

## The Evaluation of the Impact of Tobacco Heating System and Conventional Cigarette Smoking on Self Reported Oral Symptoms (Dry Mouth, Halitosis, Burning Sensation, Taste Changes) and Salivary Flow Rate: A Cross-sectional Study

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**Abstract :** Conventional cigarette smoking is associated with an increased risk of oral diseases and oral symptoms such as dry mouth, bad breath, burning sensation, and changes in taste sensation. The harmful effects of conventional cigarette smoking on oral health have been extensively studied previously. However, there is a severe lack of studies investigating the effects of Tobacco Heating System (THS) on oral structures. As a preventive measure, a new alternative Tobacco THS has been developed, and according to the manufacturer, it has fewer potentially harmful and harmful constituents and consequently, lowers the risk of developing tobacco-related diseases. The aim is to analyze the effects of conventional cigarettes and THS on salivary flow rate (SFR), and self-reported oral symptoms. The stratified cross-sectional study included 90 subjects divided into three groups: THS smokers, conventional cigarette smokers, and nonsmokers. The subjects completed questionnaires on smoking habits, and symptoms (dry mouth, bad breath, burning sensation, and changes in taste sensation). SFR test were performed on each subject. The lifetime exposure to smoking was calculated using the Brinkman index (BI). Participants were 20-55 years old (median 31), and 66.67 % were female. The study included three groups of equal size (n = 20), and no statistically significant differences were found between the groups in terms of age (p = 0.632), sex (p = 1.0), and lifetime exposure to smoking (the BI) (p=0,129). Participants from the smoking group had an average of 10 (2-30) years of smoking experience in the conventional cigarettes group and 6 (1-20) years of smoking experience in the THS group. Daily consumption of cigarettes/heets per day was the same for both smokers' groups (12(2-20) cigarettes/heets per day). The self-reported symptoms were present in 40 % of participants in the smokers group. There were significant differences in the presence of halitosis (p = 0.025) and taste sensation (p=0.013). There were no statistical differences in the presence of dry mouth (p =0.416) and burning sensation (0.7). The SFR differed between groups (p < 0.001) and was significantly lower in the THS and conventional cigarette smokers' groups than the nonsmokers' group. There were no significant differences between THS smokers and conventional cigarette smokers. The results of the study show that THS products have a similar effect to conventional cigarettes on oral cavity structures, especially in terms of SFR, self-reported halitosis, and changes in taste.

**Keywords :** oral health, tobacco products, halitosis, cigarette smoking

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