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ORIGINAL ARTICLE

**Assessment of Smoking-Related Knowledge, Awareness and Factors Associated with Behavioural Change among University Students**

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ABSTRACT

Health professionals play a crucial role in tobacco control by educating their patients about the harmful effects of smoking and offering advice on quitting. The World Health Organization (WHO) aims to reduce global tobacco use by 30% by 2025. To achieve this goal, all countries need to implement evidence-based tobacco control measures to lower tobacco use prevalence. This study examined the prevalence of cigarette smoking, factors associated with behavioural changes among students, and their knowledge and awareness of smoking cessation. A total of 418 students from a university participated in the study, of whom 203 were males and 215 were females. Out of 418 students, 66 were found to be smokers in which 54 (13%) were males and 12 (3%) were females with the prevalence rate found to be 15.7%. This study highlights that students with good knowledge and awareness about smoking are more likely to experience behavioural changes influenced by interpersonal factors. Additionally, the effective implementation of tobacco control policies, like those outlined in the Framework Convention on Tobacco Control, offers the potential to prevent tobacco initiation and promote cessation on a larger scale.

**Keywords:** Awareness, Cessation, Knowledge, Prevalence, Smoking, Tobacco

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**INTRODUCTION**

Tobacco use is the most modifiable risk factor that increases mortality rates worldwide. According to the World Health Organization, around six million people die every year as a result of tobacco use. Most of these deaths are seen as premature. Moreover, around 600,000 deaths are attributable to second-hand smoke. Chronic diseases are highly related to the behaviour of individuals and they are preventable through changes in the knowledge, beliefs, attitudes, and social environments of individuals. It is clear that people do not always engage in healthy behaviour, because multiple factors can lead to unexpected outcomes for any given health behaviour [1].

Health professionals play a crucial role in tobacco control by educating their patients about the harmful effects of smoking and offering advice on quitting. However, despite their potential to lead by example, approximately 18% of healthcare providers (HCPs) are smokers themselves. This smoking behaviour among HCPs may hinder their willingness to provide cessation guidance to patients who smoke. In contrast, non-smoking HCPs are more likely to offer such advice [2]. A recent study (2021) revealed that tobacco use leads to over 8 million deaths annually, with 7 million of these being directly linked to tobacco consumption. Furthermore, the fact that 80% of the world's 1.3 billion tobacco users reside in low- and middle-income countries (LMICs) is a growing concern. The tobacco epidemic is intensifying in these regions due to limited awareness, inadequate healthcare infrastructure, and weak regulatory measures. India, with 275 million tobacco users, ranks second only to China in tobacco consumption.

Tobacco-related diseases cause approximately one-tenth (1 million) of all deaths in India each year, significantly contributing to cancer cases (45% of male cancers and 20% of female cancers). India exhibits diverse tobacco consumption patterns, including smoking such as cigarettes, bidis and smokeless forms such as khaini, pan, and gutkha [3,4].

The World Health Organization (WHO) aims to reduce global tobacco use by 30% by 2025. To achieve this goal, it is essential for all countries to implement evidence-based tobacco control measures to lower tobacco use prevalence [5]. One of the most effective strategies for reducing smoking-related deaths is to engage healthcare professionals, including medical and pharmacy personnel, in tobacco use prevention and smoking cessation counselling [6]. Healthcare professionals can support smokers in quitting by offering advice, providing counseling, prescribing cessation medications, connecting patients to support groups, and conducting follow-up care. Involving healthcare professionals in smoking cessation efforts is more cost-effective than relying on other cessation strategies. For successful cessation outcomes, healthcare professionals must be knowledgeable, motivated, and have a positive attitude toward helping individuals quit smoking [7-9].

There is a growing need to train emerging healthcare professionals to serve as role models for community transformation. Smoking is an increasingly significant health issue, particularly in conflict zones, where it may require special attention and tailored interventions from public health authorities. It is crucial to assess the knowledge, attitudes, and perceived training of healthcare students regarding tobacco management. Identifying gaps in their education and providing relevant training on tobacco-related healthcare services will improve their capacity to better serve the public. A recent Italian multicentre survey found that one in five future medical doctors are smokers, underscoring the importance of incorporating a standardized undergraduate curriculum that includes thorough tobacco prevention and cessation training to enhance their ability to act as effective role models [10-13].

## MATERIALS AND METHODS

### Study Design and Site:

A cross-sectional study was conducted among students studying different courses in a university.

### Data Collection Process:

- The study was carried out on the students studying different courses in a university only after taking prior willingness to participate in the study through a consent form.
- The data was collected using a standardized and validated questionnaire consisting of socio-demographic data, participant smoking status, family and peer smoking, factors associated with smoking, knowledge & awareness regarding smoking and behavioural change among students.

## RESULTS AND DISCUSSION

This study focuses on raising awareness about smoking cessation and the benefits of quitting, rather than distinguishing between smokers and non-smokers. A total of 418 university students participated in the study in which 203 (48.6%) were male students and 215 (51.4%) were female students.

### Age Wise Distribution of Students:

In a sample of 418 students, the distribution of their ages was shown in Table 1. The majority of students fall within the age range 18-20 years, representing 73.7% of the total sample. A smaller group of 21.3% students are in the age group of 21-23 years. Only 4.1% students fall within the age range of 24-26 years. A very small number accounting for 0.9% students belongs to the age category of 27-29 years.

**Table 1: Age Wise Distribution of Students**

Age (in years)	No. of Students (%) (n=418)
18-20	308 (73.7)
21-23	89 (21.3)
24-26	17 (4.1)
27-29	04 (0.9)

### Prevalence of Cigarette Smoking:

The responses to questions regarding cigarette smoking among a sample of 418 individuals show the following trends as shown in Table 2:

#### 1. Have you ever smoked?

- A total of 66 individuals (15.8%) reported that they have smoked at least once in their lifetime.
- The vast majority, 343 individuals (82.0%), stated they have never smoked.

- 9 individuals (2.2%) were uncertain or chose not to respond.
- 2. Have you never smoked?**
    - 324 individuals (77.5%) affirmed that they have never smoked.
    - A minority of 85 individuals (20.3%) indicated they have smoked at least once.
    - 9 individuals (2.2%) were unsure or didn't know how to respond.
  - 3. Are you currently smoking?**
    - Only 29 individuals (6.9%) reported that they are currently smokers.
    - A substantial 380 individuals (90.9%) indicated that they are not currently smoking.
    - 9 individuals (2.2%) were uncertain about their current smoking status.
  - 4. Have you used tobacco in any form?**
    - 36 individuals (8.6%) acknowledged using tobacco in some form, which may include smoking or other tobacco products.
    - The overwhelming majority, 377 individuals (90.2%), had not used tobacco in any form.
    - 5 individuals (1.2%) did not know or were unsure about their tobacco usage.

**Table 2: Prevalence of Cigarette Smoking**

S.No.	Questions	Response (n=418)		
		Yes (%)	No (%)	Don't Know (%)
1.	Have you ever done smoking?	66 (15.8)	343 (82.0)	09 (2.2)
2.	Never done smoking?	324 (77.5)	85 (20.3)	09 (2.2)
3.	Currently smoking?	29 (6.9)	380 (90.9)	09 (2.2)
4.	Used tobacco in any form?	36 (8.6)	377 (90.2)	05 (1.2)

#### **Factors Associated with Behavioural Change:**

The analysis of factors associated with behavioural change is described below as mentioned in Table 3.

- 1. It is unfriendly to refuse when others offer a cigarette?**
  - 47 individuals (11.3%) felt that it is unfriendly to refuse when offered a cigarette.
  - 280 individuals (67%) disagreed with this statement, indicating they do not feel it is unfriendly to refuse.
  - 91 individuals (21.7%) were unsure or did not know how to respond.
- 2. Smoking is an easy way to approach other people?**
  - 65 individuals (15.6%) agreed that smoking is an easy way to approach others.
  - 283 individuals (67.7%) disagreed with this notion, feeling that smoking does not facilitate social interaction.
  - 70 individuals (16.7%) were uncertain.
- 3. Smoking makes one appear mature?**
  - Only 24 individuals (5.7%) believed smoking makes someone appear mature.
  - The vast majority, 327 individuals (78.3%), disagreed, feeling that smoking does not contribute to maturity.
  - 67 individuals (16.0%) were unsure or did not know.
- 4. Smoking is a personal issue; others should not intervene?**
  - 104 individuals (24.9%) considered smoking to be a personal matter, feeling that others should not intervene.
  - 178 individuals (42.6%) disagreed, believing that smoking is not just a personal issue.
  - A significant portion, 136 individuals (32.5%), were uncertain.
- 5. Smoking will become fashionable in the future?**
  - 128 individuals (30.7%) believed that smoking will become fashionable in the future.
  - 191 individuals (45.6%) disagreed with this view, asserting that smoking will not gain popularity.
  - 99 individuals (23.7%) were unsure.
- 6. Smoking in public places is impolite?**
  - A strong majority of 280 individuals (67.0%) felt that smoking in public places is impolite.
  - 75 individuals (17.9%) disagreed with this statement.
  - 63 individuals (15.1%) were unsure.
- 7. Boys/girls who smoke are attractive?**
  - Only 24 individuals (5.7%) considered boys/girls who smoke to be attractive.

- A large majority, 331 individuals (79.2%), disagreed with this sentiment.
  - 63 individuals (15.1%) were unsure.
- 8. Father's smoking?**
    - 51 individuals (12.2%) reported that their fathers smoke.
    - The majority, 349 individuals (83.5%), stated that their fathers do not smoke.
    - 18 individuals (4.3%) were unsure.
  - 9. Mother's smoking?**
    - Only 3 individuals (0.7%) reported that their mothers smoke.
    - 405 individuals (97.0%) indicated that their mothers do not smoke.
    - 10 individuals (2.3%) were unsure.
  - 10. Relative's smoking?**
    - 155 individuals (37.1%) reported that their relatives smoke.
    - 196 individuals (46.9%) stated that their relatives do not smoke.
    - 67 individuals (16.0%) were unsure.
  - 11. Peer's smoking?**
    - 65 individuals (15.6%) stated that their peers smoke.
    - 271 individuals (64.8%) indicated that their peers do not smoke.
    - 82 individuals (19.6%) were unsure.
  - 12. Teacher's smoking?**
    - 65 individuals (15.6%) reported that their teachers smoke.
    - 240 individuals (57.4%) stated that their teachers do not smoke.
    - 113 individuals (27.0%) were unsure.

**Peer Influence:** The most significant factor associated with smoking behaviour appears to be peer influence, with a notable portion of respondents indicating that peers (15.6%) and relatives (37.1%) smoke.

**Perception of Smoking:** Smoking in public places is largely viewed as impolite, and the idea that smoking makes someone appear mature or attractive was largely rejected by the majority of the sample.

**Family Influence:** The presence of smoking among parents is less common, particularly with mothers, but there is a relatively higher occurrence of smoking among relatives.

**Behavioural Change Factors:** There seems to be a potential for behavioural change, especially in terms of societal views on smoking in public places and the perception of smoking as an individual issue, which many respondents disagree with.

**Table 3: Factors Associated with Behavioural Change**

S.No.	Questions	Yes (%)	No (%)	Don't Know (%)
1.	It is unfriendly to refuse when others offer a cigarette?	47 (11.3)	280 (67.0)	91 (21.7)
2.	Smoking is an easy way to approach other people?	65 (15.6)	283 (67.7)	70 (16.7)
3.	Smoking makes one appear mature?	24 (5.7)	327 (78.3)	67 (16.0)
4.	Smoking is a personal issue; others should not intervene?	104 (24.9)	178 (42.6)	136 (32.5)
5.	Smoking will become fashionable in future?	128 (30.7)	191 (45.6)	99 (23.7)
6.	Smoking in public places is impolite?	280 (67.0)	75 (17.9)	63 (15.1)
7.	Boys/girls who smoke are attractive?	24 (5.7)	331 (79.2)	63 (15.1)
8.	Father's smoking?	51 (12.2)	349 (83.5)	18 (4.3)
9.	Mother's smoking?	03 (0.7)	405 (97.0)	10 (2.3)
10.	Relative's smoking?	155 (37.1)	196 (46.9)	67 (16.0)
11.	Peer's smoking?	65 (15.6)	271 (64.8)	82 (19.6)
12.	Teacher's smoking?	65 (15.6)	240 (57.4)	113 (27.0)

### Knowledge & Awareness Towards Smoking Cessation

The analysis of knowledge and awareness regarding smoking cessation is described below, as presented in Table 4.

#### 1. Smoking consumption is an addiction?

- 347 individuals (83.0%) agreed that smoking is an addiction.
- 42 individuals (10.1%) disagreed with this statement.
- 29 individuals (6.9%) were unsure.

#### 2. Smoking on a non-daily basis is not harmful to health?

- 91 individuals (21.8%) believed that smoking occasionally (non-daily) is not harmful to health.

- A majority, 240 individuals (57.4%), disagreed, indicating that they perceive any level of smoking to be harmful.
  - 87 individuals (20.8%) were unsure.
- 3. Smoking will damage your health in the future?**
- 368 individuals (88.0%) acknowledged that smoking will damage one's health in the future.
  - Only 25 individuals (6.0%) disagreed with this statement.
  - Another 25 individuals (6.0%) were unsure.
- 4. Every cigarette you take damages your body?**
- A significant majority of 361 individuals (86.3%) agreed that every cigarette damages the body.
  - 24 individuals (5.7%) disagreed with this notion.
  - 33 individuals (8.0%) were uncertain.
- 5. Cigarette smoke is dangerous to non-smokers?**
- 355 individuals (84.9%) agreed that cigarette smoke is dangerous to non-smokers (passive smoking).
  - 25 individuals (6.0%) disagreed.
  - 38 individuals (9.1%) were unsure.
- 6. Do you think quitting smoking will benefit your health?**
- 312 individuals (74.6%) believed that quitting smoking would benefit their health.
  - 63 individuals (15.1%) disagreed with this idea.
  - 43 individuals (10.3%) were unsure.
- 7. Smoking causes dangerous diseases?**
- A clear majority of 370 individuals (88.5%) recognized that smoking causes dangerous diseases.
  - 21 individuals (5.0%) disagreed.
  - 27 individuals (6.5%) were unsure.
- 8. All cigarette advertising should be banned?**
- 331 individuals (79.2%) felt that all cigarette advertising should be banned.
  - 42 individuals (10.1%) disagreed with this idea.
  - 45 individuals (10.7%) were unsure.
- 9. Will you stop a smoker in a restaurant?**
- 244 individuals (58.4%) indicated that they would stop someone from smoking in a restaurant.
  - 83 individuals (19.9%) disagreed and would not intervene.
  - 91 individuals (21.7%) were unsure.
- 10. Passive smoking is hazardous?**
- 322 individuals (77.1%) agreed that passive smoking (inhaling second-hand smoke) is hazardous.
  - 29 individuals (6.9%) disagreed.
  - 67 individuals (16.0%) were uncertain.
- 11. Teachers lack health education?**
- 191 individuals (45.6%) felt that teachers lack sufficient health education.
  - 118 individuals (28.2%) disagreed, indicating that teachers are adequately educated in health matters.
  - 109 individuals (26.2%) were unsure.

**Awareness of Smoking's Health Risks:** There is widespread recognition that smoking is harmful. A large majority believes smoking is addictive, damages health, and causes diseases. Additionally, many people agree that quitting smoking would benefit their health.

**Perceptions of Passive Smoking:** Most respondents understand the dangers of secondhand smoke and would support actions such as banning cigarette advertising or intervening when smoking occurs in public spaces like restaurants.

**Smoking Education:** While there is broad awareness about the dangers of smoking, some respondents feel that teachers may lack adequate education on health matters, which could impact how smoking is addressed in educational settings.

**Table 4: Knowledge & Awareness Towards Smoking Cessation**

S.No.	Questions	Yes (%)	No (%)	Don't Know (%)
1.	Smoking consumption is an addiction?	347 (83.0)	42 (10.1)	29 (6.9)
2.	Smoking on non-daily basis is not harmful to health?	91 (21.8)	240 (57.4)	87 (20.8)
3.	Smoking will damage your health in the future?	368 (88.0)	25 (6.0)	25 (6.0)
4.	Every cigarette you take damages your body?	361 (86.3)	24 (5.7)	33 (8.0)
5.	Cigarette smoke is dangerous to non-smokers?	355 (84.9)	25 (6.0)	38 (9.1)
6.	Do you think quitting smoke will benefit your health?	312 (74.6)	63 (15.1)	43 (10.3)
7.	Smoking causes dangerous diseases?	370 (88.5)	21 (5.0)	27 (6.5)
8.	All cigarette advertising should be banned?	331 (79.2)	42 (10.1)	45 (10.7)
9.	Will you stop a smoker in restaurant?	244 (58.4)	83 (19.9)	91 (21.7)
10.	Passive smoking is hazardous?	322 (77.1)	29 (6.9)	67 (16.0)
11.	Teachers lack in health education?	191 (45.6)	118 (28.2)	109 (26.2)

**CONCLUSION**

The present study reveals a 15.8% prevalence rate of cigarette smoking among students. It also highlights that students with good knowledge and awareness about smoking are more likely to experience behavioural changes influenced by interpersonal factors. Targeted counseling sessions within specific disease management programs, can significantly increase quit rates among tobacco users with coexisting health conditions. Additionally, the effective implementation of tobacco control policies, like those outlined in the Framework Convention on Tobacco Control, offers the potential to prevent tobacco initiation and promote cessation on a larger scale.

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**INFORMED CONSENT STATEMENT**

Informed consent was obtained from all subjects involved in the study.

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**CONFLICT OF INTEREST**

The authors declare no conflict of interest

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