chewing tobacco outcome, was also more common in 45-69 (9.5%) years age group, Terai (5.40%), rural (3.1%), no formal education (8.1%) and divorced/widowed/separated (5.7%) group (Table 1).

Daily use of chewing tobacco among women was largely prevalent on 45-69 (8.6%) years age group, Terai (5.0%), rural (4.9%), no formal education (7.5%) and divorced/widowed/separated (5.7%) group (Table 1).

In multivariable regression analysis, finding reveals that 30-44 years and 45-69 years age group women were 3 (AOR=3, 95%CI=1.4-6.3) and 4.6 (AOR=2.4, 95%CI=2.4-10.1) times more likely to be current smoker, respectively, compared to 15-29 years women. Terai region women were 50% (AOR=0.5, 95% CI=0.3-0.7) less likely to be current smoker in comparison to Hilly region women. Regarding area of residence, women from urban area were 50% (AOR=0.5, 95% CI=0.3-0.9) less likely to be a current smoker compared to rural area women. Similarly, in comparison to women with no formal education, women who had primary and secondary

Table 1: Descriptive statistics of different pattern and form of tobacco use

Variable	Category	Current smoking among women		Current daily smoking among women		Current use of any form of chewing tobacco		Current use of any form of chewing tobacco daily		Current use of any forms of tobacco (smoking as well as chewing)		Total*
		n*	%	n*	%	n*	%	n*	%	n*	%	
Age	15-29 Years	31	2.4 (1.2-4.5)	27	2.1 (1.0-4.2)	18	1.4 (0.7-2.9)	18	1.4 (0.7-2.9)	49	3.8 (2.4-6.0)	1297
	30-44 Years	91	11.8 (9.5-14.5)	83	10.8 (8.6-13.4)	48	6.2 (4.7-8.1)	44	5.7 (4.4-7.5)	127	16.5 (13.8-19.6)	771
	45-69 Years	165	22.6 (19.4-26.4)	159	21.8 (18.6-25.5)	69	9.47 (7.2-12.3)	63	8.7 (6.6-11.4)	217	29.8 (26.1-33.7)	729
Ecological region	Hill	155	12.61 (10.-15.5)	145	11.8 (9.3-14.6)	51	4.2 (2.7-6.3)	49	4.0 (2.6-6.2)	190	15.5 (12.7-18.5)	1229
	Mountain	32	17.9 (10.1-29.9)	31	17.3 (9.5-29.7)	9	5.0 (2.0-11.9)	8	4.5 (1.8-11.5)	38	21.2 (13.0-32.8)	179
	Terai	100	7.2 (5.7-9.2)	94	6.8 (5.3-8.6)	75	5.4 (4.1-7.1)	69	5.0 (3.8-6.5)	166	12.0 (9.9-14.3)	1389
Residence	Rural	258	11.2 (9.5-13.2)	243	10.5 (8.8-12.5)	119	5.2 (4.0-6.6)	112	4.9 (3.8-6.5)	350	15.2 (13.3-17.3)	2306
	Urban	29	5.9 (3.9-8.7)	27	5.5 (3.8-7.9)	15	3.1 (1.9-5.1)	14	2.9 (5.9-9.5)	43	8.8 (6.2-12.4)	490
Education	No formal	237	18.5 (16.2-21.2)	226	17.7 (15.3-20.2)	103	8.1 (6.4-10.1)	96	7.5 (5.9-9.5)	314	24.6 (21.9-27.5)	1278
	Primary	43	6.8 (4.7-9.9)	37	5.8 (3.8-8.9)	20	3.2 (2.0-5.0)	19	3.0 (1.9-4.8)	61	9.6 (7.2-12.9)	634
	Secondary	6	1.10 (0.4-2.5)	6	1.1 (0.4-3.8)	11	2.0 (0.9-4.2)	11	2.0 (0.9-4.2)	17	3.1(1.7-6.0)	544
	Higher	0	0	0	0	0	0	0	0.00	0	0.00	340
Marital status	Never married	3	0.9 (9.1-12.7)	3	0.9 (0.3-2.5)	4	1.2 (0.4-3.5)	4	1.2 (0.4-3.5)	7	2.0 (1.0-4.4)	346
	Currently married	252	10.8 (9.1-12.7)	236	10.1 (8.5-12.0)	124	5.3 (4.2-6.6)	115	5.0 (3.9-6.2)	347	14.9 (13.1-17.0)	2327
	Divorced/ Widowed/ Separated	32	26.0 (19.2-34.3)	30	24.4 (18.1-33.1)	7	5.7 (3.0-10.6)	7	5.7 (2.7-10.2)	39	31.7 (24.3-40.2)	123
Total		287	10.3 (8.8-11.9)	269	9.6 (8.2-11.3)	135	4.8 (3.8-6.0)	126	4.5 (3.6-5.7)	393	14.1 (12.4-15.9)	2797

*stands for weighted frequency
 level education were 50% (AOR=0.5, 95% CI=0.3-0.7) and 90% (AOR=0.1, 95%CI=0.0-0.4) less likely to be current smoker respectively (Table 2).

Compared to 15-29 years age group, 30-44 years and 45-69 years age group women were 3 (OR=3, 95% CI=1.5-6.3) and 5 (OR=5.0, 95% CI=2.5-10.1) folds more likely to be current daily smokers. Similar to findings on current smoking, women from urban area were 40% (AOR=0.6, 95% CI=0.3-0.9) less likely to be current daily smoker compared to rural area. With reference to women with no formal education, women who had primary and secondary level education were 60% (AOR=0.4, 95% CI=0.3-0.1) and 87% (AOR=0.1, 95% CI=0.0-0.4) less

likely to be current daily smoker (Table 2).

It is also found that that 30-44 years age group women were 3 (AOR=3.0, 95% CI=1.3-7.2) folds more likely to be current user of any form of chewing tobacco compared to women of 15-29 years age group. Furthermore, table 2 reveals that compared to women who had no formal education women, women who had primary and higher secondary level education were 40% (AOR=0.6, 95% CI=0.3-0.9) and 96% (AOR=0.0, 95% CI=0.0-0.3) less likely to be a current user of any form of chewing tobacco respectively (Table 2).

Women of age group 30-44 years and 45-69 years

Table 2: Multivariable analysis among women having different pattern and form of tobacco use

Variable	Current smoking among women		Current daily smoking among women		Current use of any form of chewing tobacco		Current use of any form of chewing tobacco daily		Current use of any forms of tobacco (smoking as well as chewing)		
	Crude OR	AOR	Crude OR	AOR	Crude OR	AOR	Crude OR	AOR	Crude OR	AOR	
Age	15-29 Years	1	1	1	1	1	1	1	1	1	1
	30-44 Years	2.0 (1.5-2.81)*	2.9 (1.4-6.3)*	2.4 (1.7-3.5)*	3.0 (1.4-6.3)*	2.2 (1.6-3.0)*	3.0 (1.3-7.20)*	2.6 (1.8-3.7)*	2.9 (1.2-6.9)*	2.3 (1.8-2.9)*	2.9 (1.7-4.9)*
	45-69 Years	3.11 (2.3- 4.22)*	4.63 (2.5- 10.1)*	3.9 (2.8- 5.5)*	5.0 (2.5- 10.1)*	2.4 (1.75- 3.26)*	4.4 (0.32- 2.85)	2.9 (2.1- 4.0)*	4.07 (1.5- 10.9)*	3.5 (2.7- 4.6)*	4.7 (2.72- 8.04)*
Ecological region	Hill	1	1	1	1	1	1	1	1	1	1
	Mountain	1.3 (0.7-2.5)	1.1 (0.5-2.3)	1.3 (0.6-2.7)	1.1 (0.5-2.3)	0.9 (0.6-1.7)	0.9 (0.3-2.8)	1.02 (0.6-1.8)	0.98 (0.3-2.9)	1.1 (0.6-1.9)	1.1 (0.5-2.1)
	Terai	0.8 (0.6-1.0)	0.5 (0.3-0.7)*	0.8 (0.6-1.0)	0.5 (0.3-0.7)*	1.7 (1.3-2.2)*	1.28 (0.8-2.2)	1.59 (1.2-2.2)*	1.21 (0.7-2.0)	1.1 (0.8-1.4)	0.67 (0.5-0.9)*
Residence	Rural	1	1	1	1	1	1	1	1	1	1
	Urban	0.6 (0.4-0.8)*	0.6 (0.34-0.87)*	0.54 (0.4-0.8)*	0.6 (0.3-0.9)*	0.6 (0.4-0.9)*	0.7 (0.4-1.3)	0.7 (0.5-0.9)*	0.7 (0.2-0.4)*	0.6 (0.4-0.8)*	0.60 (0.4-0.9)*
Education	No formal	1	1	1	1	1	1	1	1	1	1
	Primary	1.2 (0.9- 1.6)	0.5 (0.3-0.7)*	1.1 (0.8-1.5)	0.4 (0.3-0.7)*	1.3 (0.9-1.7)	0.55 (0.3-0.9)*	1.3 (0.9-1.7)	0.5 (0.3-0.9)*	1.2 (0.9-1.5)	0.48 (0.3-0.7)*
	Secondary	0.55 (0.4-0.8)*	0.1 (0.0-0.4)*	0.4 (0.3-0.6)*	0.13 (0.1-0.4)*	0.96 (0.7-1.3)	0.48 (1.1)	0.83 (1.1)	0.5 (1.2)	0.7 (.8)*	0.22 (0.1-0.4)*
	Higher	0.37 1.00(0.2-0.6)*	1.00 (0.6-1.1)	0.3 (0.2-0.6)*	1.00 (0.6-1.1)	0.7 (0.4-0.9)*	0.1 (0.0-0.1)*	0.1 (0.1-0.9)*	0.1 (0.0-0.3)*	0.5 (0.3-0.7)*	0.01* (0.0-0.1)
Marital status	Never married	1	1	1	1	1	1	1	1	1	1
	Currently married	2.21 (1.39-3.51)*	2.05 (0.6-6.0)	2.6 (1.5-4.4)*	1.81 (0.55-5.96)	3.17 (1.94-5.2)*	1.1 (0.4-3.7)	3.9 (2.26-6.7)*	1.11 (0.3-3.7)	2.8 (1.9-4.1)*	1.53 (0.7-3.5)
	Divorced/ Widowed/ Separated	3.62 (2.0-6.4)*	2.64 (0.6-8.1)	4.8 (2.6-9.1)*	2.28 (0.6-8.1)	2.38 (1.3-4.4)*	0.63 (0.1-2.9)	3.06 (1.6-5.9)*	0.6 (0.1-2.9)	3.9 (2.4-6.3)*	1.79 (0.7-4.6)

*Significant

were nearly 3 (AOR=2.8, 95% CI=1.2-6.9) and 4 (AOR=4.1, 95% CI=1.5-10.9) folds more vulnerable to daily chewing tobacco use than women of 15-29 years age. Similarly, urban residing women were 30% (AOR=0.7, 95% CI=0.2-0.4) less likely to be daily current user of chewing tobacco than rural women. Furthermore, in comparison to women who had no education, women who had primary level and secondary level education were 50% (AOR=0.5, 95% CI=0.3-0.9) and 90% (AOR=0.1, 95% of CI=0.0-0.3) less likely to be daily current user of chewing tobacco. (Table 2)

Finding reveals that 30-44 years and 45-69 years age group women were 3 (AOR=2.9, 95% CI=1.7-4.9) and 5 (AOR=4.7, 95% CI=2.7-8.0) respectively times more at risk of becoming current user of

any form of tobacco in reference to 15-29 years age group women. Similarly, women residing on Terai region were 30% (AOR=0.7, 95% CI=0.5-0.9) - less likely to become current user of any form of tobacco in comparison to women residing on hilly region. Furthermore finding shows that urban women were 40% (AOR=0.6, 95% of CI=0.4-0.9) less likely to become current user (any form). In comparison to women who were not educated, primary, secondary and higher level educated women were 50% (AOR=0.5, 95% CI=0.34-0.69), 80% (AOR=0.2, 95% CI=0.1-0.4) and 90% (AOR=0.1, 95% CI=0.0-0.1) less likely to be current user of any form of tobacco respectively. (Table 2).

DISCUSSION

The study finding revealed that 14 percent of women

were using tobacco of any form in line with another study which had reported it to be 13%.⁵ Smoking had a higher prevalence than chewing tobacco use among women, which is similar to finding exhibited by both sex included national survey but study conducted on Dharan had different findings.^{5, 11} It may be due to different cultural settings of Dharan than other parts of Nepal. Among current smoker and chewing tobacco user, significant portion of women were daily smoker.

The finding of this study showed that prevalence of every form (smokeless and smoke) and pattern of tobacco (current and daily) use increased with increase in age group which is consistent with findings of previous studies conducted in Nepal and India.^{5, 11, 12} Multivariable analysis further confirms this result of univariate analysis. However, these findings were contrasting to findings reported from studies in Brazil (AOR=1, 95% of CI=0.9-1.1) and Iran which showed no association with age.^{13, 14} Contrasting findings may be due to some cultural differences.

Our findings didn't exhibit any significant association with ecological regions except for current smoking and current use of any form of tobacco, which is similar to both sex included national survey findings.^{5, 15}.

Furthermore, urban sector women were less prone to any form and pattern of tobacco use which corresponds with another nationwide study based study findings.¹⁶ Possible explanation could be that media exposure about ill effects of smoking habits is good in urban settings than in rural settings where women lack accessibility to media.

Similar to findings of studies done in international setting, our findings suggest that risk of using tobacco of any form and pattern decrease with increase in educational level.^{5, 13, 16, 17} It could be explained with the fact that lesser educated women may not be aware of the health hazards of tobacco use. It might also be the result of higher social acceptance of tobacco use among uneducated women.

Our study multivariable analysis failed to establish association between marital status and any form and pattern of tobacco which is similar to that of

Indian setting study.¹², But this finding contrast with finding of Iran based study, where divorced women seemed to be more vulnerable to tobacco use of any form and pattern.¹³ Variation in results may be due to cultural differences. More interestingly, findings in this study contradict to findings of national study on men population which showed marital status is associated to tobacco use.¹⁵

Despite of limitation of this study like inclusion of few socio-demographic variables and exclusion of wealth index. Still it adds scientific knowledge with tobacco use among women in the context of Nepal. Taking reference to this study findings intervention campaign against tobacco use can be designed to cut down tobacco use and prevalence of non-communicable diseases which ultimately helps in improvement of health status of Nepalese women.

CONCLUSIONS

This study identified age, area of residence and education level as significant predictors of tobacco use among women. With special focus on those predictors intervention campaign can be developed to reduce the prevalence of non-communicable diseases associated to tobacco use in Nepal.

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