

Knowledge and Perception about Health Risks Associated with Tobacco Habit – A Survey

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Abstract

Introduction: *Nicotiana tabacum*, a South American herb, is the main source of tobacco. The use of tobacco for medicinal purposes emerged in the 1400s, and later in 1800–1900, the presence of nicotine in tobacco was discovered, leading to tobacco abuse. Apart from tobacco use, manufacturing tobacco, packaging, and even disposal of cigarette butts and packages have an environmental effect. Tobacco is available in different types from manufactured cigarettes, hookahs, bidis, cigars, cheroots, and chewing tobacco. The main aim of the study was to assess the knowledge of health risks associated with tobacco habit in tobacco users. **Materials and Methods:** A descriptive cross-sectional survey was conducted among tobacco users visiting a private dental institution. A total of 100 participants were involved, and a questionnaire containing 21 closed-ended questions was prepared and distributed online using Google Survey Forms. The responses were collected, tabulated in excel, and statistically analyzed using SPSS. Chi-square test was done to assess the knowledge of the participants regarding the health risks of tobacco. **Results:** The majority of the participants smoked everyday for the past 3–10 years. Manufactured cigarettes were predominantly used among the 100 participants. The majority of the participants were aware that smoking causes lung and heart diseases in adults. Most of the participants were also aware of passive smoking. **Conclusion:** Immense programs regarding disposal of cigarette butts and awareness in young adults should be practiced to reduce the consumption of tobacco.

Keywords: Awareness, health hazards, tobacco, tobacco cessation

INTRODUCTION

Tobacco is a South American herb derived from *Nicotiana tabacum* whose leaves contain 2%–8% nicotine and serve as the source for both smoking and smokeless tobacco forming the basis of health hazards.^[1] In 1492, Columbus discovered that Native Americans used tobacco for both its pleasurable effects and for treating diseases. Tobacco was also mixed with equal parts of slaked lime and was used as a toothpaste by Native Americans. Even in India today, tobacco powder is used to whiten the teeth and commercially sold as tobacco toothpaste. In the 1500s, the medicinal property of tobacco was more prevalent in America and Europe. Only in the 1600s, tobacco faced its criticism as a medicinal herb and ill effects of tobacco abuse were noted. Around 1828, nicotine was isolated from tobacco and its medicinal use started decreasing.

In the late twentieth century, tobacco abuse emerged globally affecting all age groups and increasing the death rates.^[1]

The main component of tobacco, nicotine, causes individuals to become addicted. Nicotine in small amounts is lethal by nature. Inhalation of nicotine released from tobacco smoke enters the body and affects all the organs. Nicotine in small amounts stimulates the brain and central nervous system (CNS) and larger amounts depresses the brain and CNS. Nicotine vapors also increase the blood pressure and heart rate in smokers.^[1] Tobacco use contributes to the majority of oral, larynx, and lung cancers. A 2010 analysis conducted in the US stated that around 9000 premature

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How to cite this article: Sushanthi LC, Santhanam A, Sherlin HJ, Jayaraj G, Don KR. Knowledge and perception about health risks associated with tobacco habit – A survey. Eur J Gen Dent 2020;9:163-9.

Submitted: 02-Jul-2020

Accepted: 04-Jul-2020

Published: 15-Sep-2020

Access this article online

Quick Response Code:



Website:
www.ejgd.org

DOI:
10.4103/ejgd.ejgd_248_20

deaths were caused by tobacco usage in young people and adults.^[2]

Tobacco causes abnormal DNA methylation in adults leading to cancer.^[3] Oral squamous cell carcinoma (OSCC) which accounts for 90% of cancers in the oral cavity ranks 8th position worldwide in deaths related to cancers. This trend is more appreciated in low-income or developing countries than developed countries. OSCC is regulated by many factors such as age, gender, race, and tobacco habits, among which tobacco is the main contributing factor.^[4]

The World Health Organization stated that “The tobacco epidemic is one of the biggest public health threats the world has ever faced, killing more than 8 million people a year around the world. More than 7 million of those deaths are a result of direct tobacco use, while around 1.2 million are the result of nonsmokers being exposed to secondhand smoke.” The mortality rate of tobacco use is calculated to exceed 10 million by 2030. Tobacco when burned contains 4000 chemical compounds out of which 69 are carcinogenic in nature.^[5]

Smoked tobacco types include cigars, pipes, bidis, kreteks, waterpipes, and cheroots. Smokeless tobacco products include chewing tobacco, moist snuff, dry snuff, betel quid (with tobacco), gutkha, toombak, and dissolvable tobacco. The common misconception that smokeless tobacco is less hazardous than smoked tobacco leads to abuse of smokeless tobacco, while both have the same carcinogenic effect.^[6]

Tobacco abuse is hazardous to the world as a whole. Tobacco smoke affects humans of all age groups irrespective of race and leads to death. Although numerous literatures in the past two decades enumerate the ill effects of tobacco, the manufacturing and the consumption of smoked and smokeless tobacco products have only gradually increased. The main purpose of this present study was to assess the mindset and knowledge of individuals with tobacco habits regarding the health hazards associated with tobacco usage.

MATERIALS AND METHODS

Study design

A cross-sectional study was conducted through an online/manual survey from October 2019 to January 2020 among tobacco users visiting a private dental institution, Chennai.

Study subjects

A simple random sampling was used to select the study participants. The 100 participants in the study belong to various age groups with tobacco habits.

Inclusion criteria

Tobacco users with current tobacco habits with no history of quitting were included in the study.

Ethical considerations

Returning the filled questionnaire was considered as implicit consent as a part of the survey. Ethical approval for the study

was obtained from the Institutional Review Board, Saveetha Dental College and Hospitals, Chennai.

Study methods

A questionnaire of 21 closed-ended questions was prepared and distributed online by Google Forms. The questionnaire was also prepared in regional language to help individuals with English as no second language. The collected data were checked regularly for clarity, consistency, and accuracy. Demographic details were also included in the questionnaire.

Statistical analysis

The data collected were tabulated in Microsoft Excel 2016 and exported to SPSS software (IBM® SPSS® Statistics version 24, Chicago, USA). Descriptive statistics to summarize qualitative data in percentages were calculated. Chi-square test was done to associate the knowledge of smokers about health hazards of tobacco use. The confidence level was 95%, with a statistical significance of $P < 0.05$. The results were presented in the form of graphs and tables.

RESULTS

Out of 100 participants, 92% were males and 8% were females. Fifty-two percent of the participants were in the age group of 26–35 years, 25% belonged to the age group of 18–25 years, 13% belonged to the age group of 36–45 years, 8% belonged to the age group of 46–55 years, and 2% belonged to the age group of above 55 years [Table 1].

Eight seven percent of the participants smoked on a daily basis. Forty-eight participants belonging to the age group of 26–35 years smoked <5 cigarettes per day with $P = 0.098$ which is statistically not significant [Figure 1]. Fifty-two percent of the participants smoked <5 cigarettes per day, 24% smoked 5–10 cigarettes per day, 17% smoked more than 10 cigarettes per day, and 7% smoked 1–2 cigarettes per day.

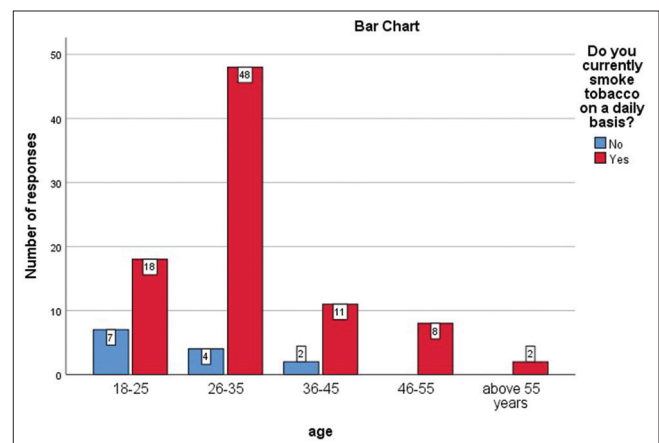


Figure 1: Bar chart depicting the association between the age groups and everyday tobacco use. Forty-eight of the participants belonging to the age group of 26–35 years smoked <5 cigarettes per day with $P = 0.098$, which is not statistically significant

Table 1: Percentage distribution on knowledge and perception about health risks associated with tobacco habit

Question	Choices	Percentage
Gender	Male	92
	Female	8
Age groups (years)	18-25	25
	26-35	52
	36-45	13
	46-55	8
	Above 55	2
Do you currently smoke tobacco on a daily basis?	Yes	87
	No	13
How many cigarettes do you smoke daily?	<5	52
	5-10	24
	>10	24
	0	7
How long have you been smoking? (years)	1-5	42
	6-10	42
	11-15	13
	15	3
What type of tobacco product do you use?	Manufactured cigarettes	96
	Hand-rolled cigarettes	2
	Waterpipe sessions	1
	Any other	1
Can long-term smokers reduce their chance of cancer by quitting smoking?	Yes	74
	No	26
Are you aware that smoking leads to both lung and heart diseases?	Aware	76
	Not aware	24
Are you aware that smoking affects a nonsmoking person nearby?	Aware	78
	Not aware	22
Are you aware of smokeless tobacco?	Aware	54
	Not aware	46
Is smokeless tobacco less harmful and lethal than cigarettes?	Yes	50
	No	50
Does smoking make you feel better?	Yes	88
	No	12
Are you aware that cigarette contains 4,000 chemical compounds of which 69 are carcinogens?	Aware	59
	Not aware	41
Nicotine in tobacco is more addictive than drugs like heroin and cocaine?	Yes	53
	No	47
During the past 12 months, have you tried to stop smoking?	Yes	42
	No	58
Have you visited a health-care provider to quit smoking in the past 12 months?	Yes	17
	No	83
Have you noticed the information about the dangers of smoking cigarettes or that encourages quitting in newspapers or television?	Yes	90
	No	10
Have you noticed the health warnings on cigarette packages?	Yes	95
	No	5
Do you ignore the health warnings on cigarette packages?	Yes	83
	No	17
Do you encourage your friends to smoke?	Yes	24
	No	76
If offered help, would you try to quit smoking?	Yes	51
	No	49

Twenty-eight participants belonging to the age group of 26–35 years smoked <5 cigarettes per day with $P = 0.085$ which is statistically not significant [Figure 2]. Forty-two

percent of the participants have the habit for the past 1–5 years, 42% have the habit for the past 6–10 years, 13% smoke for the past 11–15 years, and 3% smoke for more

than 15 years. Ninety-six percent of the participants use manufactured cigarettes.

Twenty-six percent of the participants disagree that long-term users can reduce the risk of cancer by quitting smoking. Seventeen participants belonging to the age group of 26–35 years disagree that long-term users can reduce the risk of cancer by quitting smoking with $P = 0.485$ which is statistically not significant [Figure 3]. Seventy-six percent of the participants were aware that smoking causes both lung and heart diseases. Seventy-eight percent of the participants were aware that smoking affects a nonsmoking person nearby. Forty-one participants belonging to the age group of 26–35 years were aware that smoking affects a nonsmoking person nearby with $P = 0.091$ which is statistically not significant [Figure 4]. Fifty-four percent of the participants were aware of smokeless tobacco.

Fifty percent of the participants believe that smokeless tobacco is less lethal than cigarette smoking. Twenty-two

participants belonging to the age group of 26–35 years disagree that smokeless tobacco is less harmful and lethal than cigarette smoking with $P = 0.384$ which is statistically not significant [Figure 5]. Eighty-eight percent of the participants agree that smoking makes them feel better.

Fifty-nine percent of the participants were aware that tobacco contains 4000 chemical compounds in which 69 are carcinogenic agents. Forty-seven percent of the participants disagree that nicotine is more addictive and lethal than heroin and cocaine. Twenty-one participants belonging to the age group of 26–35 years disagree that nicotine is more addictive and lethal than heroin and cocaine with $P = 0.223$ which is statistically not significant [Figure 6]. Forty-two percent of the participants have tried to quit smoking in the past 12 months. Twenty-six participants have tried to quit smoking in the past 12 months with $P = 0.021$ which is statistically

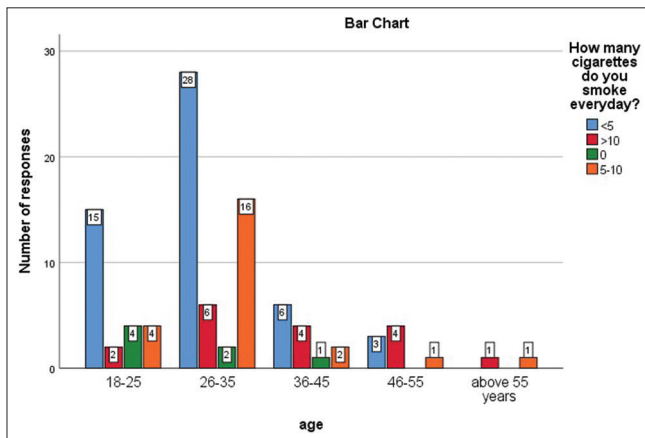


Figure 2: Bar chart depicting the association between the age groups and number of cigarettes smoked. Twenty-eight participants belonging to the age group of 26–35 years smoked <5 cigarettes per day with $P = 0.085$, which is not statistically significant

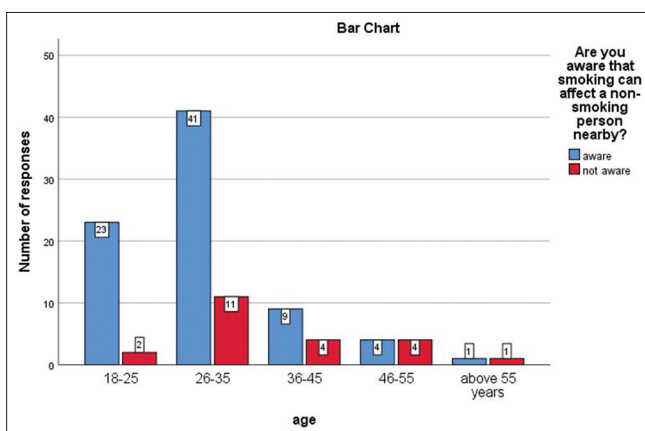


Figure 4: Bar chart depicting the association between the age groups and passive smoking awareness. Forty-one participants belonging to the age group of 26–35 years were aware that smoking affects a nonsmoking person nearby with $P = 0.091$, which is not statistically significant

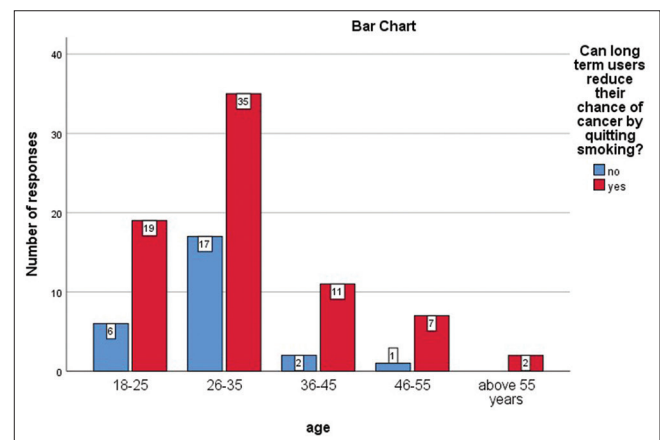


Figure 3: Bar chart depicting the association between the age groups and reduced risks of cancer in long-term users after quitting. Seventeen participants belonging to the age group of 26–35 years disagree that long-term users can reduce the risk of cancer by quitting smoking with $P = 0.485$, which is not statistically significant

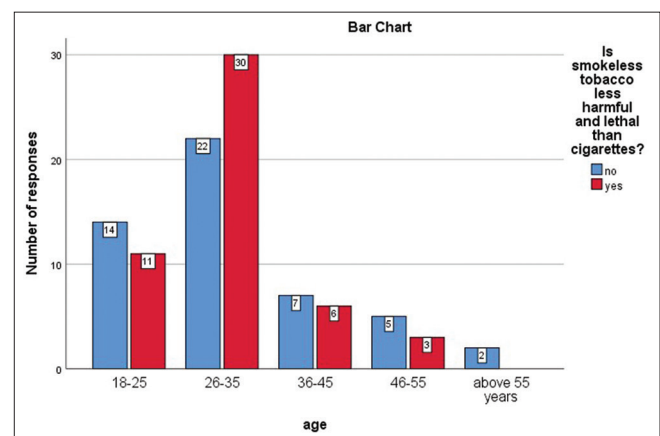


Figure 5: Bar chart depicting the association between the age groups and awareness of lethal effects of smokeless tobacco. Twenty-two participants belonging to the age group of 26–35 years disagree that smokeless tobacco is less harmful and lethal than cigarette smoking with $P = 0.0384$, which is not statistically significant

significant [Figure 7]. Thirty-seven percent of the participants have visited health-care providers to quit smoking. Thirteen participants belonging to the age group of 26–35 years have visited health-care providers to quit smoking with $P = 0.082$ which is statistically not significant [Figure 8]. Ninety percent of the participants were aware of the information about the dangers of smoking cigarettes. They were also aware of the advertisements in newspapers or television that encourages smokers to quit smoking. Ninety-five percent of the participants agree that they notice the health warnings on cigarette packages. Forty-five participants belonging to the age group of 26–35 years agree that they notice the health warnings on cigarette packages with $P = 0.782$ which is statistically not significant [Figure 9]. Eight-three percent of the participants ignore the health warnings on cigarette packages. Seventy-six percent of the participants do not encourage their friends to smoke. Fifty-one percent of the participants agreed that they

would try to quit smoking if help was offered. Thirty-one participants belonging to the age group of 26–35 years agreed that they would try to quit smoking if help was offered with $P = 0.086$ which is statistically not significant [Figure 10].

DISCUSSION

Tobacco derived from *N. tabacum* is a South American herb primarily used for its medicinal properties in the 1400s. In later centuries, health hazards of tobacco use were identified after the discovery of nicotine content in tobacco. When cigarettes are lit, the tobacco smoke emitted contains nicotine that enters the human body easily and affects the organs. Longer duration of exposure to nicotine causes neurotoxicity and blood toxicity and alters the structural architecture of the brain. Tobacco is the main contributing factor for cancer in the oral cavity.

In the present study, the majority of the participants, i.e., 92%, were males. This finding is in accordance with the literature

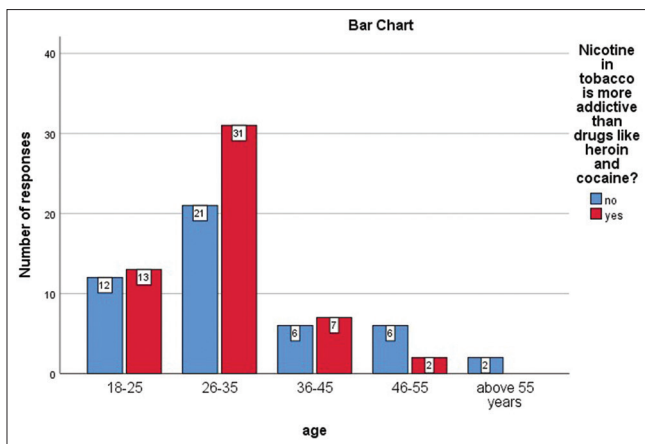


Figure 6: Bar chart depicting the association between the age groups and nicotine property. Twenty-one participants belonging to the age group of 26–35 years disagree that nicotine is more addictive and lethal than heroin and cocaine with $P = 0.223$, which is not statistically significant

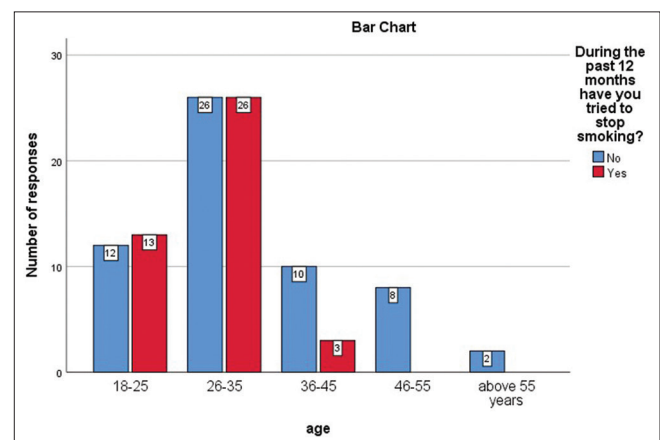


Figure 7: Bar chart depicting the association between the age groups and efforts to quit smoking. Twenty-six participants have tried to quit smoking in the past 12 months with $P = 0.021$, which is statistically significant

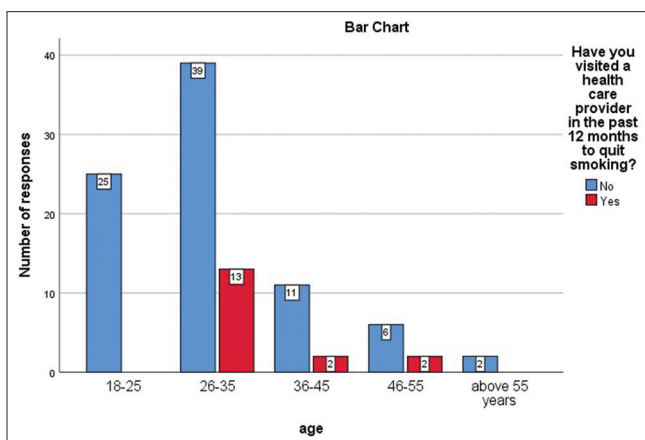


Figure 8: Bar chart depicting the association between the age groups and efforts to quit smoking by visiting a health-care provider. Thirteen participants belonging to the age group 26–35 years have visited health-care providers to quit smoking with $P = 0.082$, which is not statistically significant

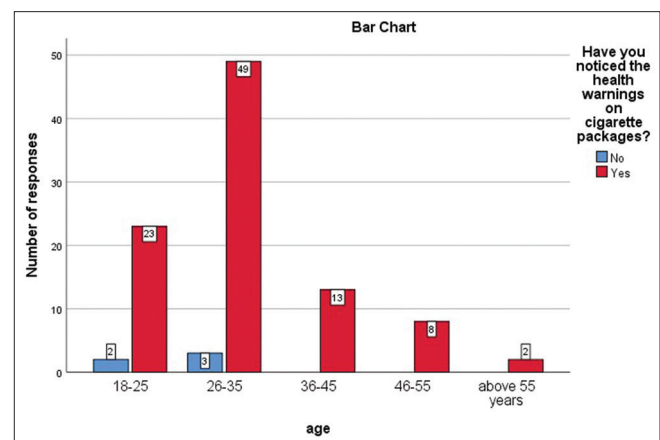


Figure 9: Bar chart depicting the association between the age groups and noticing the health warnings on cigarette packages. Forty-five participants belonging to the age group of 26–35 years agree that they notice the health warnings on cigarette packages with $P = 0.782$, which is not statistically significant

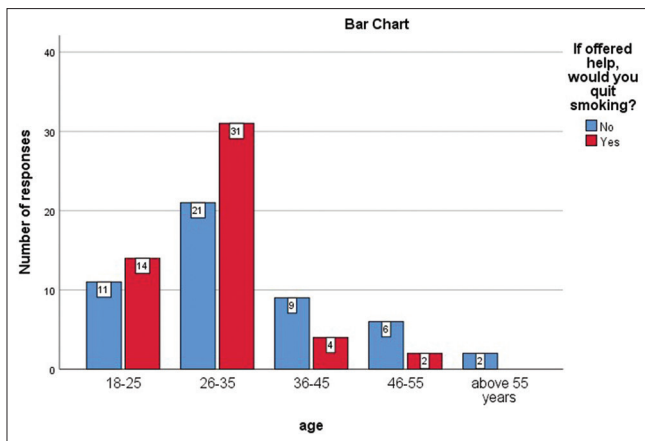


Figure 10: Bar chart depicting the association between the age groups and response of participants to quit smoking if help was offered. Thirty-one participants belonging to the age group of 26–35 years agreed that they would try to quit smoking if help was offered with $P = 0.086$, which is not statistically significant

by Rani *et al.* who stated that the rate of prevalence of tobacco usage was 51.3% for men and 10.3% for women.^[7] The difference of tobacco consumption in gender could be because of the social and cultural practices in our country, India, and mostly, women belonging to middle-class backgrounds are not exposed to tobacco products in India. The majority of the participants belonged to the age group of 26–35 years, followed by the age group of 18–25 years. Eighty-seven percent of the participants smoke everyday, predominantly smoking 1–5 cigarettes per day. Everyday smoking increases the intake of carcinogens by the smoker, simultaneously affecting the environment and individuals by passive smoking. This finding is in accordance with the literature by Schane *et al.*, who stated that young adult smokers consuming <5 cigarettes everyday have considerably increased in the past decade.^[8] Apart from everyday smoking, it was also found in our study that the majority of the smokers were smoking for the past 3–10 years. Chronic exposure to tobacco smoke increases the toxic levels in the body, simultaneously polluting the air and affecting other individuals by passive smoking.

There are numerous variants of tobacco available in the market, and it was found in our study that manufactured cigarettes were predominantly used by smokers. Rationale to invent machines to manufacture cigarette sticks was an outcome of tuberculosis occurrence due to spitting of smokeless tobacco. Machines to manufacture cigarettes were patented in the 1880s by James Bonsack. Ever since, the use of manufactured cigarettes rather than smokeless tobacco evolved.^[9] The downside of using manufactured cigarettes apart from tobacco smoke is disposal of the cigarette sticks postconsumption. Cigarette butts constitute about 30% of total litter globally. The most common method of cigarette butt disposal is nearby water bodies or empty grounds. Nicotine, heavy metals, and polycyclic aromatic hydrocarbons found in cigarette butts leak into the water and soil harming the environment and aquatic

organisms. Freshwater species are known to be more affected by these chemical agents. The paper and other materials used for manufacturing cigarette packages also sum up for trillions of unwanted solid waste and potentially affecting the environment.^[10]

In our study, it was found that the majority of the participants were aware that quitting smoking in long-term smokers cannot reduce cancer risk. From the initial days of smoking, the tobacco smoke enters the body and affects the organs. Individuals who quit smoking at younger ages have higher rates of improving their health conditions. Individuals with a history of cancer are susceptible to cancer recurrence and long-term side effects. Damage caused by smoking is irreversible, but quitting smoking alters the health, reduces cancer risk, and improves the quality of life by 10 years.^[11] Misconception about immediately recovering health after quitting smoking should be addressed. The striking feature of our study is that the majority of the participants were aware of passive smoking. However, not many participants were aware of ill effects of smokeless tobacco. Literatures provide evidence that smokeless tobacco has the same carcinogenic effects as smoking cigarettes. Aboaziza and Eissenberg state that consumption of Waterpipe tobacco smoking is gradually increasing globally due to the lack of knowledge of nicotine content in tobacco smoke. This abuse of smokeless tobacco increases the intake of tobacco vapors in smokers.^[12]

Forty-seven percent of the participants disagree that nicotine in tobacco is more addictive than cocaine. This finding is in accordance with the literature by Roh who states that nicotine does not induce intoxication like caffeine or other drugs and cannot be addictive. Smokers with withdrawal symptoms tend to resume smoking due to changes in the structural patterns in the brain and not due to nicotine.^[13] Despite the awareness about tobacco causing ill effects to self and others, only 42% of the participants in the present study have tried to quit smoking and only 17% of the participants have visited a health-care provider to quit smoking in the past 12 months. Predominantly 95% of the participants notice the health warnings on the cigarette packages, and majority of them ignore the warnings. Emily T Hebert states that social media have an impact on delivering knowledge to young adults and high school children and might become an essential tool in reaching out to more population.^[13]

The authors acknowledge the presence of study limitations such as lesser sample size. The participants included were those with tobacco habit only, and knowledge regarding tobacco health hazards should also be evaluated in nonsmokers.

CONCLUSION

The present study provides an insight that even though the majority of the participants were aware of health risks associated with tobacco use, they chose to continue the tobacco habit. The negligence and ignorance is due to environmental issues surrounding the individual where smoking has become a

common habit. Decreasing the rates of cigarette manufacturing and increasing the counseling of the vendors to limit the supply of cigarette packages to young people could be a revolutionary start in making this world tobacco free.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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