

# The Effect of Smoking on Oral Health

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## ABSTRACT

The negative effects of cigarette smoking on oral health are well established, yet few studies assessed patient awareness of such effects. Smoking dental patients are significantly less aware of the oral health effects of smoking than non-smokers. In order to raise the awareness of the negative impact of smoking on oral health and ultimately concern the wellbeing of all people, I decided to conduct research on this topic. While conducting research, three facts were discovered: long term smoking would significantly reduce whole-mouth salivary flow rate, SFR, increased sensitivity in tooth and toothache, and loss of natural teeth when aging. First, the change in the resting whole-mouth salivary flow rate (SFR) plays a significant role in pathogenesis of various oral conditions. An experiment was conducted on one hundred non-smokers and smokers. The result showed that the mean ( $\pm$ SD) salivary flow rate was 0.38 ( $\pm$  0.13) ml/min in smokers and 0.56 ( $\pm$  0.16) ml/min in non-smokers. The findings indicated that long-term smoking would significantly reduce SFR and increase oral and dental disorders associated with dry mouth, especially cervical caries, gingivitis, tooth mobility, calculus, and halitosis. Next, according to the Canadian Community Health Survey, the prevalence of edentulism was 15% among current smokers compared with 7% among those who had never smoked. Finally, current smokers were more likely to have lost all their natural teeth than those who had never smoked. In conclusion, smoking is fatal to oral health and causes countless failures in not only lung but also teeth and gum.

**Keywords:** Oral health, saliva, smoking, tobacco, dentistry, awareness

**Subject:** Oral health

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## INTRODUCTION

Smoking currently affects 46.3 million adults, or 25.7 percent of the population. This number includes 24 million men and over 22 million women. The prevalence is highest among people aged 25 to 44 and cigarette smokers are more likely to develop a variety of chronic diseases. These include fatty deposits in the arteries. There are several types of cancer and chronic obstructive pulmonary disease, both of which are lung issues. The fact that smoking affects lung health is prevalent among many people. However, the crucial fact that smoking also affects oral health is not as known to as many people.

The goal of this research paper is to raise public awareness about the negative effects of smoking on oral health. People should be aware that smoking not only affects their lung health but also their oral health, which can be fatal, as more and more people become smokers and the starting age of smoking is getting younger and younger. The average starting age for current smokers is 13.8 years old, which is between 13 and 15 years old. As a result of demonstrating the negative effects of smoking on oral health, smokers and nonsmokers who intend to smoke may become aware of the dangers of smoking and quit or refrain from starting.

Since it focuses on bringing up awareness of the negative effects of smoking, this study may benefit anyone concerned about how smoking may affect oral health. Overall, and in a broad sense, this research has the potential to improve the well-being of all humans.

## MATERIALS AND METHODS

For the first experiment, one-hundred smokers and one-hundred non-tobacco users were selected as case and control groups, respectively. A questionnaire was used to collect the demographic data and smoking habits (See Table 1).

**Table 1**

**Comparison of responses of smokers and non-smokers groups to dry mouth questionnaire**

Question	Answer of smokers		Answer of Non-smokers		P value
	Yes	No	Yes	No	
Dose your mouth feel dry at night or on awakening?	38	65	8	92	0.0001
Dose your mouth feel dry at other times of the day?	38	62	15	85	0.0001
Do you keep a glass of water by your bed?	9	91	3	97	0.74
Do you sip liquids to aid in swallowing dry foods?	32	68	6	94	0.0001
Dose your mouth feel dry when eating a meal?	31	69	6	94	0.0001
Do you have difficulties swallowing any foods?	31	69	7	93	0.0001
Do you chew gum daily to relieve oral dryness?	12	88	8	92	0.34
Do you use hard candies or mints daily to relieve oral dryness?	4	96	6	96	0.51
	Too little	Too much, or don't notice	Too little	Too much, or don't notice	
Dose the amount of saliva in your mouth seem to be too little, too much, or you don't notice it?	32	68	11	89	0.0001

Table 1: This is the comparison of responses of smokers and non-smokers groups to the dry mouth questionnaire. According to the answers to the three main questions, 39% of smokers and 12% of nonsmokers had dry mouth symptoms.

Then, after a careful oral examination, the subjects' whole saliva was collected in the resting condition. Data was analyzed by a chi-square test using SPSS 15 (See Table 2).

**Table 2**

**Results of oral examination in smokers and non-smokers groups evaluated**

Oral and dental diseases	Smokers	Non-smokers	P value
Cervical caries			0.0001
Yes	86	21	
No	14	79	
Occlusal caries			0.0707
Yes	82	84	
No	18	16	
Gingivitis			0.0001
Yes	82	47	
No	18	53	
Tooth mobility			0.0001
Yes	51	17	
No	49	83	
Calculus			0.002
Yes	88	70	
No	12	30	

Table 2: This is the results of oral examinations in smokers and non-smokers groups evaluated. The results reveal that halitosis was reported in 55% of smokers, and 28% of non-smokers and in smokers, gingivitis, mobility, calculus, and cervical caries were significantly higher than non-smokers.

Next, the Canadian Community Health Survey, a multistage, nationwide household survey, then asked a series of questions about oral health status for the survey. This report is based on the responses of adults aged 18 and up who completed the optional oral health module (33,777 respondents). This subsample is representative of a weighted population of 23.9 million people.

Finally, to determine the relationship between old people's oral health and smoking, data from a cross-sectional study of oral health and treatment needs among people aged 50 and up living independently in four Ontario communities were used. Data were collected from 907 individuals.

## **RESULTS**

To begin, the mean (SD) salivary flow rate in smokers was 0.38 (0.13) ml/min and 0.56 (0.16) ml/min in nonsmokers. Furthermore, 39% of smokers and 12% of nonsmokers reported at least one xerostomia symptom, with a statistically significant difference between groups. Smokers had significantly more oral lesions such as cervical caries, gingivitis, tooth mobility, calculus, and halitosis.

According to the survey, the prevalence of edentulism was 15% among current smokers and 7% among nonsmokers. Current smokers were less likely to have visited a dentist in the previous three years and more likely to report tooth sensitivity, toothache in the previous month, pain in the mouth or face, and social limitations due to teeth in the dentate population. In a multivariate logistic regression model that controlled for age, gender, household income, and dental insurance, current and former smokers had higher odds of reporting oral-facial pain than people who had never smoked. Prevention of smoking initiation and support for smoking cessation may contribute to improved oral health.

Finally, according to the cross-sectional survey, current smokers were more likely than nonsmokers to have lost all of their natural teeth. Current smokers had fewer teeth, fewer functional units, more decayed crown surfaces, and more decayed root surfaces among those who retained one or more natural teeth. Periodontal indicators revealed that the extent and severity of periodontal disease were greater in current smokers than in nonsmokers. Current smokers had a higher prevalence of mucosal disorders and required more dental care.

## **DISCUSSION**

In the first experiment that discussed salivary flow rate, smokers had a significantly lower rate of SFR. Tobacco use has an effect on salivary flow rate. Tobacco smoke spreads to all parts of the oral cavity during smoking, exposing the taste receptors, a primary receptor site for salivary secretion. Tobacco use, it is widely accepted, reduces the sensitivity of taste receptors, resulting in a reduction in salivary reflex. This, presumably, will result in altered taste receptor responses and, as a result, changes in salivary flow rate. Salivary flow rate is important because decreased salivary flow causes a clinically significant oral imbalance, which can manifest as increased caries, susceptibility to oral candidosis, altered taste sensation, or a variety of other issues.

Edentulism is a crippling and irreversible condition that has been dubbed the "final marker of disease burden for oral health." According to the second survey, the prevalence of edentulism was 15% among current smokers and 7% among those who had never smoked. Despite a decrease in the prevalence of complete tooth loss over the last decade, edentulism remains a major disease worldwide, particularly among older adults. Edentulism can cause impairment, functional limitation, physical, psychological, and social disability, as well as handicap.

Thus, edentulism has a significant impact on general health because it affects physical symptoms and functional capacity, social functioning, and perception of well-being. Even though edentulism is currently more common in the elderly and is considered fatal, smoking may hasten tooth loss and worsen the prevalence of edentulism not only among the elderly but also among younger adults.

## **CONCLUSIONS**

Smoking may have a variety of effects on oral health. To begin, smoking reduces the salivary flow rate, or SFR, according to the experiment. This is due to the fact that tobacco use reduces the sensitivity of taste receptors, resulting in a decrease in salivary reflex. Lastly, smoking causes tooth loss, which can eventually lead to edentulism. According to the surveys, the prevalence of edentulism was 15% among current smokers versus 7% among nonsmokers, and current smokers were more likely to have lost all of their natural teeth than nonsmokers. Edentulism can cause impairment, functional limitation, physical, psychological, and social disability, and handicap, all of which are serious symptoms that can be avoided by quitting smoking.

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