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ASSESS AND COMPARE THE NICOTINE DEPENDENCE AND THE CHANGES IN ORAL HEALTH DUE TO TOBACCO USE AMONG AND BETWEEN SMOKING AND SMOKELESS TOBACCO USERS

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ABSTRACT

In order to better grasp the most important aspects of health behaviors, this model aids nurses in their pursuit of knowledge. Counseling may be a powerful tool for encouraging positive behavioral changes that lead to healthier lifestyles. Over time, using nicotine in any form may negatively impact oral health and increase the risk of developing tobacco-related disorders. Activities aimed at creating measures that might preserve or increase a personal wellness are required by this health promotion paradigm.

KEYWORDS: Clinical Medicine, Clinical Pre-Clinical and Health, Public Environmental and Occupational Health

INTRODUCTION

It has long been thought of as a "bad habit" to smoke cigarettes. Tobacco products include nicotine, which is now thought of as an addictive drug. As a neurotransmitter, nicotine releases the addictive chemical dopamine into the brain. As a person continues to smoke, their brain levels of the neurotransmitter dopamine rise, causing a fleeting yet pleasurable sensation. Tobacco use, including start, maintenance, and the impulse to continue smoking, is characterized by nicotine dependency. The degree of nicotine dependence in a person's blood determines the physical, psychological, and behavioral aspects of addiction. Addiction to smoking was often described as a "need" for cigarettes due to the interaction of physical, psychological, and social processes, according to a meta-analysis research that drew from PubMed, Embase, CINAHL, and PsycINFO. The vast majority of smokers, according to quantitative research, both perceive and experience the addictive properties of smoking.

Changes in oral health, such as red and white lesions, gum and periodontal issues, and precancerous lesions, may occur when people smoke. Tobacco smokers may improve their oral health and reduce the severity of their symptoms by quitting. Gum bleeding, periodontal pockets, and functional limitations were shown to be common among adult smokers, according to research on oral health-related quality of life (OHRQoL). The results showed that ST users had a greater impact on OHRQoL and more oral health concerns than non-users.

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LITREATURE REVIEW

Shukla (2019) Although it poses serious health risks to humans, smokeless tobacco (SLT) has found widespread usage as a narcotic. There are 28 recognized carcinogens in SLT, with the most dangerous being nitrosamines that are particular to tobacco. Damage to the membranes of red blood cells (RBCs), an increase in apoptosis, and an inflammatory state have all resulted from this metabolic situation challenge. Thus, the current investigation was launched to assess the negative impacts of SLT on hematological parameters and to determine whether there was a connection between them. Research tools and techniques: Fifty SLT users and fifty nonusers made up the study's subject pool of one hundred. To assess any changes in the oral mucosa, a thorough clinical examination was conducted in addition to collecting comprehensive demographic data and medical history. In order to examine the hemodynamic variables, venous blood samples were collected. The results showed that compared to nonusers, SLT users' whole blood profiles changed significantly. Form of SLT was negatively correlated with all hematological indicators with the exception of total leucocyte count, which was positively correlated. In conclusion, the present investigation sheds important light on the impact of SLT mediated effects on a whole hemogram and may help raise awareness about the risks of its use. Additionally, it acts as a warning signal for those who use SLT as a substitute for tobacco.

Jaganmohan (2011) The purpose of this research was to determine if smokeless tobacco had any impact on a number of biochemical and hemostatic variables. Hematological indices of Autodrivers, such as hemoglobin content, white blood cell and leukocyte counts, and monocytes and basophils count, were shown to be lower in Gutka users compared to controls. People who drank Gutka had higher levels of biochemical markers in their blood, including glucose, protein, and serum cholesterol. Consumption of Gutka was associated with lower levels of blood protein and significantly higher levels of serum cholesterol and glucose compared to control subjects. Gutka chewers differed significantly from controls across a variety of hematological and biochemical markers.

Biswas (2015) Many people across the world, and especially in India, are still at risk from smokeless tobacco (SLT). It has been suggested that ingesting tobacco may induce physiological stress, which poses a significant toxicological concern. Researchers examined a wide range of pathophysiological, clinico-biochemical, antioxidant, PBMC cell cycle progression, and RBC morphological alterations in research that comprised 47 SLT users and 44 non-users. Thirteen individuals who used SLT and twelve people who did not had their p53, p21, Bax, Bcl-2, IL-6, TNF- α, Cox-2, and iNOS expression levels studied. The groups that were tested showed statistically significant differences ($p < 0.05$) in parameters such as CRP, random glucose, serum cholesterol, TG, HLDL-C, LDL-C, VLDL-C, neutrophil count, monocyte count, ESR, SOD (PBMC), and TBARS (RBC membrane). Important new information on the

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effects of SLT on stress and systemic toxicity is provided by the present research. This has posed a problem for the metabolic state, which has escalated the inflammatory status, accelerated cell death, and damaged red blood cell membranes. Metabolic, clinical, and biochemical measurements supported the aforementioned conclusions. An essential publication on the deadly consequences of SLT, this may be the first comprehensive study of its kind.

Ukoha (2012) We looked at how several hematological and hemostatic parameters were affected in Wistar rats when exposed to sub-lethal doses of tobacco delivered orogastrically. Methods: The research used twenty young male Wistar rats ranging in weight from 220 to 220 g. At a dosage of 10 mg/200 g rat body weight, the oral LD50 for the tobacco snuff concentration was calculated. For six weeks, the experimental groups (B, C, and D) were given varying doses of tobacco snuff orally with the use of an orogastric tube; group A received 1 milliliter of distilled water as a control, while groups B, C, and D received 4 milligrams, 6 milligrams, and 8 milligrams per 200 grams of body weight, respectively. The following parameters were measured from blood samples: hematocrit, RBC, WBC, and platelet counts; bleeding time; and blood clotting time. Findings: Our data showed that groups C and D had significantly higher total white blood cell counts ($P < 0.05$ and $P < 0.001$, respectively) compared to the control group. Group D had lower red blood cell counts ($P < 0.05$), all experimental groups had lower platelet counts ($P < 0.001$), and groups C and D had higher blood clotting time ($P < 0.05$ and $P < 0.001$, respectively). In terms of hematocrit and bleeding time, however, snuff use did not show any significant impacts on the experimental groups. In conclusion, our results suggest that the body may be at risk for unfavorable hematological and hemostatic disorders due to persistent tobacco use at greater sub-lethal levels.

Shaik (2021) Both smoked and smokeless tobacco (SLT) varieties of tobacco are popular worldwide. Consumption of smokeless tobacco frequently leads to biochemical alterations of plasma parameters and indicators of oxidative stress development; consequently, the effects of nicotine and tobacco-specific N-nitrosamines, the primary components of smokeless tobacco, are intriguing to investigate. Most people who use smokeless tobacco products, such as khaleja gutkha and mahak chaini khaini, take them three to five times daily. We observed a considerable rise in plasma glucose, total cholesterol, and triglycerides, as well as a marked decline in high-density lipoprotein (HDL) cholesterol, all of which are indicators of an increased risk of atherosclerosis. Protein carbonyls (PCO), nitric oxide (NO), lipid peroxidation (LPO), and plasma peroxynitrites ($ONOO^-$) were also shown to be considerably enhanced. Nicotine may be to blame for the oxidative and nitrosative stress that indirectly induces cardiovascular risk, as plasma nicotine and cotinine levels were considerably raised in the research participants. In exposed smokeless tobacco (gutkha) users, there was a substantial association between nicotine and reactive

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nitrogen species (RNS), cholesterol, and creatinine. Nicotine causes free radicals and oxidative damage, which puts SLT users at increased risk for cardiovascular disease, according to these studies.

MATERIALS AND METHODS

Participants

All adult tobacco users living in the villages are considered part of the population in this research. Adults in the chosen villages of Mappedu, Thiruvallur District, Tamil Nadu, who used tobacco in any way (smoking or not) were considered part of the accessible population. Both the smoking and smokeless groups were comprised of adult tobacco users who had used either smoking or smokeless tobacco for at least a year prior to the study. A non-probability purposive selection strategy was used to choose adult tobacco users who fulfilled the inclusion criteria. For this reason, a total of 100 adult tobacco users were chosen, with 50 smokers and 50 smokeless smokers assigned to each group.

Methodology:

After describing the significance of the research to the President of Mappedu Village, formal approval to perform the study was gained. Participants were given a thorough explanation of the research techniques (interventions) and their advantages before they were asked to provide their informed permission. There was a preliminary examination the same day. First day data was collected from socio-demographic characteristics for the pre-test. Data on tobacco use was culled from the clinical variable.On the very same day, the ADVISE TCP Intervention technique was given. Tobacco usage was calculated and participants were informed of both the monthly and lifetime expenditures.In order to determine the specific region of addiction and the extent of nicotine dependence, the Fagerstrom addiction scale and Areas of Addiction were administered. The researcher examined the mouth to determine the effects of tobacco usage on the oral cavity. Knowledge dissemination on the dangers of tobacco smoking in the mouth via the use of a pictorial instructional module (PIM). Both groups underwent the same assessment at the end of the seventh and fifteenth days after quitting tobacco to determine any changes in their oral cavities; these assessments were referred to as Post-test I and Post-test II.

RESULTS

Comparison Smoking Smokeless tobacco users on addiction reason and Fagerstrom addiction scale

The Fagerstrom addiction scale and its addiction cause score are shown in Table 1. A score of 12.6 indicates a dependence on smokeless tobacco, but a score of 13.0 indicates an addiction to smoking. There was no determination of statistical significance (P = 0.322). Compulsion levels average 9.1 and 9.9 for Fagerstrom addicts, respectively. Furthermore, there was no statistical significance determined by Student's unpaired 't'

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test (P = 0.076). What this shows is that the addiction trigger for smokers and smokeless tobacco users is the same.

Table 1 Comparison Smoking Smokeless tobacco users on addiction reason and Fagerstrom addiction scale

S. No.	Parameter	Groups	Mean	SD	SE	Student's 't' test
1	Addiction	Smoking	13.0	1.4	0.2	t = 0.995
	reason score	Smokeless	12.6	1.8	0.3	P = 0.322
2	Fagerstrom	Smoking	9.1	2.0	0.3	t = 1.793
	addiction scale	Smokeless	9.9	2.3	0.3	P = 0.076

The 't' and 'P' values are by Student's paired 't' test

Effectiveness of Tobacco Cessation Programme on symptoms in oral Cavity among Smoking Tobacco Users:

The data in Table 2 show the oral cavity symptom prevalence among smokers, together with the median, 25th, and 75th percentiles. There were 6, 3, and 1 (score) median oral cavity symptoms in the pre-test, post-test 1, and post-test 2, respectively. The Kruskal-Wallis one-way ANOVA approach shown statistically significant differences (P < 0.001). If we compare the pre-test with the first post-test, we find a substantial difference (P < 0.001). Significant results were also obtained when comparing the pre-test and post-test 2 (P < 0.001). According to Dunn's Method with post-hoc multiple comparisons, both the first and second post-tests were statistically significant (P < 0.001). The symptoms in the mouth subsided with time, as seen below. The Tobacco Cessation Program was effective, as shown by a 5-point reduction in symptoms between the pre- and post-tests.

Table 2 Effectiveness of Tobacco Cessation Programme on symptoms in oral Cavity among Smoking Tobacco Users

S. No.	Comparisons	Median	25th percentile	75th percentile	Kruskal Wallis one-way ANOVA
1	Pre-test	6	4	8	H = 88.828
	Post-test 1	3	2	4	P < 0.001
	Post-test 2	1	1	2	
	Comparisons		**Difference of Ranks**		**Dunn's Method**
2	Pre-test				Q = 4.790
	Post-test 1		41.002		P < 0.001
3	Pre-test				Q = 9.337
	Post-test 2		80.338		P < 0.001
4	Post-test 1				Q = 4.549
	Post-test 2		39.335		P < 0.001

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The 'F', 'Q' and 'P' values are by Kruskal Wallis one-way ANOVA on ranks with post-hoc Dunn's test.

Effectiveness of Tobacco Cessation Programme on symptoms in oral Cavity among Smokeless Tobacco Users:

Tobacco smokers' oral cavity symptoms are shown in Table 3, along with the median, 25th, and 75th percentiles. Before the test, the median oral cavity symptoms were 5, 3, and 1 (score), respectively. This was followed by the first and second post-tests. The Kruskal-Wallis one-way ANOVA approach shown statistically significant differences ($P < 0.001$). If we compare the pre-test with the first post-test, we find a substantial difference ($P < 0.001$). Using Dunn's Method with post-hoc multiple comparisons, there was a significant difference ($P < 0.001$) between the pre-test and the post-test 2. Statistical significance was also found in both the first and second post-tests ($P < 0.001$). The symptoms in the mouth subsided with time, as seen below. There was a four-point drop in symptom scores between the pre- and post-tests, demonstrating that the tobacco cessation program was effective.

Table 3 Effectiveness of Tobacco Cessation Programme on symptoms in oral Cavity among Smokeless Tobacco Users

S. No.	Comparisons	Median	25th percentile	75th percentile	Kruskal Wallis one-way ANOVA
1	Pre-test	5	4	6	H = 102.901
	Post-test 1	3	2	4	P < 0.001
	Post-test 2	1	0	2	
	Comparisons		**Difference of Ranks**		**Dunn's Method**
2	Pre-test				Q = 10.040
	Post-test 1		86.151		P < 0.001
3	Pre-test				Q = 4.970
	Post-test 2		41.959		P < 0.001
4	Post-test 1				Q = 5.125
	Post-test 2		44.192		P < 0.001

CONCLUSION

This study's findings support the 5A model of tobacco cessation programs, which includes the Pictorial Instructional Module (PIM) for tobacco use education, in reducing and preventing changes in oral health, such as red and white lesions, gum and periodontal problems, and precancerous lesions. Incorporating PIM education into the Tobacco cessation program is beneficial, and the results back up the notion.

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