

Original Research Article

Tobacco health hazards awareness among adults in Uttarakhand

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ABSTRACT

Background: With Nearly eight million deaths annually, the tobacco epidemic is one of the greatest risks to global public health. According to NFHS-5, 4.6% of women and 337% of men in Uttarakhand use tobacco in some capacity.

Methods: A cross-sectional study was conducted among adults in, Uttarakhand, to evaluate their knowledge related to health hazards of tobacco use. Household Survey was conducted on eighty young adults in the age group of 18-24 years. Data were collected using structured questionnaires and analyzed to identify the knowledge gaps among young adults.

Results: Most (96.2%) of the adults recognized that tobacco consumption may cause serious health hazards. Approximately 83.75% of the adults were aware that tobacco consumption may lead to heart diseases, however the lack of information about the entire range of health effects of tobacco use is evident from the lesser awareness of other important illnesses such as stroke (42.5% unaware). Significant knowledge gap was seen in mental health hazards of tobacco use. Similarly, 23% of adults were ignorant about the harm that passive smoking does to the foetus. The fact that 57% of adults consume tobacco and believe it helps overcome stress suggests that tobacco use is still deeply entrenched socially and psychologically.

Conclusions: Although the participants demonstrated a good basic understanding of the health hazards associated with tobacco use, the majority were still consuming tobacco. Therefore, existing awareness activities need to be revised and implemented more effectively, alongside stricter enforcement of tobacco control laws.

Keywords: Adults, Tobacco use, Health hazards, Knowledge, Uttarakhand

INTRODUCTION

Tobacco use is one of the leading preventable causes of disease and premature mortality worldwide. The World Health Organization (WHO) estimates that tobacco use causes over 8 million deaths annually, including more than 1.2 million deaths due to exposure to second-hand smoke.^{1,2} Tobacco contains numerous toxic and carcinogenic substances, contributing significantly to the global burden of non-communicable diseases.³ In India, tobacco use is a major public health concern and is

strongly associated with cancers, cardiovascular diseases, chronic respiratory disorders, and adverse reproductive health outcomes.^{4,5} According to the Global Adult Tobacco Survey (GATS-2), 28.6% of Indian adults use tobacco in some form.⁶ Tobacco-related morbidity and mortality impose a substantial economic and social burden on the country.⁷ Uttarakhand reports a higher prevalence of tobacco use than the national average, with approximately 31% of adults consuming tobacco.⁶⁻⁸ Early initiation of tobacco use, often during adolescence and young adulthood, increases the risk of long-term dependence and chronic disease.^{9,10} Young adults in semi-

urban areas are particularly vulnerable due to peer influence, lifestyle transitions, and limited access to targeted tobacco control interventions.¹¹ Despite the implementation of tobacco control policies such as the Cigarettes and Other Tobacco Products Act (COTPA), 2003, tobacco use remains prevalent among young adults.¹² Understanding tobacco use patterns among young adults in semi-urban areas of Uttarakhand is essential for developing effective, context-specific prevention and cessation strategies to reduce tobacco-related health risks.

METHODS

A cross-sectional research methodology was employed to investigate the knowledge regarding Health Hazards of Tobacco Use among young adults residing in Ranipokhari Village of Uttarakhand, India, which was selected randomly. The approval for conducting this study was obtained from the Ethics Committee of Swami Rama Himalayan University. Eighty young adults (18-24 years) were recruited for the study using purposive sampling. Adults who were willing to participate in the study, understands Hindi or English language were included in the study whereas who were not available at the time of data collection were excluded. Written informed consent was obtained from all the participants involved in the study. Prior assurance was also provided to maintain their confidentiality and anonymity. Data collection from the participants was done from July 2023 to September 2023, using validated and pre-tested tools encompassing various dimensions of knowledge related to Health Hazards of Tobacco uses such as: physical health hazards of tobacco use, mental health hazards of tobacco use, social and environmental health hazards of tobacco use. Accordingly, the young adults were sorted into 3 categories, poor (<60 %), average (60-80 %), and good (>80 %) based on their score.

RESULTS

Baseline characteristics of the participants

The demographics and health status of the participating adults are illustrated in Table 1. Most of the young adults (63.5%) were aged between 18-20 years, and the majority of them (62.5 %) were male. Among the young adults, 3.75% had no formal education, 18.7% were educated up to the primary level (5th standard), 30% had completed secondary education, and 47.5% were graduates, indicating a relatively low prevalence of higher education among the participants. Among the participants, approximately 16.25% were employed in various occupations, while the remaining majority were either student at the time of the study. Most of the participants (90%) were unmarried. In terms of family structure, 60% belonged to joint families, indicating that traditional family systems continue to be prevalent in the study population. 57.5% of the participants reported that they consume tobacco in some or other forms. Figure 1 reveals that 57.5% of the participants consumed tobacco in one or

other form, whereas only 42.5% reported no consumption of tobacco in any form. Table 2 represents that the mean percentage score of knowledge of the participants was 70.16%, which indicates average knowledge among the participants.

Table1: Baseline characteristics of the participants (n=80).

S. No.	Subject profile	Frequency (f)	Percentage (%)
1.	Age (in years)		
	18-20	51	63.5
	21-24	29	36.5
2.	Gender		
	Male	50	62.5
	Female	30	37.5
3.	Education		
	No formal education	3	3.75
	Primary education	15	18.7
	Higher secondary education	24	30
	Graduate	38	47.5
4.	Occupation		
	Students	67	83.75
	Employed	13	16.25
5.	Marital status		
	Married	08	10
	Unmarried	72	90
6.	Type of family		
	Joint	49	60
	Nuclear	31	38.75

Figure 2 reveals domain wise mean percentage scores of the participants. General understanding of health hazards of tobacco use shows the highest mean percentage (96.1%), indicating that participants have excellent overall awareness about the harmful effects of tobacco.

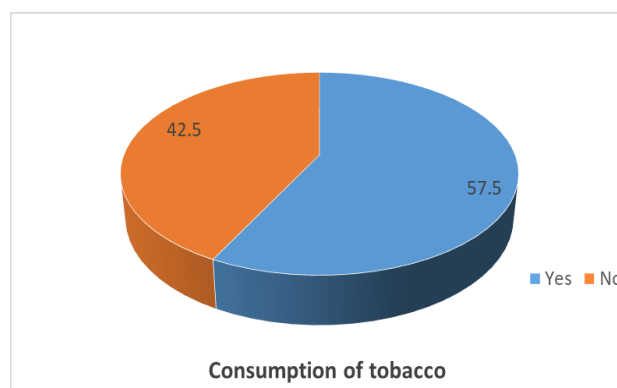


Figure 1: Use of tobacco among the participants (n=80).

Knowledge regarding oral health hazards (86.8%) and physical health hazards (85.4%) is also high, suggesting

good understanding of tobacco’s effects on the body, including oral diseases and systemic conditions.

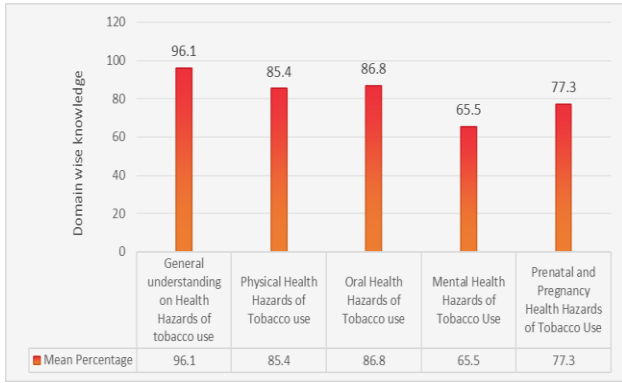


Figure 2: Domain wise knowledge score of adults regarding health hazards of tobacco uses (n=80).

Awareness of prenatal and pregnancy-related health hazards (77.3%) is moderate, but comparatively lower than general and physical health domains, indicating scope for strengthening education in this area.

The lowest mean percentage is observed in the mental health hazards domain (65.5%), reflecting relatively inadequate knowledge about the psychological and mental health consequences of tobacco use.

Table 3 represents knowledge of adults regarding health hazards of tobacco uses covered in five domains: General understanding on health hazards of tobacco use, physical health hazards of tobacco use, oral health hazards of tobacco use, mental health hazards of tobacco use and prenatal and pregnancy related health hazards of tobacco use. 96.2% of young adults were aware of the basic health risks associated with tobacco smoking.

Table 2: Level of knowledge of adults regarding health hazards of tobacco uses (n=80).

S.no	Variable	Maximum Score	Range	Mean+SD	Mean (%)
1.	Knowledge	24	8-20	15.84+0.23	66.16

Table 3: Item-wise analysis of participants’ knowledge regarding harmful effects of tobacco use (n=80).

S. No.	Knowledge items	Frequency (f)	Percentage (%)
1.	General understanding on health hazards of tobacco use		
	Tobacco consumption is harmful for health	77	96.2
	Tobacco consumption may cause cancer	74	92.5
	Tobacco consumption increases risk for infections	67	83.7
	Tobacco consumption increases the risk for dental diseases	59	73.8
2.	Physical health hazards of tobacco use		
	Tobacco consumption causes respiratory problems	72	90.0
	Tobacco smoking causes lung cancer	74	92.5
	Tobacco consumption causes cardiovascular diseases	67	83.8
	Tobacco consumption may lead to stroke	46	57.5
3.	Oral health hazards of tobacco use		
	Tobacco consumption may increase risk of tuberculosis	68	85.0
	Tobacco consumption may lead to asthma, chronic obstructive pulmonary disease	69	86.3
	Tobacco causes oral cancer	75	93.8
	Tobacco consumption leads to bad breath	79	98.8
4.	Mental health hazards of tobacco use		
	Tobacco consumption leads to stained teeth	73	91.3
	Tobacco consumption leads to gum inflammation	69	86.3
	Tobacco consumption leads to dental caries (tooth decay)	66	82.5
	Tobacco consumption affects thinking and behaviour	52	65.0
5.	Prenatal and pregnancy health hazards of tobacco use		
	Regular tobacco consumption leads to addiction and dependence	75	93.8
	Tobacco consumption increases vulnerability to mental health disorders such as depression, anxiety and psychosis	24	30.0
	Tobacco consumption complicates the treatment of mental health disorders	51	63.8
	Quitting tobacco improves mental health	62	77.5
5.	Prenatal and pregnancy health hazards of tobacco use		
	Tobacco use during pregnancy may harm foetus	77	96.3
	Mothers who smoke have higher risk of miscarriage	67	83.8

Continued.

S. No.	Knowledge items	Frequency (f)	Percentage (%)
	Tobacco use in pregnancy can cause low birthweight babies	66	82.5
	Second-hand smoke during pregnancy affects foetal development	62	77.5

While 43% of participants did not recognize stroke as one of the physical health risks associated with tobacco smoking, the majority of people identified cardiovascular diseases, lung cancer, TB, and respiratory disorders. The majority of participants (92%) identified stained teeth, poor breath, and oral cancer as oral health risks. A notable knowledge gap was seen in mental health hazards of tobacco use as 35% did not recognize tobacco consumption affects thinking and behaviour and only 30% were aware that tobacco use can increase vulnerability to mental health disorders such as depression, anxiety and psychosis. Majority (96.2%) were aware of the prenatal and pregnancy health hazards of tobacco use whereas 81% were aware that tobacco use during pregnancy may lead to low birthweight among babies. 77.5% were aware of fatal effect of second-hand smoking on foetus during pregnancy.

DISCUSSION

The current study evaluated young adult's awareness of health risks associated with tobacco use. The results show that although general knowledge of the hazards associated with tobacco use was rather strong, there are significant gaps in several areas. The demographic analysis revealed that the majority of participants were between 18-20 years of age and predominantly male, consistent with national and international trends showing higher tobacco experimentation and use among young men.¹ Overall, 96.2% of participants demonstrated good knowledge of the general awareness of health risks associated with tobacco use which is consistent with the research study finding that showed high awareness of nicotine's detrimental effects.^{8,13}

Remarkably, 42.5% of respondents did not recognize stroke as a tobacco related illness, indicating a lack of knowledge about the entire range of the health dangers. These findings are similar to the findings of World Health Organization Global Adult Tobacco Survey (GATS-2, 2016-17), which indicated that knowledge of the neurological and cardiovascular effects of tobacco use is still less than that of the respiratory effects and cancer.⁷ Approximately 94% of respondents identified halitosis, discoloured teeth, and oral cancer as results of tobacco smoking, indicating a high level of awareness of the risks to oral health. This could be explained by India's extensive anti-tobacco programs and visual warnings on tobacco products, many of which highlight malignancies and mouth lesions. However, the risks to mental health were not well understood; only 30% of respondents knew that smoking could make one more susceptible to mental illnesses, and 35% did not link tobacco use to behavioural or cognitive problems. This result is in line with earlier studies that showed a lack of knowledge of the connection between youth tobacco use and anxiety, depression, and

poor mental health.¹⁴ Addressing this gap is critical, as emerging evidence underscores strong bi-directional relationships between tobacco use and mental health disorders.

Limitations

This study also has several limitations. Since the study was limited to young adults from a selected community area, the sample size was relatively small and may not be representative of all adults. The findings, therefore, cannot be generalized to broader populations with different socio-demographic and cultural backgrounds. In addition, data were collected through self-reported responses, which may be influenced by recall bias or social desirability bias. Hence, it is recommended that further studies be conducted on larger and more diverse populations to obtain a more comprehensive understanding of young adults' knowledge and perceptions regarding the health hazards of tobacco use.

CONCLUSION

The study highlights critical public health concerns about knowledge regarding health hazards of tobacco use among adults. Significant information gaps regarding physical and mental health risks of tobacco use were identified among young adults. Comprehensive tobacco risk literacy among young people could be significantly increased by specialized educational and preventive initiatives focused on these areas.

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REFERENCES

1. WHO. WHO report on the global tobacco epidemic 2023. Geneva: World Health Organization. 2023. Available at: <https://www.who.int/publications/i/item/9789240077164>. Accessed on 27 October 2025.
2. WHO. Tobacco Geneva: World Health Organization; 2023. Available at: <https://www.who.int/news->

- room/fact-sheets/detail/tobacco. Accessed on 27 October 2025.
3. U.S. Department of Health and Human Services. The health consequences of smoking—50 years of progress. Atlanta (GA): Centers for Disease Control and Prevention. 2014. Available at: <https://www.cdc.gov/tobacco/about/index.html?> Accessed on 27 October 2025.
 4. Gupta PC, Arora M, Sinha D, Asma S, Parascondola M. Smokeless tobacco and public health in India. New Delhi: MoHFW. 2016.
 5. Jha P, Chaloupka FJ. Tobacco control in developing countries. Oxford: Oxford University Press. 2000.
 6. International Institute for Population Sciences (IIPS), MoHFW. Global Adult Tobacco Survey India 2016–17 (GATS-2). Mumbai: IIPS. 2018. Available at: <https://ntcp.mohfw.gov.in/assets/document/surveys-reports-publications/Global-Adult-Tobacco-Survey-Second-Round-India-2016-2017.pdf?> Accessed on 27 October 2025.
 7. Ministry of Health and Family Welfare. State fact sheet: Uttarakhand (GATS-2). New Delhi: Government of India. 2018. Available at: <https://ntcp.mohfw.gov.in/assets/document/surveys-reports-publications/Global-Adult-Tobacco-Survey-Second-Round-India-2016-2017.pdf?> Accessed on 27 October 2025.
 8. Gupta B, Kumar N, Singh M. Awareness and perception of health risks of tobacco use among college students in North India. *Indian J Public Health.* 2020;64(2):142-7.
 9. WHO. Youth and tobacco. Geneva: WHO. 2020.
 10. U.S. Department of Health and Human Services. Preventing tobacco use among youth and young adults: a report of the Surgeon General. Atlanta (GA): Centers for Disease Control and Prevention. 2012. Available at: https://www.cdc.gov/tobacco/data_statistics/sgr/2012/index.htm. Accessed on 27 October 2025.
 11. Singh V, Pal HR, Mehta M, Kapil U. Tobacco use among semi-urban youth in India. *Indian J Community Med.* 2017;42(3):141-5.
 12. Ministry of Health and Family Welfare. National Tobacco Control Programme: Operational guidelines. New Delhi: Government of India. 2020. Available at: <https://ntcp.mohfw.gov.in/assets/document/Guidelines-manuals/Operational-Guidelines-National-Tobacco-Control-Programme.pdf>. Accessed on 27 October 2025.
 13. National Health Mission Uttarakhand. State Tobacco Control Cell: Tobacco Control Programme, Uttarakhand. Dehradun: NHM Uttarakhand. 2022. Available at: <https://nhm.uk.gov.in/?>. Accessed on 27 October 2025.
 14. Kaur R, Kumar A. Awareness about the psychological and mental health effects of tobacco use among university students. *Asian J Psychiatr.* 2020;53:102203.

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