Original Article

Awareness Regarding Cigarette Smoking Among Adult Cigarette Smokers in Bhaktapur, Nepal

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Abstract

Introduction: Cigarette smoking is a highly avoidable factor responsible for a substantial number of deaths and illnesses globally. With a death toll of eight million people worldwide, increasing awareness concerning the dangers of smoking is imperative. Educating people about the national policy against smoking in public places and its detrimental effects can reduce smoking-related health issues and fatalities. This study aimed to assess adult smokers' awareness levels regarding cigarette smoking.

Material and Methods: A descriptive cross-sectional study was conducted to investigate adult cigarette smokers aged 20 to 59 years in Bhaktapur, Nepal. The study included a sample size of 92 participants, selected using a non-probability sampling technique. Data collection was done through face-to-face interviews using a structured questionnaire. The collected data was subjected to both descriptive and inferential analyses using Statistical Package for Social Science (SPSS) version 16.

Results: Among the adult cigarette smokers surveyed, 55.4% of respondents demonstrated an adequate awareness of cigarette smoking. The respondents had sufficient awareness of the policies against and the detrimental effects of smoking on the respiratory and cardiovascular systems. However, the level of awareness was insufficient regarding the after-effects on the nervous system, reproductive system, and eye disorders. A significant association was found between the level of awareness and factors such as age (p=0.01), sex (p=0.00), education (p=0.00), occupation (p=0.01), and total average income (p=0.01).

Conclusion: Sufficient awareness regarding the ill effects of smoking is still lacking. This highlights the need for increasing awareness regarding the health effects and policies about cigarette smoking, especially in the community setting.

Keywords

Adult Cigarette Smokers, Awareness, Cigarette Smoking, Nepal

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Introduction

Smoking is one of the biggest public health threats the world has ever faced, killing more than eight million people a year around the world.[1] A wide range of tobacco products is utilized in both smoking and smokeless forms. Smoking forms include cigarettes, bidis, hookah, sulfa, chillum, or kankad. On the other hand, smokeless tobacco products encompass surti leaves, khaini, gutkha, and paan with tobacco fillings. Amongst the users of different tobacco products, cigarettes emerge as the most prevalent choice.[2] According to the American Lung Association, 13.7% of adults smoke cigarettes in the United States.[3] From 1974 to 2018, there has been a notable shift in individuals smoking habits. In this period, the proportion of people smoking more than 15-24 cigarettes a day stands at 28%. Conversely, the proportion of

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people smoking fewer than 15 cigarettes a day has significantly increased, rising from 32% to 66%. This indicates a notable trend towards reduced smoking among the population over the years.[3] In the United States, nearly 14 of every 100 adults (14%) currently smoke cigarettes.[3] This means an estimated 34.1 million adults in the United States currently smoke cigarettes.[3] Relatively, men exhibited a higher prevalence of cigarette smoking than women, about 15 of every 100 adult men (15.3%) and nearly 13 of every 100 adult women (12.7%) smoke cigarettes in united State.[4] Around 30% of individuals aged 15 and above in India, comprising 47% men and 14% women, were either tobacco smokers or users. This equates to nearly 195 million people, with approximately 154 million men and 41 million women.[5] The absolute number of male smokers has grown from 79 million in1998 to 108 million in 2015.[6] Nepal Demographic and Health Survey (NDHS) 2016 revealed that 17% smoke daily and 11% smoke occasionally.[7] The differences in smoking between males and females were reported to be 27.4% and 5.5% respectively.[7] The economic impact of smoking is substantial, particularly in Nepal, where the estimated direct and indirect cost amounts to Nepalese Rupees (NPR) 47.2 billion annually.[7] This represents a significant 1.8% of Nepal's Gross Domestic Product (GDP) being lost yearly due to smoking-related illnesses.[7] These financial implications emphasize the urgent need to address smoking as a critical public health issue and implement effective strategies to curb its prevalence and reduce the associated economic burden on the country.[8] In light of this, the researcher aims to conduct a study to explore the level of awareness of cigarette smoking among adult smokers. The study's primary objectives are to assess the overall awareness regarding cigarette smoking, to specifically gauge the level of awareness among adult cigarette smokers, and to examine any potential associations between cigarette smoking and socio-demographic variables.

Material and methods

A descriptive cross-sectional study assessed the awareness regarding cigarette smoking among adult smokers. The study focused on ward number six of Suryavinayak Municipality in Bhaktapur District, Nepal, which has a total area of 42 km^2 and a population of 5,017 adults aged 20-59 years.[9] Both the sex were included in the study. Individuals who smoke at least one cigarette per day were included in the study. Adults who consume other forms of tobacco products, such as bidi, hukka, etc., were excluded. A self-structured questionnaire of two parts was used to collect data. Part one covered socio-demographic characteristics, smoking-related variables, and sources of information. Part two focused on awareness related questions regarding cigarette smoking. A total of 18 questions, with 16 multiple-choice questions and two multiple response questions, were used to measure awareness. Each correct response was given one mark, and the incorrect response was given zero. The median score of awareness was 19, the Inadequate level of awareness was <19, the Adequate level of awareness was ≥19, the Minimum score was 11, and the maximum score was 23. Though the total number of questions was 18, two questions had multiple responses, so the maximum score was 23, and the minimum was 11. Content validity of the questionnaire was maintained by consulting various books and with a research guide, subject matter specialist, and literature review. The English version of the research tool was examined by consulting advisers, research teachers, and experts. It was translated into Nepali language and consulted with the language experts. The reliability of the questionnaire was maintained through pretesting on 10% of the total sample, i.e., nine respondents from ward number six of Suryavinayak Municipality. The necessary modification was made to the questionnaire as per the results and feedback. The questionnaire was validated by consulting various sources. Reliability was ensured through pretesting and necessary modifications. The researcher conducted face-to-face interviews using a self-developed questionnaire to collect data. Each interview lasted around 20 to 30 minutes, and approximately 6 to 7 were conducted daily for 14 days. Data was collected in public places like chautri (is a rest stop usually found along the foot trails of rural Nepal), parks, and religious places strictly adhering to COVID-19 safety measures and social distancing. Before commencing data collection, the researchers obtained approval from the research committee of Manmohan Memorial Institute of Health Sciences with IRC number MMIHS IRC 693 on 2022/05/24 and sought permission from the relevant authority in Suryavinayak Municipality. The study was conducted in the year 2022-2023 AD. Prior to data collection, informed consent was obtained from the respondents in Nepali language. Respondents were assigned code numbers to ensure confidentiality and informed that their names would not be mentioned in the questionnaire and that the data would only be used for educational purposes.

The sample size was calculated by using standard Cochrane's formula, $n = z2pq/d2$

Where, $z=1.96$, $p=41\%=0.41$, $q=1-p=1-0.41=0.59$, $d=0.1$ Now, $n0 = z2pq/d2 = [(1.96)2 *0.41*0.59]/(0.1)2=92$

Where, Z=level of confidence according to the standard normal distribution (for a level of confidence of 95%, p = estimated proportion of the population, d = Precision limit or proportion of sampling error, which is usually a 5% confidence limit.

After data collection, thorough checks were carried out

to ensure accuracy and completeness. The data was organized for editing and coding purposes. The coded data was subjected to analysis using the Statistical Package for Social Science (SPSS) version 16 software. Descriptive statistics, including frequency and percentage, were used to analyze the data. Furthermore, inferential statistics such as the chi-square test and Fisher's exact test were employed to measure the association between the level of awareness regarding cigarette smoking and selected variables.

Results

The socio-demographic characteristics of the 92 respondents (male, n=79, female, n=13) are given in **(Table 1)** 69.6% were married. Around 81.5 % were literate. 26.1% were involved in business occupations. 44.6% had a monthly income below Nepalese Rupees 15,000. 37% of those surveyed acknowledged smoking 11-20 cigarettes per day. 78.3% had family members who were also cigarette smokers. All participants reported involvement with peers who smoked cigarettes. 66.3% indicated a smoking duration exceeding 10 years **(Table 2**). Mass media was the most reported source of information **(Table 3)**. 96.7% (n=89) of participants reported that cigarette smoking exclusively involves smoking cigarettes. The majority of people (82.6%) knew nicotine as the primary component. Psychological stress was the most common reason for smoking (n=86) (**Table 4**). Awareness of the health effects of smoking on various systems or organs, such as the respiratory system, reproductive systems, brain, heart, eyes, and cancer incidence and pregnancy, is enumerated in **(Table 5)**. Awareness regarding the policy against and on quitting cigarette smoking are given in **(Table 6 and 7)**. Significant association was found between level of awareness and factors such as age (p=0.01), sex (p=0.00), education (p=0.00), occupation (p=0.01), and total average income (p=0.01) (**Table 8**).

Table 1: Socio-demographic characteristics of respondents (n= 92)

Variables	Frequency (Percentage)
Age Group	
20-39 years	54 (58.7%)
40-59 years	38 (41.3%)
Sex	
Male	79 (85.9%)
Female	13 (14.1%)
Marital status	
Married	64 (69.6%)
Unmarried	16 (17.4%)
Divorced	02 (2.2%)
Singlehood (living alone after spouse's death)	10 (10.9%)
Education	
Illiterate	17 (18.5%)
Primary level	15 (16.3%)
Secondary level	30 (32.6%)
Higher education level	30 (32.6%)
Occupation	
Agriculture	18 (19.6%)
Household work	01 (1.1%)
Service	23 (25.0%)
Business	24 (26.1%)
Labor	16 (17.4%)
Student	10 (10.9%)
Average monthly income	
Less than Rs.15,000	41 (44.6%)
Rs.15,000-25,000	39 (42.4%)
Rs.25,000-35,000	12 (13%)
More than Rs.35,000	0 (0%)

Table 2: Respondent's smoking-related variables (n=92)

Variables	Frequency (Percentage)
Sticks of cigarette smoked per day	
1-10	12 (13%)
11-20	34 (37%)
21-30	33 (35.9%)
>31	13 (14.1%)
Family history of cigarette smoking	
Yes	72 (78.3%)
No	20 (21.7%)
If yes (n=72) **	
Grandfather	11 (15.1%)
Grandmother	0 (0%)
Father	46 (53.7%)
Mother	8 (9.7%)
Siblings	34 (38.1%)
Husband	11 (12%)
Wife	0 (0%)
Yes	92 (100%)
No	0 (0%)
Duration of cigarette smoking	
<1 year	01 (1.1%)
1-5 years	15 (16.3%)

6-10 years	15 (16.3%)
>10 years	61 (66.3%)
Place to smoke cigarette**	
Home	77 (83.7%)
Workplace	73 (79.3%)
Social events	78 (84.8%)
Public places	51 (55.4%)

** Multiple response

Table 3: Sources of Information regarding Cigarette Smoking (n=92)

Sources of information**	Frequency (Percentage)
Family and relatives Friends	51 (55.4)
Books and magazines	39 (42.4)
Mass media	61 (66.3)
Internet	88 (66.3)
Health personnel	50(54.3)
	24 (26.1)

** Multiple responses

Table 4: Awareness on Meaning, Major Content, Influencing Factors, Addiction of Cigarette Smoking (n= 92)

Variables	Frequency (Percentage)
Meaning of cigarette smoking	
Smoking cigarette only *	89 (96.7%)
Smoking cigarette + bidi	02 (2.2%)
Smoking cigarette +khaini	01 (1.1%)
Smoking cigarette + hukka	0 (0%)
Major content of cigarette	
Nicotine *	76 (82.6%)
Caffeine	16 (17.4%)
Cannabis	0 (0%)
Marijuana	0 (0%)
Influencing factors**	
Family influence	28 (30.4%)
Peer pressure	68 (73.9%)
Psychological stress	86 (93.5%)
Source of enjoyment	78 (84.8%)
Addiction	
Yes *	88 (95.7%)
No	04 (4.3%)

**Multiple response * Correct answer

Table 5: Awareness on Health Effects of Cigarette Smoking (n= 92)

Variables	Frequency (Percentage)
Respiratory diseases	
COPD *	84 (91.3%)
Pneumonia	08 (8.7%)
Common cold	0 (0%)
Diphtheria	0 (0%)
Common cancer	
Bowel cancer	0 (0%)
Oral cancer	32 (38.4%)
Stomach cancer	0 (0%)
Lung cancer *	60 (65.2%)
Heart problems	
Increased blood pressure *	57 (62%)
Increased heart rate	16 (17.4%)
Palpitation	19 (20.7%)
Orthostatic hypotension	0 (0%)
Neurological effects	
Seizure	04 (4.3%)
Hydrocephalus	04 (4.3%)
Brain tumor	41 (44.6%)
Stroke *	43 (46.7%)
Effects on the reproductive system	
Reduced fertility *	33 (35.9%)
Enlarged prostate	27 (29.3%)
Irregular menstruation	14 (15.2%)
Breast cancer	18 (19.6%)
Ocular disease	
Short sightedness	09 (9.8%)
Long sightedness	04 (4.3%)
Eye infections	42 (45.7%)
Blindness *	37 (40.2%)
Effects in pregnancy	
Low birth weight baby *	33 (35.9%)
Large baby	06 (6.5%)
Conjoined twins	08 (8.7%)
Post term pregnancy	45 (48.9%)

*Correct answer, COPD=chronic obstructive pulmonary disease

Table 6: Awareness on Policy of Cigarette Smoking (n= 92)

Variables	Frequency (Percentage)
The policy included in Tobacco Control and Regulation Bill	
Prohibition of advertisement of cigarette products *	69 (75%)
Prohibition of consumption of cigarette smoking	11 (12%)
Prohibition of the sale of cigarette products	12 (13%)
Prohibition of increment in price of cigarette products	0 (0%)
Prohibition in public places **	
Hospital	90 (97.8%)
Restaurant	34 (37.0%)
Public transport	82 (89.1%)
School area	92 (100%)
Park	39 (42.4%)
Punishment for cigarette smoking in public places	
One week of imprisonment	08 (8.7%)
Rs.500 as penalty	25 (27.2%)
Rs.100-Rs.1,00,000 as penalty *	27 (29.3%)
No any punishment	32 (34.8%)
Prohibition of cigarette sale	
Pregnant women and children below 18 years *	75 (81.5%)
Unmarried women and children below 20 years	0 (0%)
Multiparous women and children below 16 years	0 (0%)
Postpartum mothers and children below 15 years	17(18.5%)
Pictorial on an outer package of cigarette	
Pictorial health warning *	85 (92.4%)
Pictorial cigarette	05 (5.4%)
Pictorial chemicals of cigarette	02 (2.2%)
Pictorial smoke emitted by cigarette	0 (0%)

** Multiple response * Correct answer

Table 7: Awareness on Quitting Cigarette Smoking (n=92)

Variables	Frequency (Percentage)
Measures to quit cigarette smoking	
Use of relaxation techniques such as meditation, yoga etc. *	39 (42.5%)
Use of e-cigarettes	31 (33.7%)
Use of nicotine replacement therapy: chewing gums	18 (19.6%)
Use of other tobacco products such as hookah, bidi etc.	4 (4.3%)
Consultation to quit cigarette smoking	
Traditional healers	0 (0%)

Health professionals *	92 (100%)
Smoker friends	0 (0%)
People who use other tobacco products such as: hukka, bidi etc.	0 (0%)

Respondents' Level of Awareness on Cigarette Smoking (n=92)	
Level of Awareness	**Frequency (Percentage)**
Inadequate(<19) Adequate (≥19) Median value: 19	41 (44.6%) 51 (545.4%)

Table 8: Association of Level of Awareness on Cigarette Smoking with Socio- demographic Variables (n= 92) Variables: Level of Awareness

Variables	Inadequate (n)	Adequate(n)	Chi-Square value	P value
Age				
20-39 years	18(33.3)	36(66.7)	6.7	**0.01**
40-59 years	23(60.5)	15(39.5)		
Sex				
Male	28(35.4)	51(64.6)	18.8	**0.00F**
Female	13(100.0)	-		
Marriage				
Married	26(40.6)	38(59.4)	1.3	0.3
Unmarried/Divorced/ Singlehood	15(53.6)	13(46.4)		
Education				
Illiterate	17(100.0)	-	25.9	**0.00F**
Literate	24(32.0)	51(68.0)		
Occupation				
Business/Service	9(19.1)	38(80.9)	25.1	**0.01**
Others (Agriculture/Household work/Labor/Student)	32(71.1)	13(28.9)		
Average monthly income				
≤Rs.15,000	32(78.0)	9(22.0)	33.6	**0.01**
>Rs.15,000	9(17.6)	42(82.4)		

P value <0.05= Significant association, **F**=Fisher's exact test

Discussion

Data collection was done through face-to-face interviews with the respondents using a self-developed semi-structured questionnaire. The study included 92 adult participants, aiming to evaluate the awareness regarding cigarette smoking among cigarette smokers in Bhaktapur. The study revealed that 55.4% had sufficient awareness of cigarette smoking according to a study by Kankaria et al (60.2%).[10] 44.6% had insufficient awareness. The present study revealed that 96.7% were aware of the meaning of cigarette smoking. The percentage was similar to Chezhian et al., indicated (91.4%)awareness of the meaning of cigarette smoking.[11] 82.6% of respondents were aware of the major content of cigarettes. A similar study was done by Brewer et al. in the United States, which reported 95% awareness regarding the e major content of cigarette smoking.[12]

In regards to the influencing factors of cigarette smoking, 93.5% reported psychological stress. However, the present findings contradict with research conducted by Chezhian et al., where 42% reported

psychological stress as the influencing factor for cigarette smoking.[11] This disparity in findings could be attributed to the included participants' illiteracy and low monthly income. 95.7% of participants acknowledged that cigarette smoking causes addiction, the same as Trofor et al., who reported 87%.[13] 91.3% of the respondents were aware of COPD as a health effect of cigarette smoking in the respiratory system, similar to findings by Trofor et al., (79.5%).[13] 65.2% of participants knew that smoking is the most common cause of lung cancer, while Haghighi et al., reported higher percentages(80.6%) [14] This might be due to variation of the sample population (92 in the present study and 386 in the latter study).

In terms of the health effects of cigarette smoking on the heart, 62% knew that cigarette smoking increases blood pressure. Comparable percentages (71.7%) were reported in the study done by Trofor et al., Likewise, the present study reported that 46.7% of the respondents were aware that cigarette smoking causes stroke. It contradicts the finding of a study done by Haghighi et al., where 87.8 %were aware that cigarette smoking increases blood pressure.[14]The current results showed that 35.9% were aware of decreased fertility, which differs from Dawood et al., survey in Iran, which reported higher percentages (52.6%).[15]The reasons for such disparity could be due to illiteracy and limited sample size. Regarding ocular disorder, 40.2% were aware of blindness, which is supported by a study conducted by Trofor et al., indicating 34.7%.[13] In concern with health effects due to cigarette smoking in pregnancy, 35.9% replied low birth weight baby, which contradicts the findings by Dawood et al study which reported higher percentages (76.4%). The higher values could be due to the nature of the population being surveyed as it included medical students in Lagos, Nigeria by Dania Mg et al.[16]

All the participants were aware that cigarette smoking is prohibited in school areas. Whereas, the research conducted by Abu Shomar et al., in Gaza, Palestine, only 30.5% knew that cigarette smoking is prohibited in public places like school areas, hospitals, public transport, parks, and restaurants.[17] The reason could be the presence of adequate warning boards against smoking near schools and strict regulations in Nepal. In the present study, only 29.3% were apprised of the punishment of (Nepalese Rupees) NPR 100-100,000 for smoking cigarettes in public places, which is supported by Dahal et al (20%).[18] In 81.5% were aware of the prohibition of cigarette sales, similar to the study by Sharma et al., which depicted 83.7 %.[19]

Although most knew the pictorial warnings in the packaging (92.4%) and the prohibition of advertisements regarding cigarette products (75%), the percentage of adult smokers was still high. The percentages are similar to Khatri et al., which reported 79.7% awareness regarding prohibition.[20] Less than half of the population (42%) were aware of relaxation techniques that can help to quit smoking. contradicts the result of research conducted among medical students by Gnanakshi et al., indicating 68.8% awareness about factors to quit cigarette smoking.[21] This highlights the need for mental health education and the requirement of stress-relieving activities for the public population.

The present study revealed a significant association between age, sex, education, occupation, average monthly income, and the level of awareness of cigarette smoking. There was no significant association between marriage and the level of awareness of cigarette smoking. Similar findings were reported by Ozoh et al.[22] The research conducted in Lekhnath, Kaski, Nepal showed a similar result, which showed a statistically significant association between age, sex, education, and the level of awareness of cigarette smoking.[21]

Conclusion

The current study concluded that 54.4 %of participants showed adequate awareness about cigarette smoking, but they lacked awareness about certain health effects of smoking, such as stroke, reduced fertility, blindness, low birth weight, smoking penalties in public places, and measures to quit smoking. There is a significant association between the level of awareness of cigarette smoking and age (p=0.01), sex (p=0.01), education (p=0.00), occupation (p=0.01), and total average income (p=0.01). Repeated awareness can prevent many smoking-related detrimental health effects. A focused public health awareness program, especially emphasizing the health effects, policies, and smoking cessation methods, is the need of the hour. The current study's limitation lies in its small sample size from a district and non-probability sampling. There is a need for a multicenter study involving a large sample size to validate the current result for the general population.

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Conflict of Interest

None

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