Comparison Between the Dmft and Dmfs Index Scores of Smokers and Nonsmokers Visiting out Patient Department of a Private Dental College

A. Shamaa Anjum

Saveetha Dental College and Hospitals,
Saveetha Institute of Medical and Technical Sciences,
Saveetha University,
Chennai, India.
Email ID: 151701014.sdc@saveetha.com
Contact number: +91 7550118371

Dr Adimulapu Hima Sandeep

Associate Professor,
Department of Conservative Dentistry & Endodontics,
Saveetha Dental College,
Saveetha Institute of Medical and Technical Sciences,
Chennai - 600077
E-Mail ID: himas.sdc@saveetha.com
Contact: +919003175288

CORRESPONDING AUTHOR

Dr Adimulapu Hima Sandeep

Associate Professor,
Department of Conservative Dentistry & Endodontics,
Saveetha Dental College,
Saveetha Institute of Medical and Technical Sciences,
Chennai - 600077
E-Mail ID: himas.sdc@saveetha.com
Contact: +919003175288

ABSTRACT:

BACKGROUND: Tobacco is detrimental to human health. According to The World Health Organization (WHO) tobacco is responsible for more than 7 million deaths and hundreds of billions of dollars lost worldwide each year. Dental caries is the primary focus of dental health prevention as it is one of the most prevalent chronic diseases.

AIM: The current study is to compare the DMFT and DMFS scores among smokers and non smokers.

MATERIALS AND METHODS: This is a comparative and descriptive study which was performed under a university setting in the year 2021. The data of patients who visited dental

college from December 2020 to March 2021 was collected by reviewing patients records and analysing data. 100 patients who were smokers and 100 nonsmokers are considered in the study. The collected data was compiled , reviewed, tabulated and entered in SPSS software for running chi square test to find if the correlations were statistically significant ($p<0.05$).

RESULTS: The results of the study shows that most smokers have DMFT and DMFS scores of more than 20 and most non smokers had DMFT and DMFS scores of 0-10 (Figure 1 and 2). This was found to be statistically significant , $p<0.000$ ($p<0.05$).

CONCLUSION: It is evident that smokers were found to have higher incidence and severity of caries than nonsmokers.

Key words: DMFT. DMFS, smokers, nonsmokers

Running title: Correlation between the DMFT and DMFS score of smokers and non smokers.

INTRODUCTION:

Tobacco is detrimental to human health. According to The World Health Organization (WHO) tobacco is responsible for more than 7 million deaths and hundreds of billions of dollars lost worldwide each year (1). Tobacco contains more than 60 toxic chemicals such as nicotine that can invade the body's multiple systems. This may lead to cardiovascular diseases, cancers and other systemic diseases. In addition, tobacco is a harmful product responsible for adverse oral conditions and many oral diseases (2). Any form of tobacco consumption is responsible for oral diseases like adult periodontal diseases, oral cancer, cleft lip, cleft palate and other congenital defects in children whose mothers smoked tobacco during pregnancy (3).

Dental caries is the primary focus of dental health prevention as it is one of the most prevalent chronic diseases (4). It remains a major global health problem and affects both adults and children of all age groups (5). If not treated on time, dental caries can cause progressive destruction of tooth hard tissue, perforate into pulp, lead to pulpitis and periapical inflammation, and finally lead to tooth loss. Many factors such as food, habits, environment and microorganisms are associated with caries (6).

Nicotine, found in tobacco, is highly addictive and responsible for tobacco dependence. Almost 30% of Indians older than age 15 years use some form of tobacco (7). Tobacco has a number of detrimental effects on oral health which includes dental caries, tooth loss, periodontal disease, oral soft-tissue changes, excessive wear of teeth, halitosis, staining, reduced taste sensation, implant failure and even cancer (8). Cleft lips and palates are common among children born to mothers who smoked during pregnancy (9). The use of breath-freshening mints to alleviate the bad breath can cause dental erosion due to the large quantities of sugar and citric acid present in them (10).

Generally, smoking and the use of smokeless tobacco may have a detrimental impact on general and oral health (11). The relationship to dental caries is however still unclear. Several studies world-wide have denominated tobacco use as a risk factor for coronal and root caries and disclosed increased caries rates in tobacco smoking(5) . However,a survey conducted in Sweden failed to demonstrate a relationship between tobacco use and caries in adults and

elderly(12). A systematic review on tobacco use and dental caries which was based solely on cross-sectional studies showed that the overall quality of evidence for smoking being a causative factor for dental caries was concluded to be poor (13). As caries is a multifactorial disease with life-style related , socio-economic and socio-demographic gradients ,tobacco usage may be a co-variable in this complex rather than a direct etiological factor.

Our team has extensive knowledge and research experience that has translated into high quality publications(14–23),(24–27),(28–32) (33). The aim of the current study is to compare the DMFT and DMFS scores among smokers and non-smokers.

MATERIALS AND METHODS:

The current study was a comparative and retrospective study where the required data of the patients reported to the dental institution was collected by reviewing patients records and analysing the data of all patients.The study was set in a University which predominantly consisted of the South Indian Population. The pros of the study was that it included a varied population and had the ability to perform preference analysis. The cons were that it had a very limited geographic area of coverage and small sample size. The ethical approval of the current study was obtained from the institutional ethical board . The selection of patients was from the list of out-patients , who visited the clinics from Dec 2020 to march 2021. 100 patients who were smokers and 100 patients who were non smokers were considered in the study. The data was obtained for the Dental Information Archiving Software which is a database The total sample size obtained from the data was 200 . The inclusion criteria was 100 patients who were smokers and 100 patients who were non smokers. Exclusion criteria were all incomplete and censored data. The data was cross verified using photographs and reviewed by an additional reviewer to minimize error . The data has high internal validity and low external validity. The data was entered in a methodical manner and was tabulated in Microsoft excel sheet. The tabulated data was imported to SPSS software (IBM) for running chi square test. $p<0.05$ was considered as statistically significant.

RESULTS:

The current study aims at correlating the DMFT and DMFS scores of smokers and non smokers. The results of the study shows that most smokers have DMFT and DMFS scores of more than 20 and most non smokers had DMFT and DMFS scores of 0-10 (Figure 1 and 2). This was found to be statistically significant , $p<0.000$ ($p<0.05$). It is clearly seen that caries prevalence (as measured by DMFT [Decayed Missing Filled Teeth] index) and caries severity (as measured by DMFS [Decayed Missing Filled Surfaces] index) are significantly higher in patients who smoke as compared to non-smokers . This proves that tobacco has a definitive role to play in caries development.

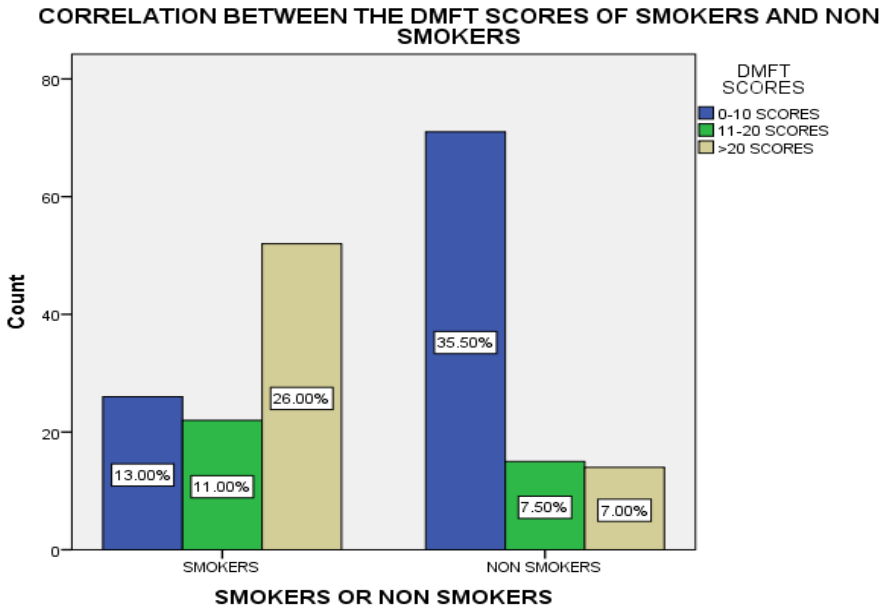

FIGURE 1: represents the correlation of DMFT scores of smokers and non-smokers. Blue represents the scores 0-10, green represents scores 11-20 and brown represents scores more than 20. It is evident from the figure that smokers had DMFT scores of more that 20 and nonsmokers

had DMFT scores of 0-10. This result was found to be statistically significant $p<0.000$ ($p<0.05$).

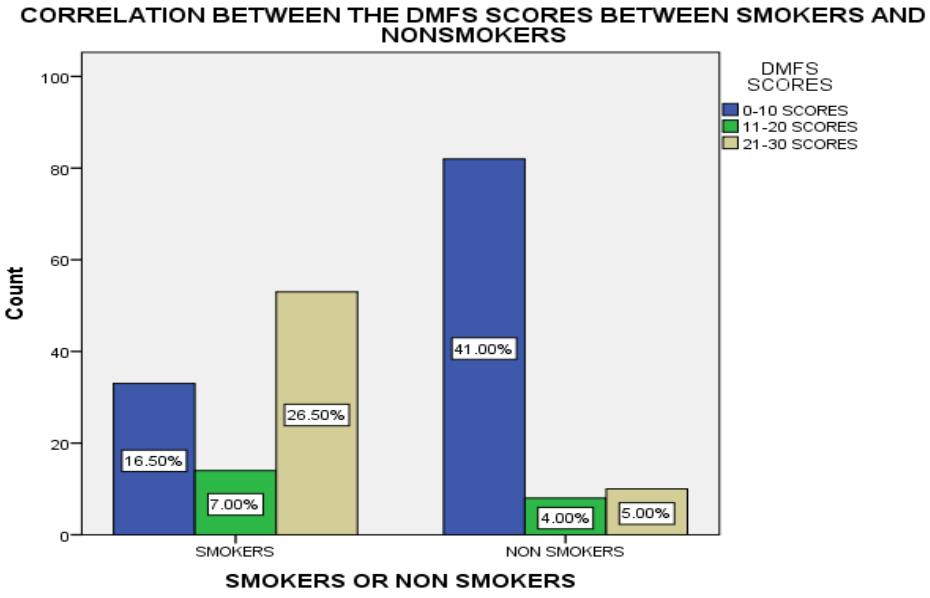

FIGURE 2: represents the correlation of DMFS scores of smokers and non-smokers. Blue represents the scores 0-10, green represents scores 11-20 and brown represents scores more than 20. It is evident from the figure that smokers had DMFS scores of more that 20 and nonsmokers had DMFS scores of 0-10. This result was found to be statistically significant $p<0.000$ ($p<0.05$).

DISCUSSION:

Earlier, literature reported that smoking helps to reduce dental caries (34).It was stated that a constituent of tobacco called thiocyanate which had possible caries-inhibiting effect, was found to be higher in smoker's saliva (35). A case–control study comparing dental caries in smokers and nonsmokers reported a higher percentage of caries among nonusers (36). However, recent studies have recognized tobacco use as a risk factor for coronal and root caries (10,37–39). Previously, a longitudinal study in 10,068 adolescents, and yearly data on caries and tobacco use showed that tobacco use was clearly associated with increased caries increment (38). The above studies are in accordance with the current study.

There is a general consensus that tobacco is associated with increased caries rate but this cause and effect relationship is not firmly proven . Furthermore, local and systemic effects of tobacco on oral cavity depend on various factors such as method, frequency, and duration of use and are dose dependent.

Drawback of the study is the small sample size and limited demographic area of coverage which limited the study of population from different geographical areas and ethnicities. To ascertain the results of this study and to increase the level of significance, the sample size and the geographic area of coverage should be extended at least to most parts of South India. Conducting a multicentered study with an extended geographic area and wide range of population in future, better results can be obtained. The prevalence and epidemiology of dentoalveolar fractures and their treatment is important to analyze the etiological factors of these accidents and aid in implementation of strict rules and new guidelines by the government to prevent the occurence.

CONCLUSION:

Within the limitations of the study, it is evident that smokers were found to have higher incidence and severity of caries than nonsmokers.

ACKNOWLEDGEMENT

The present project is funded by Saveetha Institute of Medical and Technical Sciences, Saveetha Dental College and Hospitals, Saveetha University and A.I.Abubakir Dental Clinic.

CONFLICT OF INTEREST

Nil

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