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Knowledge, Attitude, And Awareness Among Non-Dental and Non-Medical University Students in Kolkata About the Effects of Smoking on Oral Health- A Questionnaire Based Study

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Abstract

Introduction: Smoking is one of the common recreational drug uses. Tobacco smoking habit has spread across the world, and is a significant cause of mortality and morbidity. Smokers are more likely to develop many deadly diseases such as cancer and other types of respiratory diseases. Tobacco smoking-related diseases have been shown to kill around half of long-term smokers compared with the overall mortality levels faced by non-smokers.

Aim: To investigate and assess the knowledge, attitude and awareness of the effects of smoking on oral health among non dental and non Medical University students in Kolkata

Methodology: A cross-sectional study was conducted by circulating the self-designed questionnaire among 300 college students. The questionnaire was designed to assess the data's on demographics, smoking prevalence, smoking related knowledge and attitudes and health effects due to smoking habits. The survey was conducted through an online setting through google form.

Results: The responses from the study were analysed and represented in pie charts. The findings were 68% of individuals aware of the complications of smoking. Around 30% of individuals felt that the habit of smoking is greatly influenced by friends and stress. 92% of individuals felt that smoking in public places is an offence. 63% of individuals agreed that smoking affects appetite.

Conclusion: The study concludes that students are well aware about smoking habits and its ill effects which cause major complications in their health. In addition, collaborative and more comprehensive anti-tobacco efforts are important to curb the tobacco epidemic.

Keywords: Awareness, Smoking, Anti-tobacco

Introduction

The tobacco epidemic remains a major global public health threat, responsible for over 8 million deaths annually. More than 7 million of these fatalities result from direct tobacco consumption (both smoking and smokeless forms), while 1.3 million are attributed to passive smoking. In 2020, the World Health Organization (WHO) reported that 22.3% of the global population used tobacco, with prevalence rates of 36.7% among men and 7.8% among women.[1] In India, the Global Adult Tobacco Survey (GATS-2) estimated that 266.8 million adults consume tobacco, including cigarette and bidi smokers, placing India second in global smoking prevalence.[2,3] The high rate of tobacco consumption significantly elevates the risk of tobacco-related diseases, with WHO projections indicating over 8 million annual tobacco-related deaths by 2030. Globally, tobacco use accounts for approximately 33% of cancer-related deaths, while in India, it contributes to 27% of such fatalities.[4]

Extensive research has documented the harmful effects of smoking on both systemic and oral health.[5] Nicotine, a psychoactive alkaloid in tobacco, has both stimulatory and narcotic properties and is a well-established risk factor for cardiovascular and respiratory diseases, lung cancer, emphysema, and chronic cough.[6] The oral cavity, being in direct contact with tobacco and its by-products, is particularly susceptible to damage, including premalignant and malignant lesions, periodontitis, dental implant failure, delayed wound healing, xerostomia, halitosis, and microbial dysbiosis. Notably, no safe threshold for tobacco exposure has been established.[6]

Cigarette smoking remains the most prevalent form of tobacco use worldwide, with each cigarette containing 10–14 mg of nicotine, of which approximately 1–1.5 mg is absorbed through the skin, mucous membranes, and lungs. Other commonly used forms of tobacco include cigars, hookah, pipes, cigarillos, e-cigarettes, kreteks, and roll-your-own tobacco.[7]

Oral health is largely influenced by an individual's behaviour, knowledge, and practices, all of which contribute to both oral and systemic health. In India, the Global Youth Tobacco Survey (GYTS) reported a 14.6% prevalence of tobacco use among adolescents aged 13–15, with boys exhibiting three times the prevalence compared to girls.[8] Early tobacco addiction is often linked to various factors, including parental or sibling tobacco use, peer influence, ease of accessibility, and affordability.[9]

Research suggests that individuals with greater knowledge of oral health practices tend to achieve better long-term oral health outcomes than those with limited awareness.[10,11] This underscores the importance of shaping beliefs and behaviours to promote sustained health benefits. While most studies on oral habits focus on older populations, early-life behaviours play a pivotal role in the development of both systemic and oral diseases. Adolescence and young adulthood represent critical periods for intervention, as habits formed during these stages often persist throughout life. Given that youth tobacco use significantly impacts long-term health and contributes to India's public health burden, this study aims to assess the knowledge, attitudes, and awareness of the harmful effects of smoking on oral health among university students in Kolkata.

Methodology

This cross-sectional study employed the Knowledge, Attitude, and Practice (KAP) model to assess university students' awareness, perceptions, and behaviors regarding the harmful effects of smoking on oral health. The study was conducted among university students in Kolkata using an e-survey. A self-administered questionnaire was developed via Google Forms and distributed online. The sample size comprised 150 participants, selected through a convenient (opportunity) sampling method.

Participants included non-dental and non-medical university students aged 18–24 years who voluntarily consented to participate in the study. Data were collected using a structured questionnaire consisting of 15 close-ended questions designed to evaluate participants' knowledge, attitudes, and practices regarding the detrimental effects of smoking. The questionnaire was adapted from previously validated studies with modifications to enhance clarity and relevance. Participants were invited via phone calls, and their responses were recorded digitally.

Following data collection and cleaning, responses were analyzed using descriptive statistics. The results were presented in the form of pie charts to illustrate key findings. The questionnaire is presented in Table 1.

Results:

A total of 150 university students from Kolkata aged 18-25 years participated in the study, of whom 78.1% were non-smokers and 21.9% were smokers (Figure 1). Among smokers, 6.3% reported smoking for 1–2 years, 9.4% for 2–3 years, and 7.9% for over four years (Figure 2). The majority (13.3%) smoked 2–3 cigarettes per day (Figure 3).

The primary reason for initiating smoking, as reported by 10.2% of students, was stress management, while 5.5% stated that smoking was a recreational activity influenced by peer pressure (Figure 4). These findings highlight the role of psychological and social factors in smoking behavior among university students.

Knowledge about the effects of smoking on oral and general health was assessed in the second part of the questionnaire. A high level of awareness was observed among both smokers and non-smokers. A significant proportion (86.7%) recognized that smoking causes bad breath (Figure 5), while 83.6% acknowledged its role in tooth discoloration (Figure 6). Additionally, 82% were aware that smoking contributes to gum diseases (Figure 7).

Regarding the broader health implications, 95.3% of participants identified smoking as a risk factor for lung and oral cancer (Figure 8), and 85% were aware of smoking-induced pigmentation (Figure 9). Moreover, 79.1% of participants were aware of dry mouth and altered taste as other side effects of smoking (Figure 10).

The final section of the questionnaire evaluated attitudes toward smoking cessation. A significant proportion of respondents (61.7%) supported the implementation of smoking cessation programs specifically targeting the youth (Figure 11). Additionally, 82% believed that anti-smoking campaigns should be conducted regularly within educational institutions (Figure 12 and 13). Furthermore, 87% of students favored a ban on smoking in and around college premises (Figure 14), demonstrating a strong inclination toward stricter smoking regulations within academic environments.

Discussion:

The primary objective of this study was to evaluate the knowledge, attitudes, and awareness of university graduates in Kolkata regarding the harmful effects of smoking using a self-administered questionnaire. This study included 150 participants (students), of whom 78.1% were non-smokers and 21.9% were smokers. Among the smokers, the majority were male, followed by female smokers. The lower prevalence of smoking among females aligns with the findings of Palipudi et al., who attributed this trend to the social unacceptability of smoking among women in Southeast Asian communities.[12]

Most smokers consumed 2–4 cigarettes per day, with only a small percentage classified as heavy smokers. However, even light and occasional smokers may underestimate the addictive nature and health risks of their tobacco use. No level of tobacco exposure is safe, and even light smokers face significant health risks comparable to heavy smokers.[13] Students primarily cited stress, recreation, peer pressure, and familial influence as reasons for smoking. Studies have linked stress from work, relationships, and finances to higher smoking rates, with nicotine often used as a coping mechanism.[14,15] However, while smoking may provide temporary relief, it can ultimately exacerbate stress.[16, 17] A systematic review by Leshargie et al. identified peer pressure as a major factor in early tobacco use, increasing the likelihood of continued smoking, particularly among students.[18]

Although several studies have shown that a lack of education or awareness of the health risks associated with smoking or tobacco use increases the likelihood of smoking,[19,20] our study revealed a high level of awareness among participants. An assessment of their knowledge regarding the effects of smoking on oral and general health demonstrated strong awareness of its association with bad breath, tooth discoloration, gum disease, lung and oral cancer, pigmentation, dry mouth, and altered taste perception. Despite high awareness, 21.9% of participants continued smoking, showing a gap between knowledge and behaviour. This may be due to nicotine addiction, stress coping, or peer pressure. The delayed onset of health effects further reduces the urgency to quit, reinforcing the habit despite known risks.

The final section of the questionnaire evaluated attitudes toward smoking cessation. Most respondents supported programs designed to help young people quit smoking. The strong endorsement of regular anti-smoking campaigns in educational institutions highlights students' recognition of the importance of awareness and prevention efforts. Additionally, widespread support for smoking bans on and around college campuses reflects a growing preference for a smoke-free academic environment and an increasing awareness of smoking-related health risks. Beyond awareness campaigns, policy-driven initiatives should also be implemented to further reduce smoking rates. These measures can include stricter regulations, advocacy to influence lawmakers, and higher taxes on tobacco products, all of which play a crucial role in curbing smoking habits.[21]

The limitations of this study include a small sample size, which restricts the generalizability of the findings to a broader population. Additionally, the reliance on a self-administered questionnaire may introduce response bias. Future research with larger, multi-centered studies involving a more diverse population is recommended to enhance the validity and applicability of the findings.

Conclusion:

Despite high awareness of smoking's harmful effects, some students continued smoking due to stress, peer pressure, and recreation. However, their positive attitude toward cessation and smoking restrictions highlights the need for targeted interventions. Educational institutions should implement awareness campaigns and stress management programs to promote healthier coping strategies and reduce smoking prevalence.

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Figures

Figure 1: Pie chart presenting percentage of smokers and non- smokers

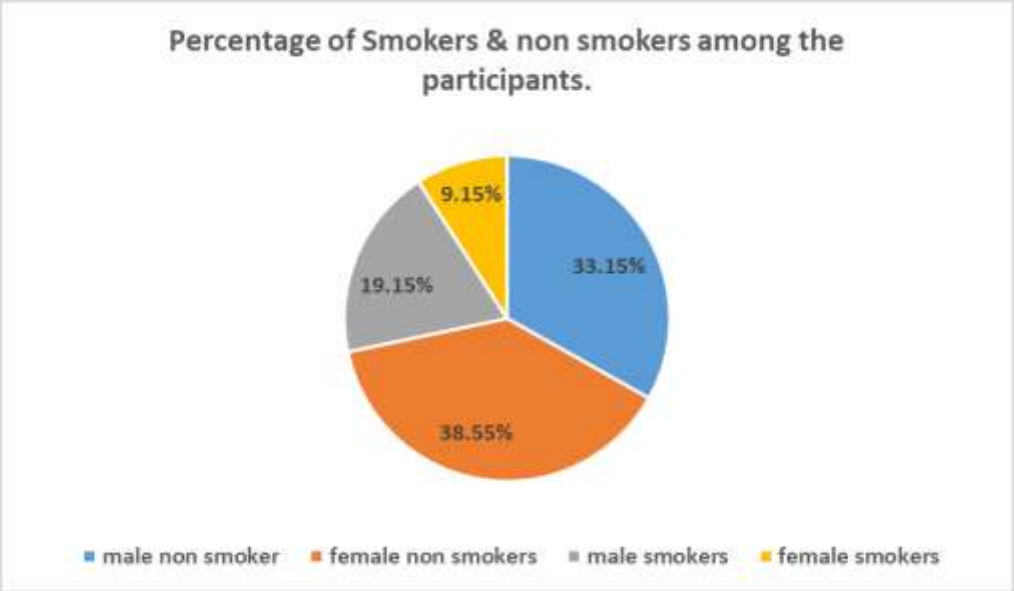

Figure 2: Pie chart presenting the duration of smoking habit among smokers

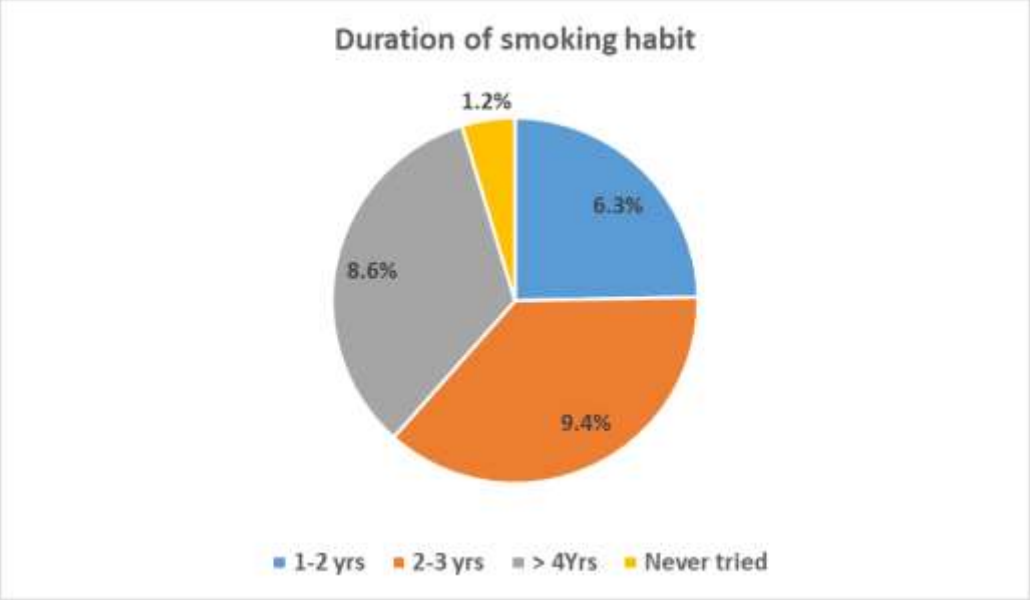

Figure 3: Pie chart presenting number of cigarettes smoked per day

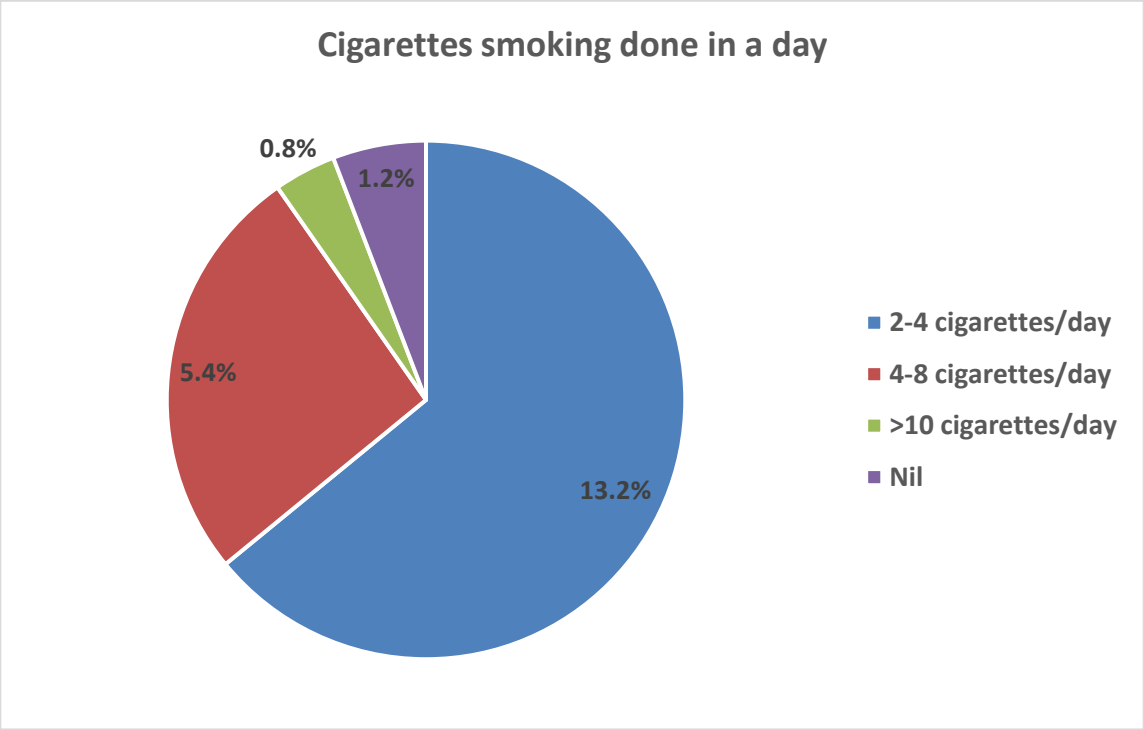

Figure 4: Pie chart presenting various reasons for developing the habit of smoking

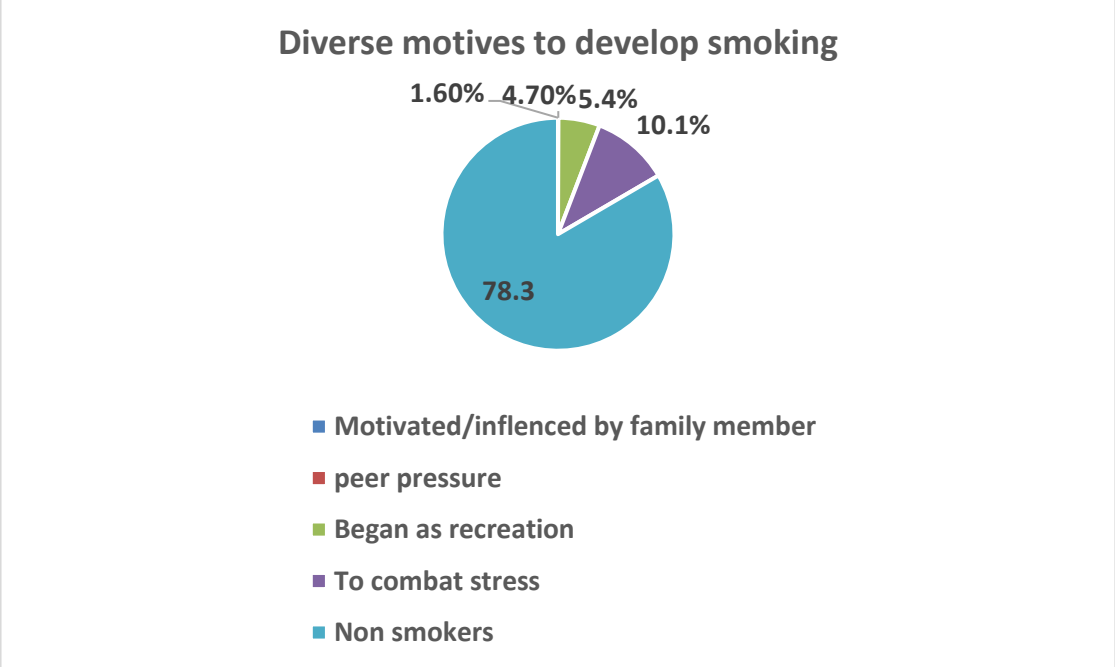

Figure 5: Pie chart presenting participants' knowledge regarding the role of smoking in causing malodour

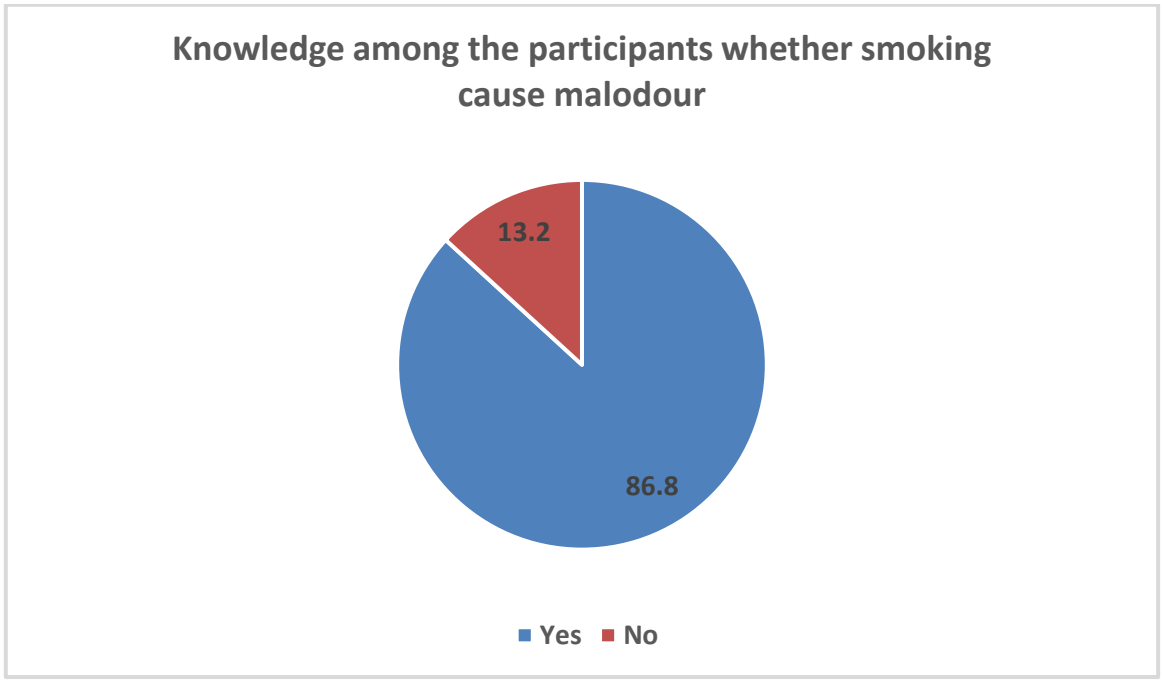

Figure 6: Pi chart presenting participants knowledge about the role of smoking in causing discoloration of teeth

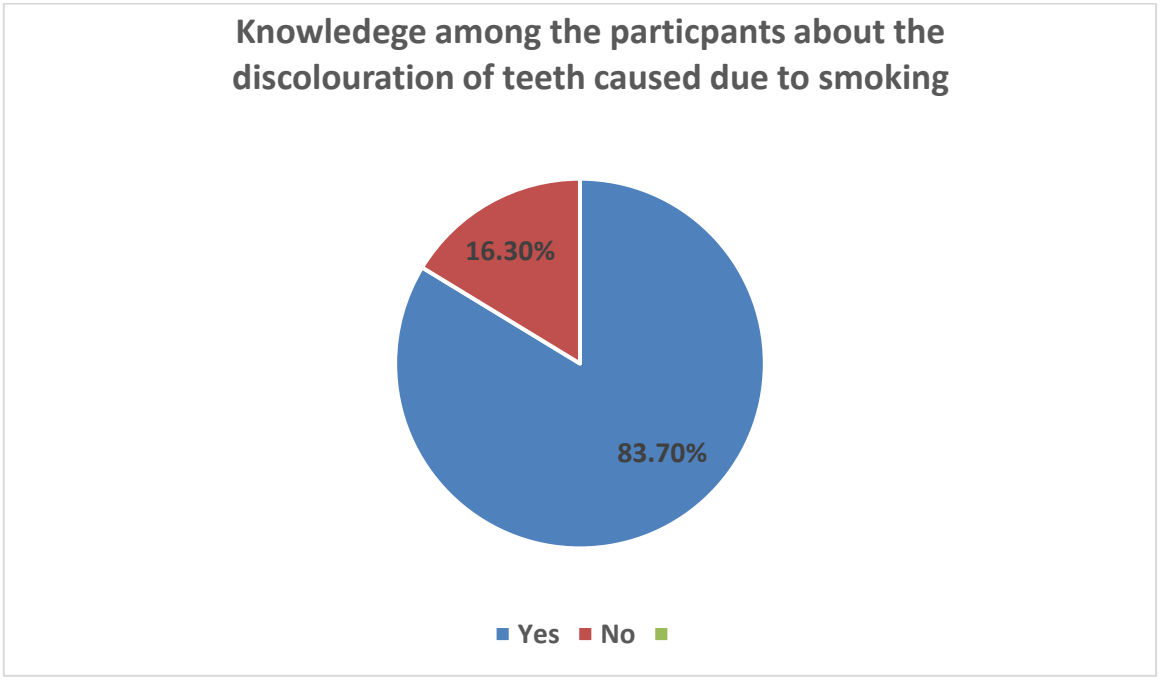

Figure 7: Pie chart presenting participants knowledge about the role of smoking in causing gum disease

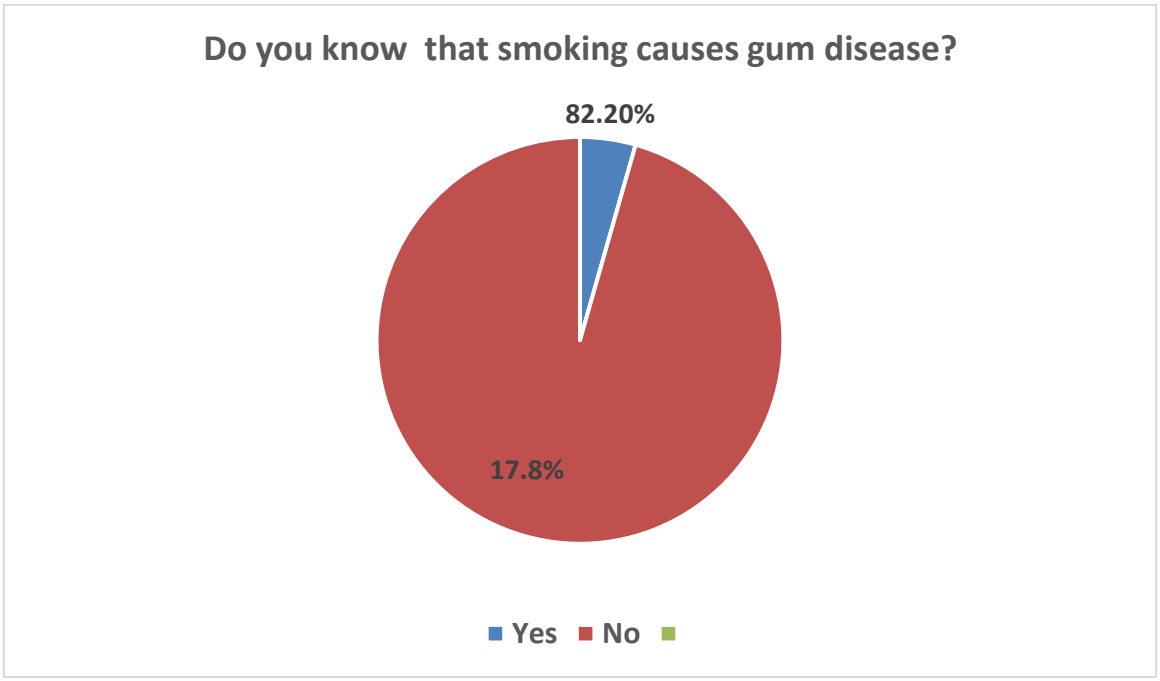

Figure 8: Pie chart presenting participants knowledge about the role of smoking in causing cancer including oral cancer

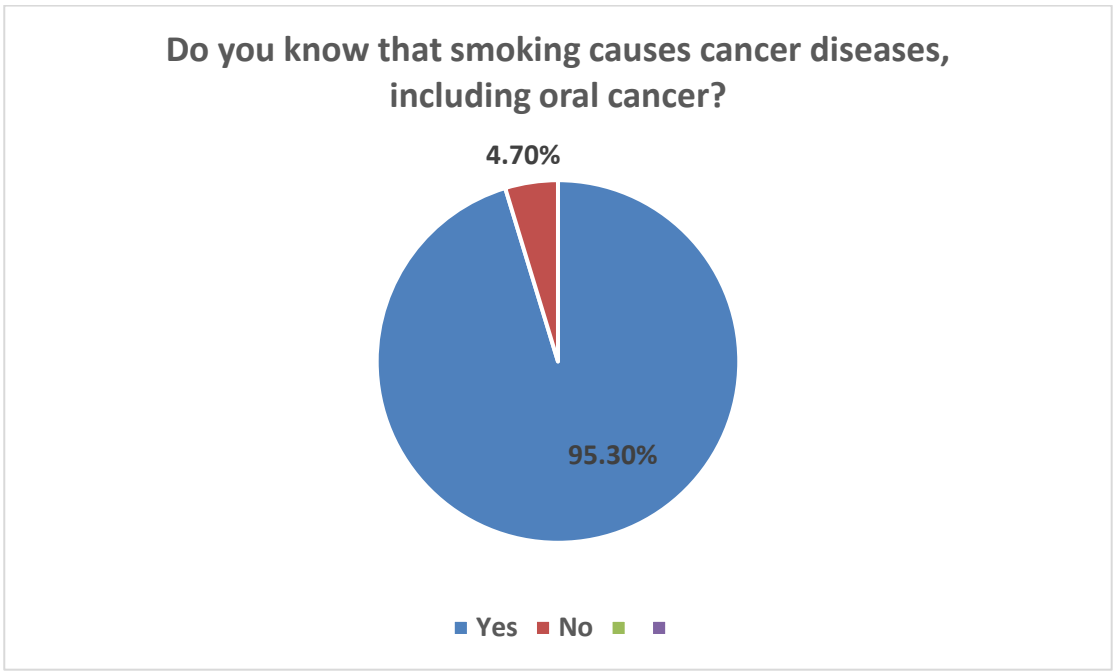

Figure 9: Pie chart presenting participants knowledge about the role of smoking in causing pigmentation of mouth/oral cavity

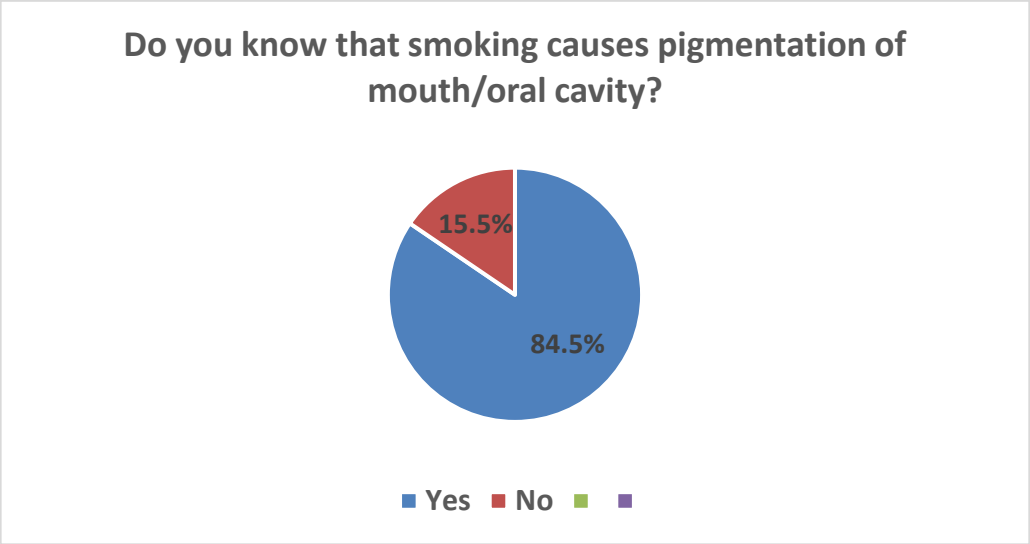

Figure 10: Pie chart presenting participants knowledge about the role of smoking in causing dryness of mouth and altered taste perception

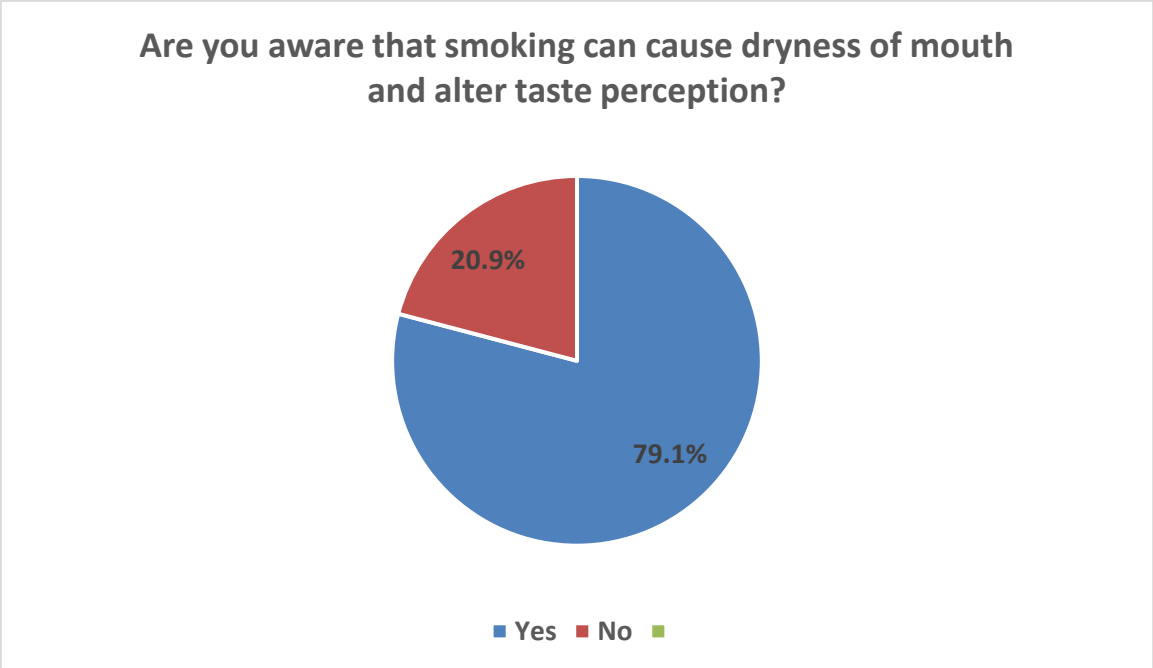

Figure 11: Pie chart presenting participants opinion about implementation of smoking cessation programs in institutions

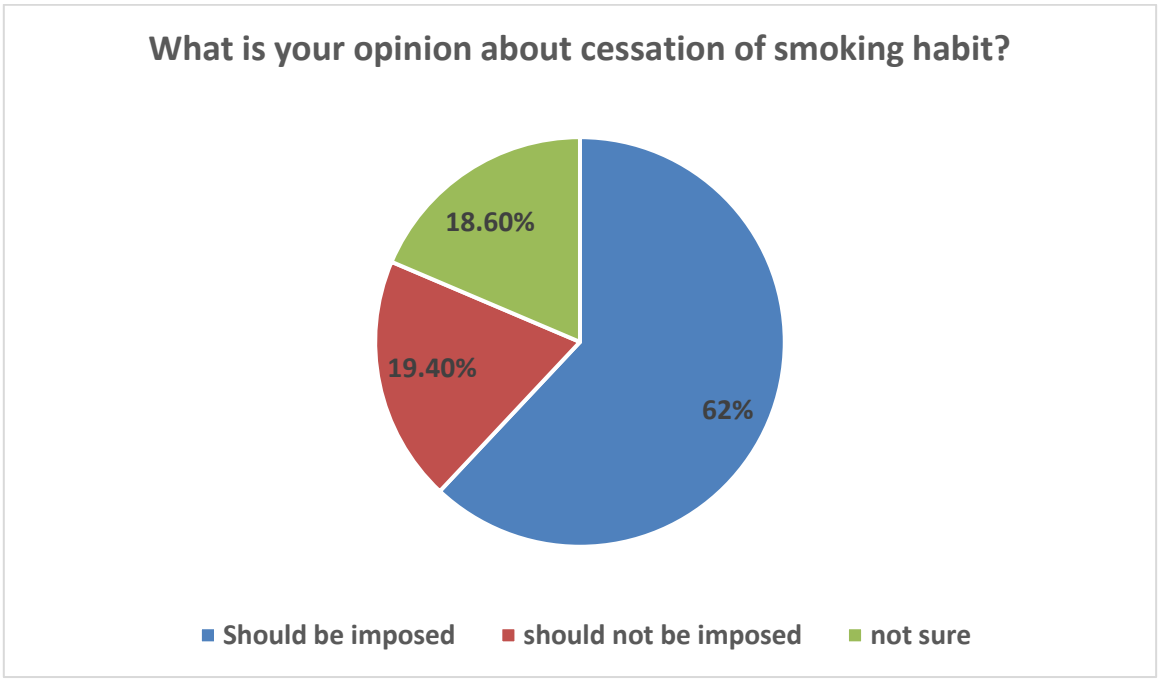

Figure 12: Pie chart presenting participants' opinions on whether the institution has ever arranged smoking cessation awareness campaigns.

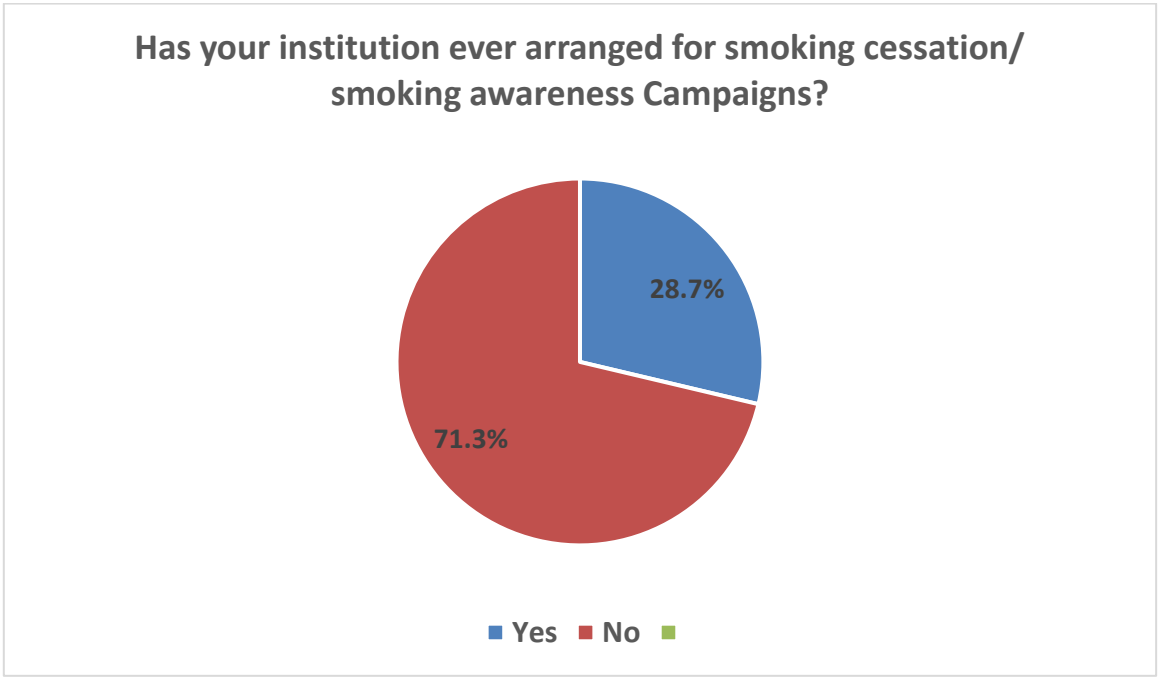

Figure 13: Pie chart presenting participants' opinions on whether the institution should regularly arrange smoking cessation campaigns on college premises.

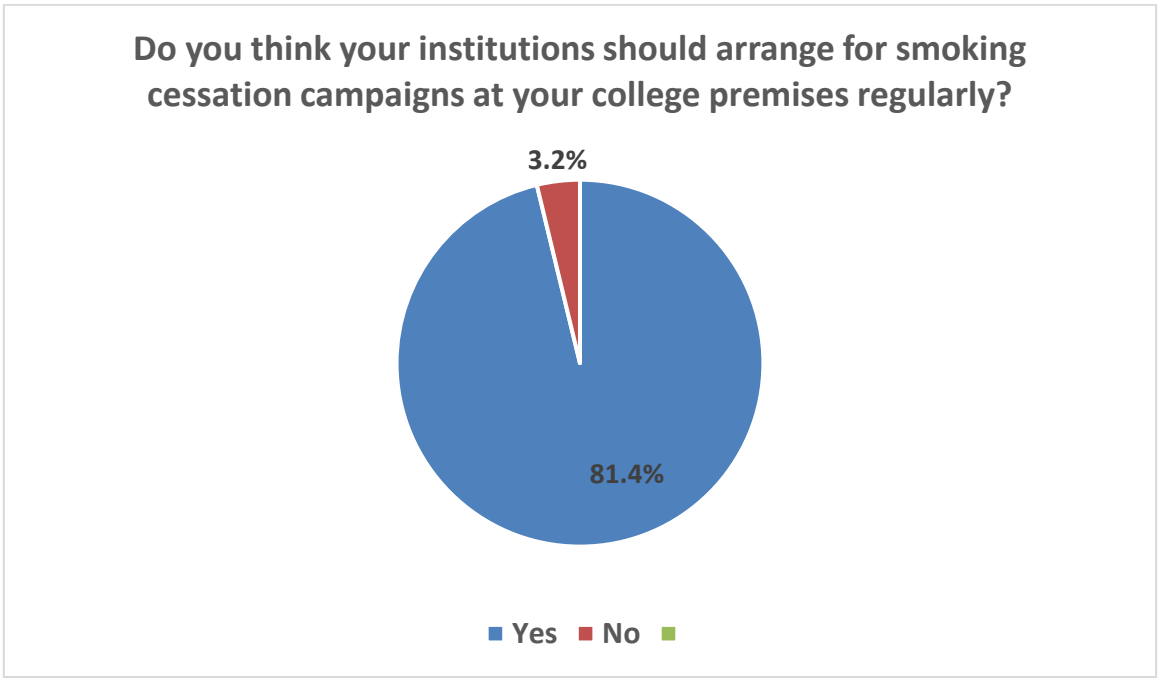

Figure 14: Pie chart presenting participants' opinions on whether smoking should be prohibited in college premises.