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"Assess The Effect Of Long Term Smoking On Salivary Flow Rate And Salivary Ph Among Adult Male.

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ABSTRACT

Background: Saliva is a complex and important body fluid, which is very essential for oral health. Saliva is required for protecting the oral mucosa, teeth remineralization, digestion, taste sensation, pH balance and phonation. Smoking is a behavior that is associated with increased risks of diseases worldwide. The consumption of tobacco has reached the proportions of global epidemic where over 15 billion cigarettes are smoked worldwide and are expected to increase due to the expansion of the world's population.

Objectives

1. To assess the effect of long term smoking on salivary flow rate among adult male.
2. To assess the effect of long term smoking on salivary PH among adult male.
3. To determine the association between smokers on salivary flow rate and salivary PH among adult male.

Methodology :A quasi experimental study was conducted to assess the effect of long term smoking on salivary flow rate and salivary PH among adult male in selai, thiruvalur Chennai. The main study was conducted on 15.4.2021 to 24.4.2021 at rural area, selai, thiruvalur, Chennai. The 60 samples who met the inclusion criteria were selected by Convenience sampling technique. The investigator induced and explained the purpose of the study to samples and the written informed consent. Semi-structured questionnaire was used to collect demographic data and SFR and salivary PH was assessed using (indecorum paper) PH indicator.

Result : The significant findings of the study are, The study shows that out of 30 samples level of SFR in smokers group among adult male, 3(10%) have increased SFR, 9(30%) have normal SFR and 18(60%) have decreased SFR. The study identifies that out of 30 samples level of SFR in non-smokers group among adult male, 5(17%) have increased SFR, 21(77%) have normal SFR and 2(6%) have decreased SFR.The present study shows that the mean score of SFR among smokers was 10.70±1.91 and mean score among non-smokers was 9.74±1.93. The calculated adult male independent 't' test value of t = 2.497 was found to be statistically significant at $p<0.05$ level. The study identifies that the mean score of salivary PH among smokers was 8.90±2.49 and mean score among non-smokers was 7.82±2.88. The calculated adult male independent 't' test value of t = 2.006 was found to be statistically significant at $p<0.05$ level.The study The findings suggested that the demographic variable of age, dietary pattern and frequency of cigarette use per day had shown statistically significant association with level of SFR among adult male in smokers group at $p<0.005$ and the other demographic variables had not shown statistically significant association with level of SFR among adult male in smokers group.

Conclusion : The Present study indicates that the SFR decreases appreciably among smokers than in non-smokers. A lower (acidic) salivary pH was observed in smokers as compared with non-smokers. These alterations in SFR and pH due to long-term eject of tobacco user can render oral mucosa vulnerable to various oral and dental diseases.

Key words: Effect, Long Term Smoking, Salivary, Flow Rate, Ph, Adult, Male.

I. INTRODUCTION

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Saliva is a complex and important body fluid, which is very essential for oral health. Saliva is required for protecting the oral mucosa, teeth remineralization, digestion, taste sensation, pH balance and phonation. It includes a variety of electrolytes, peptides, glycoproteins, and lipids which have antimicrobial, antioxidant, tissue repair, and buffering properties. Therefore, altered whole-mouth salivary flow rate (SFR) has an important role in the pathogenesis of oral and dental diseases. Saliva is the first biological fluid that is exposed to cigarette smoke, which contains numerous toxic compositions responsible for structural and functional changes in saliva.

Saliva is an important body fluid consisting of a variety of constituents which play an essential role in maintaining oral health. It is necessary for growth and maturation of taste buds, protection and lubrication of the oral mucosa, maintenance of integrity of enamel by tooth remineralization, stimulation, dilution, and cleaning, pH balance, and phonation. It has been used as a source of non-invasive investigation of various body parameters as it is the most easily accessible fluid in the human body.

Saliva, the fluid in the mouth, is a combined secretion of the three pairs of salivary glands: The parotid, the submandibular and the sublingual; together with numerous small glands. When flow is unstimulated, the parotid, submandibular, sublingual and minor mucous glands contribute about 25%, 60%, 7-8% and 7-8%, respectively, to whole saliva, but when flow is stimulated, the parotid glands contribution increases by at least 10%. Approximately, 0.5 L of saliva is secreted per day. The salivary flow rates (SFRs) are 0.3 ml/min when unstimulated and rise to 1.5-2.0 ml/min when stimulated but flow rate is negligible during night.

II. MATERIALS AND METHODS

A quasi experimental study was conducted to assess the effect of long term smoking on salivary flow rate and salivary PH among adult male in selai, thiruvalur Chennai. The main study was conducted on 15.4.2021 to 24.4.2021 at rural area, selai, thiruvalur, Chennai. The 60 samples who met the inclusion criteria were selected by Convenience sampling technique. The investigator induced and explained the purpose of the study to samples and the written informed consent. Semi-structured questionnaire was used to collect demographic data and SFR and salivary PH was assessed using (indecorum paper) PH indicator.

III. RESULTS AND DISCUSSION

SECTION 1: Description of sample characteristics

Most of the adult male in the Non-smokers group, 14(46%) were aged between 20–30 years, 11(36%) were Hindu, 15(50%) were graduate, 12(40%) were government employee, 14(46%) were earning 5000 - 15000, 19(63%) were Non-vegetarian, 16(54%) were affected by hypertension, 0(0%) weren't taking cigarettes.

SECTION II: ASSESSMENT OF LEVEL OF KNOWLEDGE ON FLAX SEEDS AMONG TYPE IIDIABETIC CLIENTS

Table I: Frequency and percentage distribution of level of SFR among adult male in smokers and non-smokers group.

LEVEL OF SALIVARY FLOW RATE	SMOKERS GROUP		NON-SMOKERS GROUP	
	FREQUANCY	PERCENTAGE	FREQUANCY	PERCENTAGE
INCREASED	3	10%	5	17%
NORMAL	9	30%	21	77%
DECREASED	18	60%	2	6%

Table I shows that out of 30 samples level of SFR in smokers group among adult male, 3(10%) have increased SFR, 9(30%) have normal SFR and 18(60%) have decreased SFR. Then out of 30 samples level of SFR in non-smokers group among adult male, 5(17%) have increased SFR, 21(77%) have normal SFR and 2(6%) have decreased SFR.

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The study The findings suggested that the demographic variable of age, dietary pattern and frequency of cigarette use per day had shown statistically significant association with level of SFR among adult male in smokers group at p<0.005 and the other demographic variables had not shown statistically significant association with level of SFR among adult male in smokers group.

Figure 1: Frequency and percentage distribution of salivary PH among adult male in smokers and non-smokers group.

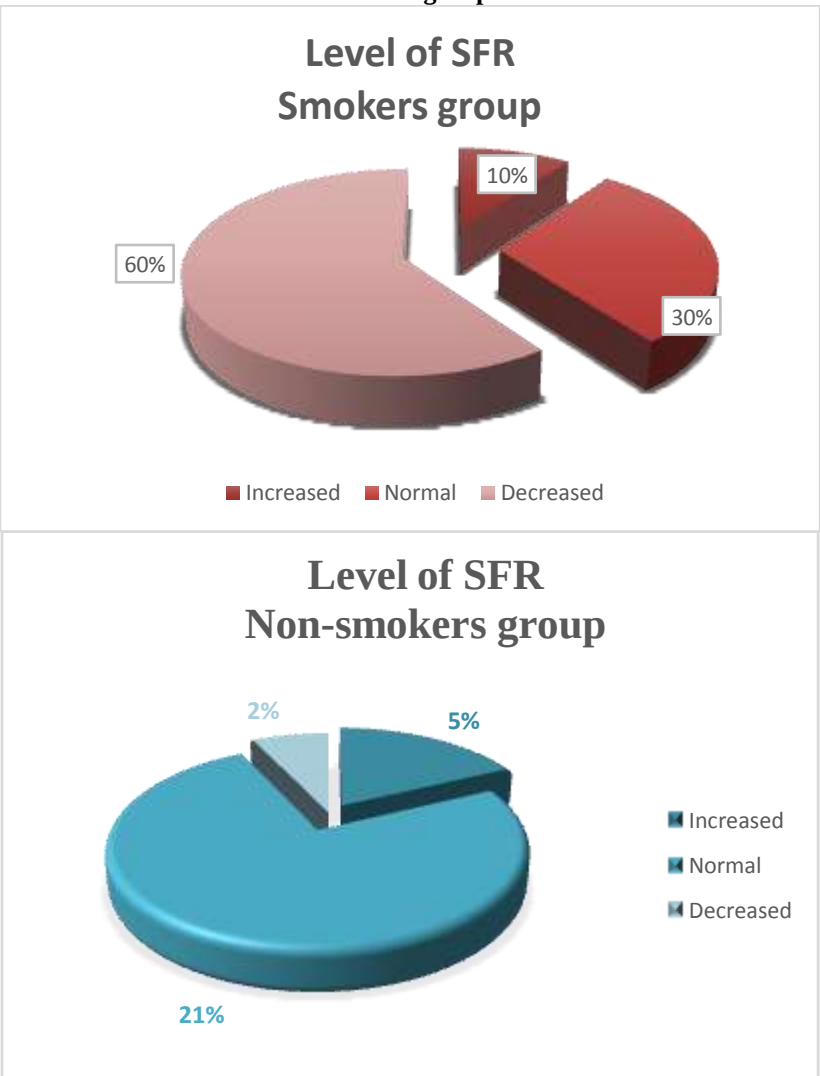

TABLE II: Distribution of mean and standard deviation oflevel of SFR and salivary PH among adult male in smokers and non-smokers group.

N = 60(30+30)

Catergory	Variables	Mean	S.D	Adult male Independent 't' test Value
SALIVARY FLOW RATE	Smokers group	10.70	1.91	t = 2.497 p = 0.014 S*
	Non-smokers group	9.74	1.93	
SALIVARY PH	Smokers group	8.90	2.49	t = 2.006 p = 0.048 S*
	Non-smokers group	7.82	2.88	

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*p<0.05, S – Significant

TABLE II shows that the mean score of SFR among smokers was 10.70±1.91 and mean score among non-smokers was 9.74±1.93. The calculated adult male independent 't' test value of t = 2.497 was found to be statistically significant at p<0.05 level.

TABLE II shows that the mean score of salivary PH among smokers was 8.90±2.49 and mean score among non-smokers was 7.82±2.88. The calculated adult male independent 't' test value of t = 2.006 was found to be statistically significant at p<0.05 level.

SECTION III

TABLE III : Association between levels of SFR in smokers groupwith demographic variable of adult male.

N=60(30+30)

S. No.	Demographic Variables	Increased		Normal		Decreased		Chi-Square Value
		No.	%	No.	%	No.	%	
1.	**AGE**							
	a) 20 – 30 years	1	3.3	6	20	3	10	**χ^2=3.337 d.f=2 p = 0.05 S***
	b) 31 – 40 years	0	0	4	13.3	1	3.3	
	c) 41 – 50 years	2	6.6	9	30	4	13.3	
2.	**RELIGION**							
	a) Hindu	2	6.6	8	26.6	4	13.3	χ^2=0.019 d.f=1 p = 0.889 N.S
	b) Christian	1	3.3	5	16.6	2	6.6	
	c) Muslim	1	3.3	5	16.6	2	6.6	
3.	**EDUCATION**							
	a) No formal education	2	6.6	8	26.6	4	13.3	χ^2=3.193 d.f=3 p = 0.363 N.S
	b) Primary	0	0	3	10	1	3.3	
	c) Secondary	1	3.3	5	16.6	2	6.6	
	d) Graduate	0	0	3	10	1	3.3	
4.	**OCCUPATION**							
	a) Daily wager	1	3.3	9	30	4	13.3	χ^2=1.287 df= 2 p=0.525 N.S
	b) Government employee	0	0	3	10	1	3.3	
	c) Private employee	0	0	3	10	1	3.3	
	d) Unemployed	1	3.3	5	16.6	2	6.6	
5.	**FAMILY INCOME**							χ^2=5.351 d.f=6 p = 0.500 N.S
	a) <5000	2	6.6	9	30	4	13.3	
	b) 5000 - 15000	1	3.3	6	20	3	10	
	c) >15000	1	3.3	3	10	1	3.3	
6.	**Diet habits**							**χ^2=10.474**

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S. No.	Demographic Variables	Increased		Normal		Decreased		Chi-Square Value
		No.	%	No.	%	No.	%	
	a) Vegetarian	0	0	2	6.6	0	0	**d.f=4 p = 0.033 S***
	b) Non vegetarian	7	23.3	14	46.6	9	30	
7.	**COMORBIDITY DISEASE**							χ^2=6.553 d.f=4 p = 0.161 N.S
	a) DM	1	3.3	5	16.6	2	6.6	
	b) Hypertension	2	6.6	9	30	3	10	
	c) TB	1	3.3	5	16.6	2	6.6	
8.	**FREQUENCY OF CIGARETTE USE PER DAY**							**χ^2=4.062 d.f=4 p = 0.05 S***
	a) 1-3	1	3.3	5	16.6	2	6.6	
	b) 4-6	2	6.6	10	33.3	3	10	
	c) >6	1	3.3	4	13.3	1	3.3	

S*: Significant; N.S: Non significant

Above table reveals that, chi-square analysis was done to find out the association between the level of SFR with their selected demographic variables. The findings suggested that the demographic variable of age, dietary pattern and frequency of cigarette use per day had shown statistically significant association with level of SFR among adult male in smokers group at $p<0.005$ and the other demographic variables had not shown statistically significant association with level of SFR among adult male in smokers group.

IV. CONCLUSION

From the present study, it can be concluded that the long-term smoking significantly reduces the SFR and salivary PH and increases oral and dental disorders associated with dry mouth, especially cervical caries, gingivitis, tooth mobility, calculus and halitosis oral candidiasis, which can manifest itself as erythema, white plaque, thrush, median rhomboid glossitis, and angular cheilitis.

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AUTHORS CONTRIBUTION

All the authors actively participated in the work of study. All the authors read and approved the final manuscript.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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