Correlation between OHI scores and class II dental caries in patients visiting a private dental college.

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Abstract

Introduction: Dental caries is one of the most common preventable diseases which are recognized as the primary cause of oral pain and tooth loss. WHO claimed that poor oral health may have a profound effect on general health as well as quality of life, and several oral diseases are related to chronic diseases

Aim: The aim of the current study is to correlate the OHI scores and class 2 dental caries.

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 patient's records and analyzing data. Patients with class II dental caries are considered in the study. The collected data was compiled , reviewed, tabulated and entered in SPSS software for running the chi square test to find if the correlations were statistically significant ($p<0.05$).

Results and discussion: The study reveals that males had higher OHI scores and presented with more number of classes II caries than females than females. The former result was found to be statistically not significant ($p=0.484$, i.e. $p<0.05$) and the latter was found to be statistically significant ($p=0.000$ i.e., $p<0.05$). Patients with OHI scores of 9-12 presented with more class II caries (14.47%). This result was found to be statistically significant ($p=0.000$ i.e., $p<0.05$).

Conclusion: The current study reveals that males had higher OHI scores and class 2 caries than females. The association between the OHI scores and the number of class 2 caries revealed that patients who presented with a high number of class 2 caries had high OHI scores.

Keywords: OHI, Class II dental caries, Innovative

Introduction

Oral disorders such as dental caries, periodontal diseases and tooth loss are critical public health issues around the world, given the fact that poor oral health has ill-effects on overall health and quality of life [1]. Plaque has to be present on a tooth surface to promote caries, but the relationship between oral hygiene and caries remains controversial. Clinical trials with self-performed oral hygiene programs have, however, not proved to be a successful way of preventing dental caries [2]. The relationship of caries prevalence to oral cleanliness, variation in brushing frequency, and oral hygiene level shows controversial results.

Dental caries is one of the most common preventable diseases which is recognized as the primary cause of oral pain and tooth loss. It is a major public health oral disease which hinders the achievement and maintenance of oral health in all age groups [3]. WHO pointed out that the global problem of oral disease still persists despite great improvements in the oral health of the population in several countries. WHO claimed that poor oral health may have a profound effect on general health as

well as quality of life, and several oral diseases are related to chronic diseases [4]. Dental caries result when plaque forms on the surface of a tooth and converts the free sugars (all sugars added to foods by the manufacturer, cook, or consumer, plus sugars naturally present in honey, syrups, and fruit juices) contained in foods and drinks into acids that destroy the tooth over time. A continued high intake of free sugars, inadequate exposure to fluoride and a lack of removal of plaque by tooth brushing can lead to caries, pain and sometimes tooth loss and infection. This study provides knowledge on the association of OHI scores and the caries status of patients.

Our team has extensive knowledge and research experience that has translate into high quality publications [5-24]. The aim of the current study is to correlate the OHI scores and class 2 dental caries.

Materials and Method

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 patient's records and analyzing 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 were 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. The data was obtained for the Dental Information Archiving Software which is a database the total sample size obtained from the data was 236. The inclusion criteria were patients who presented with class II dental caries. Exclusion criteria were all incomplete and censored data. The data was cross verified using photographs and reviewed by an additional reviewer to mini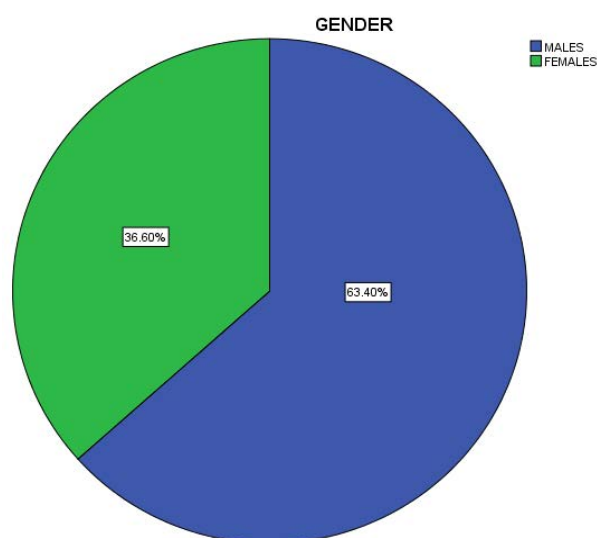mize error. The data has high internal validity and low external validity. The data was entered in a methodical manner and was tabulated in Microsoft excel sheet. The tabulated data was imported to SPSS software (IBM) for statistical analysis (chi square test). Statistical significance was set at $p < 0.05$.
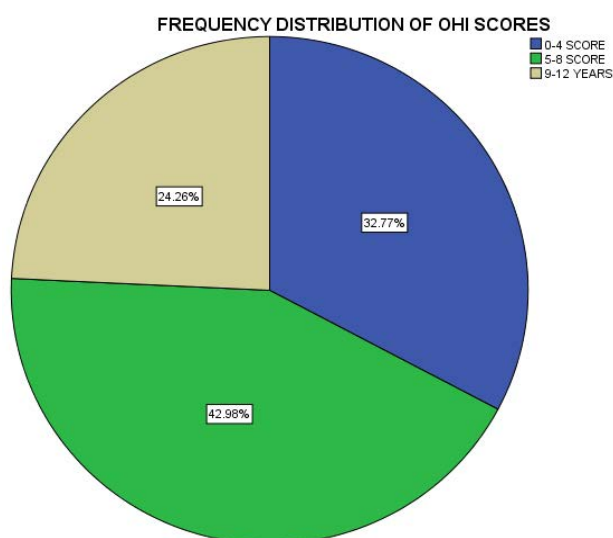
Results

Figure 1 represents the frequency distribution of gender of patients. Blue represents males and green represents females. It is evident from the figure that males were predominant in this study (63.40%).

Figure 2 represents the frequency distribution of OHI scores. Blue represents OHI scores from 0-4, green represents OHI scores from 5-8 and brown represents OH scores 9-12. It is evident that most patients had OHI scores ranging from 5-8 (42.98%).

Figure 3 represents the frequency distribution of class II dental caries among the patients. Blue represents class II caries in 0-4

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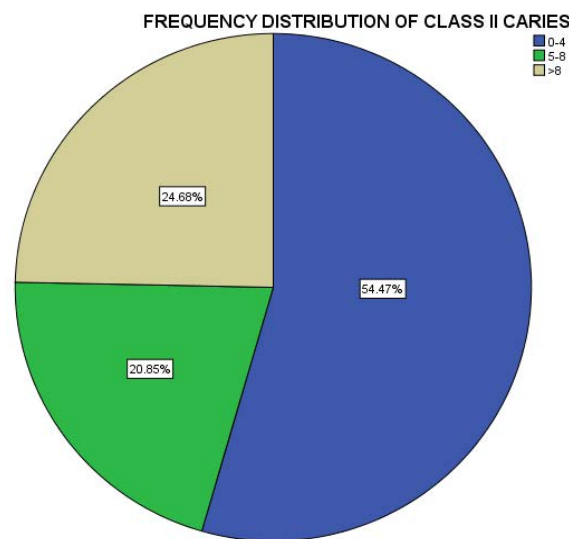
teeth, green represents class II caries in 5-8 teeth and brown represents class II caries in more than 8 teeth. It is evident that most patients had class II caries in 0-4 teeth (54.47%).

Figure 4 shows the correlation between the gender of the patient and OHI scores. Blue represents OHI scores from 0-4, green represents OHI scores from 5-8 and brown represents OH scores 9-12. The X-axis represents the gender of the patient and the Y-axis represents the count of patients. It is evident from the graph that males had higher OHI scores than females. The result was found to be statistically not significant (p=0.484, i.e., p<0.05).
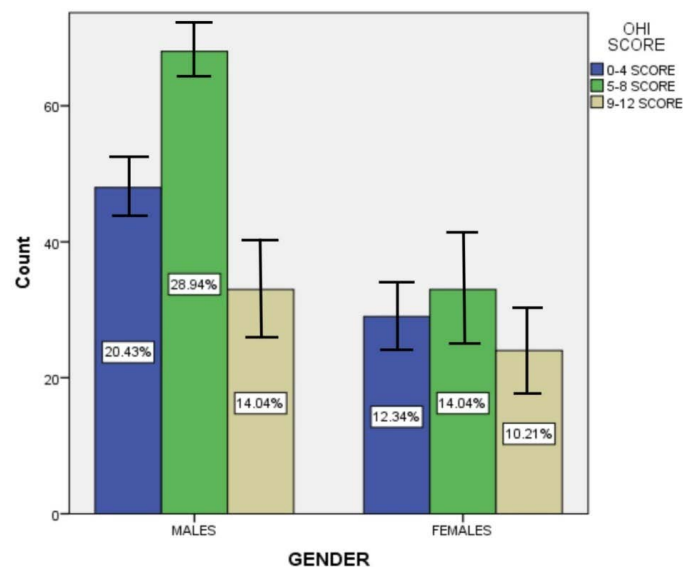
Figure 5 shows the correlation between the gender of the patient and the number of class II caries. Blue represents class II caries in 0-4 teeth, green represents class II caries in 5-8

teeth and brown represents class II caries in more than 8 teeth. The X-axis represents the gender of the patient and the Y-axis represents the count of patients. It is evident that males presented with more number of class II caries than females. This result was found to be statistically significant (p=0.000 i.e., p<0.05).
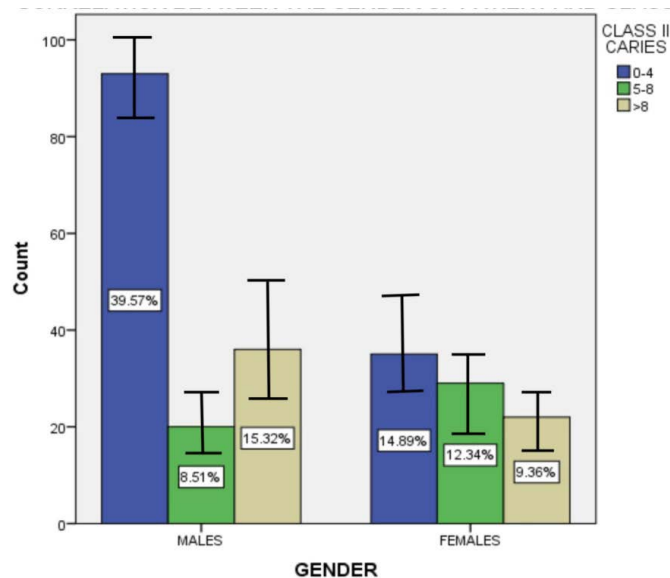
Figure 6 represents the correlation between the OHI score and the number of class II caries present. Blue represents class II caries in 0-4 teeth, green represents class II caries in 5-8 teeth and brown represents class II caries in more than 8 teeth. The X-axis represents the OHI scores and the Y-axis represents the number of class II caries. It is evident that patients with OHI scores of 9-12 presented with more class II caries (14.47%). This result was found to be statistically significant (p=0.000 i.e., p<0.05).


Figure 3. *Frequency distribution of class II dental caries among the patients. Represents the frequency distribution of class II dental caries among the patients. Blue represents class II caries in 0-4 teeth, green represents class II caries in 5-8 teeth and brown represents class II caries in more than 8 teeth. It is evident that most patients had class II caries in 0-4 teeth (54.47%).*

Figure 4. *Correlation between the gender of the patient and OHI scores. Correlation between the gender of the patient and OHI scores. Blue represents OHI scores from 0-4, green represents OHI scores from 5-8 and brown represents OH scores 9-12. The X-axis represents the gender of the patient and the Y-axis represents the count of patients. It is evident from the graph that males had higher OHI scores than females. The result was found to be statistically not significant (p=0.484, i.e. p<0.05).*

Figure 5. *Correlation between the gender of the patient and the number of class II caries. Correlation between the gender of the patient and the number of class II caries. Blue represents class II caries in 0-4 teeth, green represents class II caries in 5-8 teeth and brown represents class II caries in more than 8 teeth. The X-axis represents the gender of the patient and the Y-axis represents the count of patients. It is evident that males presented with more number of class II caries than females. This result was found to be statistically significant (p=0.000 i.e., p<0.05).*
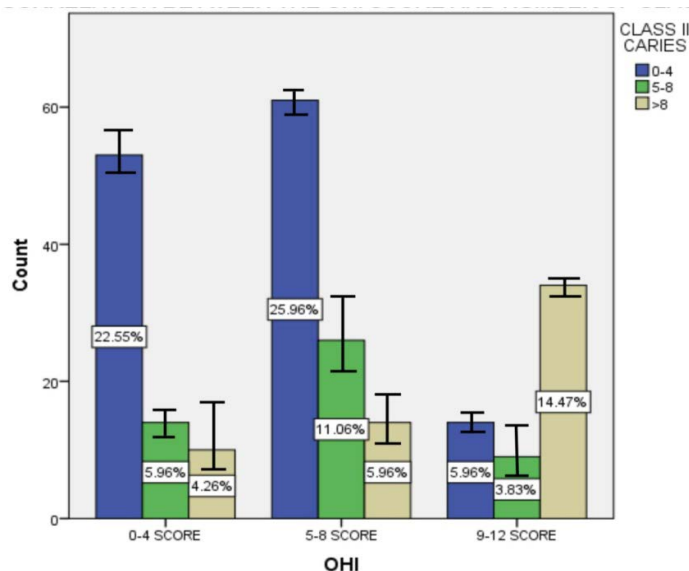
Figure 6. *Correlation between the OHI score and the number of class II caries present. Represents the correlation between the OHI score and the number of class II caries present. Blue represents class II caries in 0-4 teeth, green represents class II caries in 5-8 teeth and brown represents class II caries in more than 8 teeth. The X-axis represents the OHI scores and the Y-axis represents the number of class II caries. It is evident that patients with OHI scores of 9-12 presented with more class II caries (14.47%). This result was found to be statistically significant (p=0.000 i.e., p<0.05).*

Discussion

The results of the study showed that males have higher OHI scores than females (Figure 4). The correlation between the gender of the patient and the number of class 2 caries revealed that males have more number of class 2 caries than females (Figure 5). When the OHI score was correlated with the number of class 2 carries, it was found that patients having higher OHI scores had a higher number of class 2 carries (Figure 6).

A study conducted by Al Mohammed et al on Oral Hygiene status of children based on gender revealed that males had higher OHI scores than females. It is evident that males were

found to have higher debri and calculus scores which led to the increased OHI score and hence the high amount of dental caries [25]. Similar results were obtained in several other studies which compared the OHI scores of children and adults [26,27]. Our study is in accordance with the above studies.

A study conducted by Genji, et al. on Association of age and gender distribution in patients having class II caries revealed that males had higher incidence of class 2 caries than females. The study also showed that the caries progressed to root canal treatment which explains the negligence and poor oral hygiene in males resulting in higher OHI scores [28]. The current study is in agreement with the above study.

Studies have identified the association between plaque and debris [29-31], accumulation and dental caries. However, Szyszka-Sommerfeld, et al. [32], reported that the influence of plaque accumulation on the development of dental caries and periodontal disease was minimal, and Vellappally, et al. [33] found no correlation between the plaque and food and dental caries among adolescents. Some researchers have reported that crowding causes improper contacts between neighboring teeth, making effective oral hygiene difficult. The difficulty with cleaning of crowded teeth increases plaque accumulation and predisposes to the development of dental caries and periodontal disease [34,35].

Conclusion

The current study reveals that males had higher OHI scores and class 2 caries than females. The association between the OHI scores and the number of class 2 caries revealed that patients who presented with a high number of class 2 caries had high OHI scores.

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Conflict of interest

None declared.

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