Nicotine Addiction among Physical and Health Education Pre-Service Teachers

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ABSTRACT

Nicotine addiction is defined as the compulsive need to seek or use a substance despite its harmful effects and negative consequences. This study aims to identify the factors contributing to nicotine addiction, examine its effects, and assess the frequency of nicotine use among Physical and Health Education pre-service teachers at Central University. A quantitative research method was employed, involving the distribution of questionnaires during the pre-test, intervention, and post-test phases. In the first phase, demographic information and pre-test questionnaires were collected. Participants were then given five weeks to watch five educational videos, one per week. The second phase involved distributing post-test questionnaires to assess changes. Data were analyzed using SPSS software. The findings revealed that participants were interested in the educational videos and felt motivated to reduce nicotine intake in their daily lives. There was a significant improvement in the pre-test and post-test results across all three research questions. In summary, this study focused on nicotine addiction among Physical and Health Education pre-service teachers at Central University. Utilising a quantitative approach and educational videos, participants showed increased interest and motivation to quit nicotine intake. The post-test results indicated a significant improvement across all research questions, highlighting the effectiveness of educational interventions in raising awareness and potentially reducing nicotine addiction among the students. This underscores the importance of targeted educational efforts in fostering healthier habits among this population.

Keywords: Addiction, Health Education, Motivation, Nicotine

INTRODUCTION

Almost 90% of individuals who smoke began before the age of 18, and the majority began before the age of 26. According to the report, nearly three out of every four high school kids who smoke will become adult smokers, even if they want to quit in a few years. (Surgeon General's Report, 2014).Nicotine, a substance contained in tobacco products, increases addiction. When students use tobacco, nicotine immediately enters their bodies and travels straight to their brains. Nicotine boosts brain areas and makes pupils feel content and happy. Whether they smoke, vape, or dip, the nicotine they consume is highly addicting and can impair their developing brains. Nicotine addiction manifests differently in each person. Nicotine addiction raises the student's likelihood of becoming a lifetime smoker while also exposing them to the numerous hazardous compounds included in nicotine (Felson, 2023). Additionally, people with depression, schizophrenia, post-traumatic stress disorder, and other mental illnesses are more prone to smoke according to Healthcare Basel (2021).

The majority of smokers started while they were adolescents. Those with smoking peers and or parents are more likely to start smoking than those without. Some young people claim they "just wanted to try it" or thought smoking was "cool." The e-cigarette and other high-tech, fashionable electronic "vaping" devices have

a relatively recent effect on tobacco smoking. These devices, which are often considered less harmful and easier to purchase and use than traditional tobacco products, allow new users to learn how to inhale and grow addicted to nicotine, potentially preparing them to smoke.

Issues Lead-up to this Research

This study focused on nicotine addiction among Physical and Health Education students at Central University. Students use nicotine for a variety of reasons, including seeking excitement, escaping problems, and satisfying emotional and social needs. Nicotine addiction is the most common addiction among young people, particularly now that cigarettes are legal, with one in every two young people who try smoking becoming addicted. Understanding youth nicotine addiction will also improve the efficacy of health education programmes.

Nicotine firms use marketing efforts to portray smokers as cool, sexy, independent, fun, attractive, and brave. Images that appeal to a large number of youngsters. As a result, they try smoking, unknowing that they can become addicted after just 100 cigarettes (five packs). Only 5% of adolescent smokers want to continue smoking five years after graduation, yet they are unaware of how tough quitting might be. According to a study, 75% of smokers will continue to consume nicotine after eight years (Surgeon General's Report, 2014).

Researchers believe nicotine is the best-designed addiction drug because it not only releases dopamine but also causes it to remain in the chemical gap or cleft between brain cells for far longer than usual. For far too many children, a single strong puff, dip, or chew of nicotine is sufficient to keep them coming back for more. Others may need to use nicotine repeatedly over days, weeks, or even months until a mountain of salient memories overwhelms them, up-regulation occurs, and they think it is as essential as eating food or drinking water (Felson, 2023).

The feeling that you "need" a cigarette, chew or dip, a strong urge or craving to smoke or use oral tobacco, finding it difficult to concentrate, feeling more irritable, nervous, restless or anxious because the person couldn't smoke, dip or chew, finding it difficult to refrain from smoking or using oral nicotine products in places where it was not allowed to smoke, are all warning signs that nicotine use has already deprived the individual of the freedom and autonomy to turn and effortlessly walk. Urges and cravings are frequently the first signs that powerful nicotine-induced dopamine memories are impacting an individual’s life priorities.

The main aim of the study is to investigate nicotine addiction among Physical and Health Education pre-service teachers at Central University, specifically focusing on identifying the factors contributing to nicotine addiction, examining its effects, and assessing the frequency of nicotine use. Additionally, the study aims to evaluate the effectiveness of educational interventions in raising awareness and motivating participants to reduce or quit nicotine intake. Therefore, this study seeks to address the following questions: (1) what are the factors of nicotine addiction among Physical and Health Education students, (2) what are the effects of nicotine addiction towards them and (3) what are the levels of frequency of nicotine addiction among the participants?

LITERATURE REVIEW

The Autonomy Theory offers a new perspective on what it means to be nicotine dependent. The theory focuses on the capacity of individuals to make their own choices and govern themselves to develop a locus of control of their behaviour and goals (Ryan & Deci, 2017).To appreciate how radical, the Autonomy Theory is, it is necessary to first understand how nicotine dependence has traditionally been defined. For many years, many researchers have used the Diagnostic and Statistical Manual of Mental Disorders definition of dependence (DSM). Nicotine use is evaluated in this model based on its impact on the user's physical and social well-being. The temperance era's moralistic judgments were replaced with criteria that assess whether substance abuse is a self-destructive behaviour. Nicotine dependence is included in the DSM's general definition of substance dependency. A group of cognitive, behavioural, and physiological signs that indicate a person's persistent drug use despite significant substance-related problems are what characterise substance dependence

(DiFranza, 2002).

Students smoke for a variety of reasons, including the need for excitement, the escape from issues, and the satisfaction of emotional and social demands. Nicotine addiction is the most frequent addiction among young people, particularly now that cigarettes are legal, with one in every two young individuals who begin smoking becoming addicted(Surgeon General's Report, 2014).The most prevalent reason given by participants for starting smoking was their circle of friends, whereas the reason for continuing to smoke was their desire to relax. Students desire to try new things, such as cigarettes. Adolescent smoking is often motivated by peer pressure, a desire to emulate adult behaviour, or both (Kuwabara, 2023). Furthermore, cigarettes and e-cigarettes are cheap, making them affordable to young adults. Teen cigarette users get a rush of pleasure and, sometimes, tranquillity when they smoke(Wilkinson, 2007).

Students' ages mark a vital stage for brain growth and development because the brain is still "under construction." As a result, adolescents are especially exposed to the harmful effects of nicotine consumption. Research indicates that exposure to nicotine throughout adolescence can affect brain development in the long run and may increase the risk of developing a problem with other substances by changing the structure of the brain. According to several research, even at low levels, nicotine consumption throughout adolescence causes long-term abnormalities in brain development. This could hurt human adolescent learning, memory, attention, behaviour, and potential addiction (Felson, 2023).

METHODOLOGY

This study adopted a quantitative approach, and the final results will be explained using numerical evidence. This study is characterized as causal research since it examines a cause-and-effect relationship. Furthermore, this study uses simple random sampling to look at the factors that lead to nicotine addiction among students studying physical education and health education at Central University. Every member of the population has an equal probability of getting chosen using this sampling technique.

This study aims to better understand and reduce nicotine addiction among the participants. To collect baseline data on addiction factors, a pre-test and post-test design were used, with a complete questionnaire distributed to participants. After completion of the questionnaire, the participants were shown a series of five educational videos over five weeks (i.e., one video/week). This research aims to raise awareness and knowledge about nicotine addiction. During the post-test phase, students will be reassessed using the same questionnaire, as well as qualitative input on the educational intervention's success. The study's goal is to provide insights that may be used to inform targeted interventions and policies, so creating a better environment for students struggling with nicotine addiction.

Settings

Students from Central University studying physical education and health education participated in this study. The study employed simple random sampling. There are 250 undergraduate-level Physical Education students at the university. According to the Krejcie and Morgan table, the researcher's sample should consist of 152 physical education students. The researcher uses basic random sampling to ensure that all students have an equal chance of being chosen. The researcher uses random sampling since it is an unbiased way of selection. This is because everyone in a population has the same chance of getting chosen for a sample. The sample may represent a smaller, more manageable group of people who may be studied and analysed.

Instruments

The intervention study questionnaire was used in this research where the main researcher distributed the questionnaire to the targeted populations to do the comparison of the outcomes of the research at the end of the study period using the evaluation of the intervention. It contains questions on the perceptions and awareness of the respondents towards their addiction to nicotine. Demographic questions were first distributed to the respondents for identification and categorising purposes. The researcher asked whether the respondent was addicted to nicotine or not. If the respondents answer yes, they may continue to answer the questionnaire but if

they answer no they can stop answering. The questionnaire consists of 3 sections which are section I, section II and section III.

The questionnaire contains four sections including the factor of nicotine addiction, the impact of nicotine addiction, and the level of frequency of nicotine intake among physical and health education students at the university. Measurement was adopted from existing research scales and their application in previous studies.106,268 Korean self-reported never-smokers were examined for the association between second hand smoke exposure (SSE) and hypertension, which was confirmed by cotinine. The study looks at the factor of nicotine addiction among physical education and health education students to accomplish the first research goal, the researcher measures the relationship between second hand smoke exposure (SSE) and hypertension.

One popular method for assessing the level of physical nicotine dependency is the Fagerström Test for Nicotine dependency. The purpose of the test was to give an ordinal assessment of nicotine addiction in connection to smoking cigarettes. It has six metrics to evaluate dependency, cigarette consumption, and impulse to smoke. A 0 to 1 scale is used for yes/no questions in the Fagerstrom Test for Nicotine Dependency, while a 0 to 3 scale is used for multiple choice questions. The sum of the parts yields a final score between 0 and 10. The patient's total Fagerström score rises as a result of their physical reliance on nicotine. The second and third study goals are accomplished by the researcher through the use of the Fagerström Test as a measurement tool.

Aside from the ability to be unbiased, it is likely to determine small moderate effects of the intervention after the researcher conducted properly by conducting talks about the harm of nicotine to our health via online or video distributions to the respondents. After that, the researcher will distribute the questionnaire again to observe the improvements of the respondents.

Method of Data Collection

The researchers obtained permission from the university's Research Ethics Committee before surveying at the university. To collect data on nicotine addiction among Physical and Health Education students in the university; an online survey was considered a reliable method due to the higher educational institution context (Evans & Mathur, 2005, Khan, Nabi, Khojah, & Tahir, 2020).The provided Google form questionnaire will be distributed to physical and health education students via Whats App and Telegram groups.

The researcher will conduct an intervention study in which respondents need to do some activities once a week for 5 weeks after they answer the first questionnaire. The researcher has prepared several motivational videos about the dangers and consequences of nicotine addiction for the respondents to watch. After finishing the five weeks of activities, the respondents need to answer the questionnaire for the second time for the post-test results to be collected. This intervention study aims to educate and raise awareness among the participants. The video content will emphasize the negative impact of nicotine on health and well-being. Participants will be required to watch the motivational video before engaging in a series of weekly activities over 5 weeks. These activities are designed to contribute to the overall intervention strategy apart from promoting healthy lifestyles among students.

Data Analysis

A sample-paired T-test was employed to analyse the survey. The matched samples T Within a single group, the test procedure compares the means of two variables. The procedure finds out if the average deviates from zero by computing the differences between the values of the two variables for each occurrence. Additionally, the method automates the computation of the t-test effect size. The purpose of this analysis was also to ascertain how nicotine addiction affects students studying health and physical education. Aside from that, the objective is to help students studying physical education and health education overcome their addiction to nicotine. Percentages were used in the analysis of the study's data. A Paired-sample T-test will be used to determine whether there is a significant difference between the respondents' pre- and post-intervention watching the short clips related to tobacco.

The Paired Sample T-test is the most suitable data analysis for this study issue because of the exam scores' ratio format. The means of two measurements made on the same subject person, object, or unit are compared using the Paired Samples T-Test. According to Kent State University (2022), measurements should be made at two different times, such as the pre-and post-test scores, and treatments should be given in between.

RESULTS AND ANALYSIS

All results were collected based on the respondent's responses to the questionnaire via Google Form, which involves 142 students from the Faculty of Education at Central University. Statistical Package for Social Science (SPSS) (version 26.0)was used to analyse the data, to produce meaningful findings. This comprises the number of respondents, frequency, mean, standard deviation, and demographic data. Sample Paired T-Tests were used to analyse the study topics.

Of the eight semesters of students, a total of 45 (31.5%) of the students are from the age of 21 - 23 while another 98 (68.5%) are from 24 – 26 years old while the majority of the participants 133 (93%) are male while another 10 (7%) are female. Furthermore, there were 15 (10.5%) students from semester 3, 30 (21.0%) from semester 5, 10 (7.0%) students from semester 6, 33 (23.1%) students from semester 7, and 55 (38.5%) students from semester 8. And there was no respondent recorded from semester 4. In terms of residential area; a total of 102 (71%) of students reported staying at home while 41 (28.7%) were residing on campus.

The Factors of Nicotine Addiction

The first research question aims to identify the causes of nicotine addiction among the participants. This sample-paired T-Test was used to determine whether students' awareness increased significantly after watching five motivational movies for five weeks.

Table 1: T-test scores on the factor of nicotine addiction among participants post-intervention

Statement	Mean	Std. Deviation	t	df	Sig. (2-tailed)
Did any adult smoke at home during your childhood or adolescence (Before you turned 20 years old)?	0.14	0.512	3.268	142	0.001
Are you living, or have you lived with a habitual smoker since you turned 20 years old?	0.21	0.555	4.522	142	0
Are you currently exposed to passive smoke indoors at home or the university?	0.07	0.256	3.268	142	0
How many times have you experienced passive smoking indoors at home or the university?	2.53	0.626	48.37	142	0

From Table 1, the highest mean (mean = 2.53, SD = .626) shows that students have experienced many times passive indoor smoking at home or the university. On average, the students are living or have lived with a chronic smoker since they turned 20 years old (mean= .210, SD= .555) and students that have any adult smoke at home during their childhood or adolescence (Before they turned 20 years old) (mean= 140, SD= .512). The lowest rating by students is they are currently exposed to passive smoke indoors at home or university. This indicates that students have experienced many times passive indoor smoking at home or the university as a factor of nicotine addiction among the participants.

The Effect of Nicotine Addiction

Table 2: T-test scores on the effect of nicotine addiction among participants post-intervention

Statement	Mean	Std. Deviation	t	df	Sig. (2-tailed)
Do you experience shortness of breath or coughing related to tobacco use?	-0.72	0.45	-19.122	142	0
Have you noticed changes in your sense of taste or smell due to smoking?	-0.902	0.298	-36.172	142	0
Are you aware of any cardiovascular issues associated with tobacco use?	-0.825	0.535	-18.448	142	0
Have you experienced mood swings or irritability when unable to smoke?	-0.329	0.471	-8.34	142	0
Do you use tobacco to cope with stress or negative emotions?	-0.252	0.436	-6.912	142	0
Have you noticed changes in your concentration or attention span related to nicotine use?	0	0	0	142	0
Has your tobacco use affected your relationships with friends or family members?	-0.825	0.381	-25.889	142	0
Are there social situations where you feel compelled to smoke?	-0.888	0.316	-33.573	142	0
Have you faced social stigma or discrimination due to smoking?	-0.818	0.405	-24.168	142	0

From Table 2, the highest mean item2(mean = .902, SD = .298) shows that students noticed changes in their sense of taste or smell due to smoking. Item8 (mean= .888, SD= .316) shows social situations where you feel compelled students to smoke and item3 (mean= .825, SD= .535) shows students are aware of any cardiovascular issues associated with tobacco use. next, item 7(mean= .825, SD= .381) means tobacco use affected student's relationships with friends or family members and item 9 (mean= .818, SD= .405) means students have faced social stigma or discrimination due to smoking. Item 1(mean= .720, SD= .450) shows several students who have experienced shortness of breath or coughing related to tobacco use. After that item 4(mean= .329, SD= .471) shows students experienced mood swings or irritability when unable to smoke. Next, item 5(mean= .252, SD= .436) shows that students use tobacco to cope with stress or negative emotions. Lastly, item 6 (mean= .000, SD= .000) shows that all students did not notice any changes in their concentration or attention span related to nicotine use. This indicates that the participant shave noticed changes the most in their sense of taste or smell due to smoking as the effect of nicotine addiction.

The Level of Frequency of Nicotine Addiction

Table 3: Pre-test scores on the level of frequency of nicotine addiction

Question	Category	Frequency	Percent
Q1: How many cigarettes do you usually smoke per day?	10 or Less	10	7
	11 to 20	48	33.6
	21 to 30	85	59.4
	Total	143	100.00
Q2: How soon after you wake up do you smoke your first cigarette?	6 to 30 minutes	95	66.5
	31 to 60 minutes	48	33.6
	Total	143	100
Q3: Do you find it difficult to stop smoking in non-smoking areas?	Yes	133	93
	No	10	7
	Total	143	100
Q4: Do you smoke more often in the first hours after awakening than the rest of the day?	Yes	103	72
	No	40	28
	Total	143	100
Q5: Do you smoke if you are sick and stay in bed most of the day?	Yes	70	49
	No	73	51
	Total	143	100

Table 4: Post-test scores of the level of frequency of nicotine addiction

Question	Category	Frequency	Percent
Q1: How many cigarettes do you usually smoke per day?	10 or Less	131	91.6
	11 to 20	12	8.4

	Total	143	100
Q2: How soon after you wake up do you smoke your first cigarette?	Within 5 minutes	127	88.80
	6 to 30 minutes	16	11.2
	Total	143	100
Q3: Do you find it difficult to stop smoking in non-smoking areas?	Yes	5	3.5
	No	138	96.5
	Total	143	100
Q4: Do you smoke more often in the first hours after awakening than the rest of the day?	Yes	7	4.9
	No	136	95.1
	Total	143	100
Q5: Do you smoke if you are sick and stay in bed most of the day?	Yes	5	3.5
	No	138	96.5
	Total	143	100

Table 3 shows the frequency of students who usually smoke cigarettes per day. The findings found that 10 of the respondents (7.0%) smoke 10 or less cigarettes per day. Next 48 of the respondents (33.6%) smoked 11 to 20 cigarettes per day. Lastly, 85 of the respondents (59.4%) smoked 21 to 30 cigarettes per day. Next how soon after students wake up do they smoke their first cigarette? The findings found that 95 of the respondents (66.4%) smoke 6 to 30 minutes after they wake up. Next 48 of the respondents (33.6%) smoke 31 to 60 minutes after they wake up. Next, on the difficulty of stopping smoking in a non-smoking area question, the findings found 133 of the respondents (93.0%) answered yes. Next 10 of the respondents (7.0%) answered no. for how often students smoke more in the first hours after awakening than the rest of the day question. The findings found that 103 of the respondents (72.0%) answered yes. Next 40 of the respondents (28.0%) answer no. For student's smoke if they are sick they stay in bed most of the day. The findings found that 70 of the respondents (49.0%) answered yes. Next 73 of respondents (51.0%) answer no.

Table 4 shows the post-test of the frequency of students who usually smoke cigarettes per day. The findings found that 131 of the respondents (91.6%) smoke 10 or fewer cigarettes per day. Next 12 of the respondents (8.4%) smoked 11 to 20 cigarettes per day. And there is no respondent were smokes 21 to 30 cigarettes per day. This indicates that respondents have significant improvement compared to pre-test to post-teston the frequency of students who usually smoke cigarettes per day. Next, how soon after respondents wake up do students smoke their first cigarette? The findings found that 127 of the respondents (88.8%) smoked within 5 minutes after they woke up. Next 16 of the respondents (11.2%) smoked 6 to 30 minutes after they woke up. This means the educational videos work for respondents to control their nicotine addiction. Next, difficult to stop smoking in non-smoking areas. The findings found that 5 of the respondents (3.5%) answered yes. Next 138 of the respondents (96.5%) answers no. This indicates that respondents have significant improvement

compared from the pre-test to the post-test in many variables in this study.

DISCUSSION AND RECOMMENDATIONS

The Factor of Nicotine Addiction

Students have experienced many times passive indoor smoking at home or the university, and students have experienced passive indoor smoking at home from parents or siblings and at the university from roommates or classmates. From Table 4 the item Students have experienced many times passive indoor smoking at home or the university has the highest mean. This indicates that the biggest factor of nicotine addiction among students is they have experienced passive indoor smoking at home or university. This is supported by Front Public Health (2021) Parental smoking and nicotine dependence increase the likelihood of children starting to smoke, smoking regularly, and becoming addicted to nicotine.

Adolescents who smoke or use nicotine products may do so without fully comprehending the implications because they believe that doing so makes them look mature or rebellious. Peer influence predicts the start, persistence, and reliance on smoking, which has a significant impact on the aetiology and maintenance of smoking. It also serves as a starting point for the development of drug abuse. This is further corroborated by Kandel et al. (2007), who identified three social factors: the frequency of being around smokers among schoolmates (based on self-efficacy and PRIME theories), the number of friends who smoke, and the frequency of being around smokers among adults. The impact of social factors is one of the main reasons for nicotine addiction in students. The decision of a student to try nicotine can be greatly influenced by peer pressure, cultural standards, and the desire to fit in with a certain social group. Teenagers are particularly susceptible to outside influences since they are trying to fit in and find approval from their peers (Kandel et al. 2007).

The largest impact is the influence of parents and peers both at home and at school since these are the reasons why students who are exposed to tobacco or nicotine may be more likely to develop a nicotine addiction. These elements have a part in the development and maintenance of nicotine addiction in kids. If students observe other people their age using nicotine products, they are more inclined to use them themselves. Young people may use nicotine products more frequently if their parents do (Barube, 2021).

Therefore, pupils who are exposed to passive indoor smoking run the risk of developing a nicotine addiction; therefore, limiting exposure is essential to preventing nicotine dependency. Kuwabara (2023) asserts that exposure to passive smoke in adolescence can have an impact on an individual's decision to smoke. Research indicates that SHS throughout childhood is a separate risk factor for starting to smoke. Compared to children raised in non-smoking homes, children raised in smoking families have a higher chance of being exposed to second-hand smoke and smoking tobacco later in life (Barube, 2021).

Parents who smoke or have smoked themselves are often significant and consistent predictors of their children beginning to smoke; however, protective variables include an authoritative parenting style, open communication that demonstrates mutual respect between parent and child, and parental expectations not to smoke. It has been suggested that smoking by parents encourage their kids to start smoking since it affects their views about smoking as well as replicates the practice. Growing up in a household where one or both parents smoke not only gives kids access to cigarettes but also affects how they feel about smoking, claims Wilkinson (2007). It has been noted that a strong and reliable predictor of youth smoking is having a parent who smokes or has smoked.

In addition to having a direct behavioural impact, parental smoking alters the attitudes of their offspring towards smoking, which further impacts the conduct of the offspring. The significance of passive indoor smoking, whether at home or school, on adolescents' addiction to nicotine is shown by these data.

The Effect of Nicotine Addiction

The responses gathered in Table 4.6 indicate that students have noticed the most alterations in taste and smell

due to nicotine addiction. Taste and smell perceptions are significantly impacted by smoking. Tar build-up on the tongue and nasal passages causes regular smokers to gradually lose their sense of taste and smell. Chronic cigarette smoking, greater exposure to nicotine, and/or nicotine dependency are associated with a higher risk of taste changes (Barube, 2021). Smoking can negatively impact taste function in both direct and indirect ways, with the degree of harm likely varying depending on the amount of smoking one does.

Increased exposure to nicotine and cigarette smoke has been shown to decrease the number of anatomical structures associated with taste. Taste and smell sensations gradually decrease in regular smokers. Tar in their nasal passages and tongue is the reason for this. A smoker might not realise this until after quitting and noticing changes in the flavour and aroma of food. Additionally, long-term smoking can cause xerostomia, which alters taste and oral sensation and reduces salivary flow. Tobacco use can also change the vascularization, quantity, and shape of taste buds, which can change how a flavour is perceived (Fraga Da Ré, 2018). The respiratory tract is significantly affected by cigarette smoke, and the most common effects are inflammation, mutagenicity, and carcinogenesis. While some of its constituents are harmful to the respiratory tract and may result in cell damage or death, others weaken sensory systems. Allessandra Fraga Da Ré (2018) claims that the compounds in smoke have the potential to lessen the airways' capacity to clear debris and to encourage the hyperplasia of mucus cells, which increases the production of mucus. It seems plausible that nicotine receptors elicit the same response in the central nervous system as they do in peripheral sensory organs.

By-products of nicotine can distort taste perception, making smokers less sensitive to salty flavours. Many of the compounds included in tobacco, such as metals, nitrogen oxides, carbon monoxide, and nicotine, are irritating and carcinogenic. According to Kale (2019), the most frequent causes of taste anomalies are oral and perioral infections, as well as oral appliances. Additionally, nicotine modifies the papillae's vascularization, size, and form, which reduces the quantity of taste receptor cells and changes the salivary glands. Nicotine modulates the taste signal centrally, which is another factor contributing to diminished taste sensitivity (Pavlos, 2009).

According to Graff (2017), damage to the nicotinic neurotransmitter system is a good predictor of a variety of illnesses. Smoking and exposure to noxious chemicals were even mildly protective of odour perception. Nicotine activates the system. In theory, increasing stimulation of that system may protect it from damage that would otherwise cause sensory difficulties and potentially neurological illnesses.

Addiction to nicotine and smoking can affect how well one perceives taste and smell, altering the entire sensory experience and potentially influencing dietary habits and food preferences. As stated by Alkerwi et al. (2017), tongue tip bitter and salt sensations were shown to be less acute in current smokers with greater cigarette exposure than in never smokers, especially among younger smokers. This suggests that smoking may systematically impact tongue tip taste function. Overall, the senses of taste and smell can be severely impacted by smoking and nicotine addiction, which can change smokers' eating habits and overall sensory experience. Primary care physicians can learn about the patient's history of taste perception alterations.

The Level of Frequency of Nicotine Addiction

University students' usage of nicotine varies, and it's not the only thing affecting how addicted they are to nicotine. However, research has shown that the frequency of smoking increases the strength of nicotine addiction, as stated by Aldhahir (2022).According to La Jeunesse (2020), nicotine addiction often has psychological roots, making it difficult for students to break the habit. Stress, anxiety, and academic pressure can lead students to seek solace in nicotine, believing it will provide a temporary escape from their problems. The addictive nature of nicotine exacerbates the problem, as it creates a cycle in which people turn to the substance in times of stress, only to become increasingly dependent on it over time.

Furthermore, the participants may develop a psychological addiction to nicotine as a coping mechanism for a variety of emotional states. Nicotine's stimulating effects can provide a sense of relaxation or focus, making it appealing to people who suffer from mood disorders or attention problems. This psychological dependence, combined with the physiological addiction to nicotine, presents a formidable challenge for students attempting

to quit. Furthermore, identity formation is an important concept. Students who are struggling with self-discovery may turn to smoking or vaping to express rebellion or independence. The allure of belonging to a nicotine-using subculture can outweigh the health risks, as students prioritise the immediate gratification of social acceptance.

To summarise, the rise of nicotine addiction among students is a complex issue influenced by social, psychological, and environmental factors. Addressing this complex issue requires a multifaceted approach that includes education, awareness campaigns, stricter regulations, and support systems for those attempting to overcome nicotine addiction. Educators and policymakers can collaborate to create an environment in which students can thrive while avoiding the grip of nicotine addiction. The causes of nicotine addiction in students are complex and interconnected, necessitating a comprehensive intervention strategy. Recognising the complex interplay of social, psychological, and environmental factors allows for the development of targeted prevention and cessation strategies. Educators, healthcare professionals, and policymakers can work together to implement effective solutions to this pressing public health issue by fostering a comprehensive understanding of the complexities involved.

CONCLUSION

Some limitations worth noting in clued the research has been conducted at only one university. Therefore, the outcomes are limited to the study context and not suitable for generalisation of the findings. Another limitation is the area of the university, which is situated in an urban area. As a result, participants' perceptions in this study might not be the same as others that may originate from rural areas. Future research might make use of bigger sample numbers, longer study periods, and a range of data-gathering techniques to build on our findings. Moreover, integrating qualitative and quantitative approaches might result in a more comprehensive comprehension of the intricacy of nicotine addiction. Finally, this study contributes to our understanding of the complexity of nicotine addiction among undergraduate pre-service physical education and health education teachers. The results open the door to better-informed therapies, highlighting the need to foster healthier surroundings and increasing public knowledge of the physiological effects of nicotine addiction.

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