

Assessment of independent variables of periodontal disease among selected South Indian population

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ABSTRACT

Periodontal diseases are chronic diseases that affect the surrounding tissues of the teeth and the alveolar bone. As the disease progresses, it can lead to tooth loss. Several risk factors may increase the risk of periodontal disease. The objective of the study was to assess the independent variables of periodontal disease among the few of the Southern population of India. The current study was done on 155 patients who visited Saveetha Dental College and Hospitals. Data of demographic details (age, gender, educational status) and periodontal status (clinically healthy gingiva, gingivitis, and periodontitis) were recorded. The demographic and the periodontal parameters were associated using Chi-square test (SPSS Software, Version 23.0). 20–30-year-old patients were mostly affected with gingivitis (25.8%) and 51–60-year-old patients were affected with periodontitis (22.58%). This showed statistical significance ($P < 0.05$). More males were affected with periodontal diseases than females and were statistically insignificant ($P > 0.05$). Periodontitis was more common among illiterates (26.45%) and was statistically significant ($P < 0.05$). The study shows that periodontitis was predominantly seen among males of 51–60 years of age and illiterates. The results of the study reveal a positive association between age, gender, and educational status of patients with their periodontal health.

Key words: Age, educational status, gender, gingivitis, innovative, periodontitis

INTRODUCTION

The most common diseases of the mouth are gingivitis and periodontitis. Periodontal diseases are divided into two major categories which are gingivitis which is a nondestructive, reversible gingival inflammation, and periodontitis which is a destructive inflammation of periodontal ligament, cementum, and alveolar bone.^[1,2]

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Gingivitis can be defined as a disease that causes inflamed gums that appear red, puffy and will bleed during brushing of teeth or clinical examination.^[3] Gingivitis is a mild condition of inflammation which is usually asymptomatic, hence they are unnoticed. Periodontitis causes inflammation of tissues that support and surround the teeth.^[4,5] Destruction of tissues is caused by periodontal pockets that act as a reservoir for bacterial infection of the dentogingival surface.^[6]

The major etiology of periodontal disease is plaque. Smoking, stress, genetics, systemic factors, and hormonal factors are aggravating factors.^[7-13] Longstanding gingivitis will lead to periodontitis, which is depicted by pocket formation, furcation involvement, mobility of teeth, and bone loss.^[14-19] Periodontitis when left untreated, can result

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in loss of teeth and compromised orofacial esthetics.^[20] Damage to periodontal tissues may be due to the host's response to the bacteria present.^[21]

There are a number of variables that can raise your chances of developing periodontal disease. Local and systemic risk factors can be distinguished. Diseases of the periodontium are influenced by a number of systemic factors, including age. With patients' age, the occurrence and severity of periodontal disease rise. This illness is thought to be caused by degenerative changes in periodontal diseases. According to research, elderly people who take preventative measures experience minor connection loss.^[21]

Periodontitis is influenced by a number of systemic factors, including age. Patients' age tends to increase the occurrence and severity of periodontal disease. Degenerative alterations in the periodontal tissues could be the cause of this disorder. In addition, men (57%) had an increased prevalence of periodontitis than women (43%), indicating a probable gender bias in disease causation.^[22] The percentage of periodontal disease is higher in India. There is also a significant discrepancy in people's educational levels and lifestyle status in the country.^[23,24] In developing countries with high literacy rates, an individual's educational status has a significant impact on their health. The concept of a healthier lifestyle is becoming increasingly important for maintaining periodontal health.

Our research and knowledge have resulted in high-quality publications from our team.^[25-30] The rationale behind the study is to understand the association between age, gender, and educational qualification and the periodontal status of the patients.

MATERIALS AND METHODS

This study was done on patients who visited the Department of Periodontics at Saveetha Dental College and Hospitals in Chennai. This research was done between December 2020 and February 2021. The current study was performed after receiving ethical approval from the ethical board of the institution (IHEC/SDC/UG-1714/22/PERIO/514). An informed consent was obtained from all the participants before the start of the study.

A total of 155 patients, with 78 males and 77 females were enrolled. The demographic data including age, gender, and educational status were acquired from all the study participants. Then, all the participants were subjected to clinical examination which included bleeding on probing (BOP), clinical attachment loss (CAL), and probing pocket depth (PPD). Based on these parameters, participants were categorized as clinically healthy gingiva (absence of BOP, no CAL, PPD of 1–3 mm), gingivitis (presence of BOP, no CAL, PPD of 1–3 mm), and periodontitis (presence of BOP and CAL and PPD of more than 3 mm). The

periodontal status was then correlated with age, gender, and educational status.

The data was analysed using the Statistical Package for Social Sciences (SPSS Software, Version 23.0; IBM Corp., Armonk, NY, USA). Frequency distribution and percentage were calculated and Chi-square test was used for assessing the association.

RESULTS

Patients were divided into four age groups in the current study: 20–30 years, 31–40 years, 41–50 years, and 51–60 years. Forty-seven patients were of age 20–30 years, 30 patients were of age 31–40 years (19.35%), 17 patients were of age 41–50 years (10.97%), and 61 patients were of age 51–60 years of age (39.35%). It was evident that 51–60 years of age group patients were predominant in our study.

Based on gender, 78 males (50.32%) and 77 females (49.88%) were involved in this study. It was evident that males were predominant in the study.

The patients were divided into graduates, high school certificate, primary school certificate, and illiterates based on their educational status. The study consisted of 12 graduates (7.74%), 57 high school graduates (36.77%), 21 patients with primary school certificates (13.55%), and 85 illiterates (41.94%). It was evident that illiterates were predominant in this study.

Based on their periodontal state, the patients were divided into three groups: gingivitis, periodontitis, and clinically healthy gingiva. There were 93 patients with gingivitis (50%) and 47 patients with periodontitis (30.32%) in the research, as well as 15 patients with clinically healthy gingiva (9.68%). It was evident that patients with gingivitis were predominant in this study.

The correlation between the age of the patients and their periodontal health status was evaluated. The study showed that patients 20–30 years of age were most commonly presented with gingivitis (25.81%) and patients 51–60 years of age most commonly presented with periodontitis (22.58%) [Figure 1]. The Chi-square test showed statistical significance with the $P = 0.000$ ($P < 0.05$).

The relationship between gender and periodontal health was investigated. Gingivitis (42.58%) and periodontitis (18.06%) were found to be more common among males than among females in the study. Using the Chi-square test, the correlation was statistically insignificant having the $P = 0.229$ ($P > 0.05$) [Figure 2].

The correlation between the educational status of the patient and their periodontal status was evaluated. It

was found that gingivitis was most commonly seen in educated patients (31.61%) and periodontitis was most commonly seen in illiterates (26.45%). This relationship was statistically significant using the Chi-square test with the $P = 0.000$ ($P < 0.05$) [Figure 3].

DISCUSSION

The current study aims at showing the association of age, gender, and educational status of patients with their periodontal status.

Periodontal disease is influenced by age, which is one of the key risk factors. Degenerative alterations in the periodontal tissues could be the cause of this disorder. The findings revealed that gingivitis was most common in young adults aged 20–30 years (25.81%), while periodontitis was most common in older persons aged 51–60 years (22.58%). In a study on the relationship between periodontal disorders and age, Eke *et al.* found that those aged 19–35 had the most gingivitis, while the elderly had the most periodontitis.^[22-24,31-36] Periodontitis was more common among patients aged 18–30 years according to a study on the incidence of periodontal diseases among 18–30-year-old individuals.^[11] Our findings corroborate those of the prior research.

In the current study, the correlation between gender and periodontal state of patients revealed that males more than females had gingivitis (28.39%) and periodontitis (16.13%). In a study on the gender basis of periodontitis, Ioannidou discovered that gender plays an important role in determining periodontal risk. It demonstrates that men are at a larger risk than women.^[37] This could be because men are more likely than women to host infections such as *Prevotella intermedia*.^[37-39] Males are more prone to periodontal disorders than females. It is possible that the explanation is related to esthetic and social pressure on women to seem physically attractive. Males typically have worse oral hygiene than females. Females are more hygiene and aesthetics aware than males and seek dental treatment more frequently.^[37-39] According to a study by Shiau and Reynolds, men are more likely than women to suffer from periodontitis.^[40] Our findings support the findings of the previous studies, as males were more likely than females to have periodontitis.

Knowledge of disease etiology is critical for disease prevention because it allows us to advise patients based on their educational level and lifestyle. The association between a patient's educational standing and their periodontal health revealed that educated patients had gingivitis, whilst illiterates had periodontitis, according to the current study. Patients who were uneducated were more likely to develop periodontitis.^[23,41-43] There has also been research that shows that having a lower education and having a lower income can predict the likelihood of developing severe periodontal

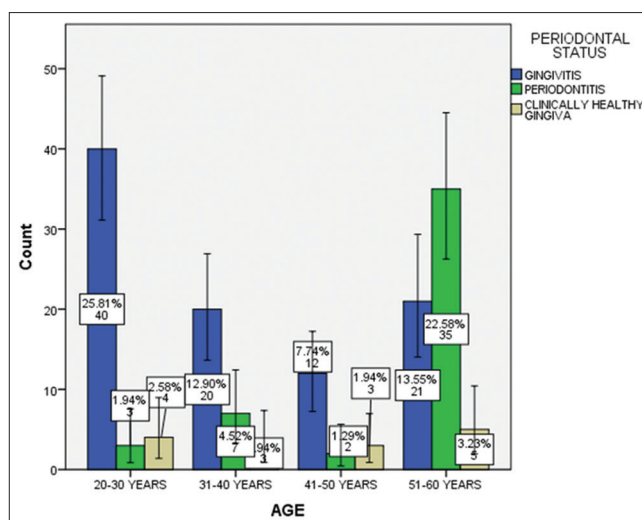


Figure 1: Correlation between age of the participants and the periodontal status

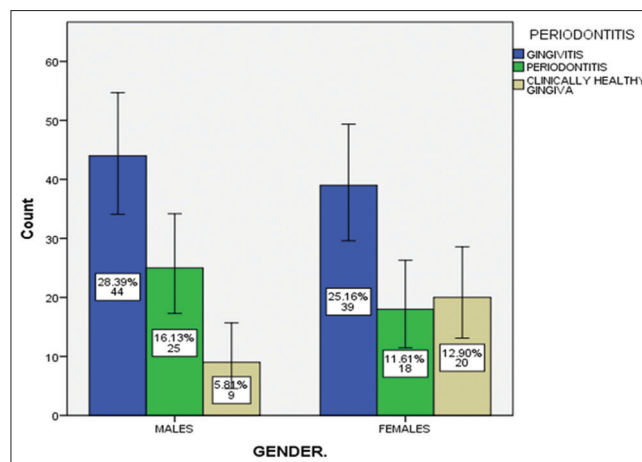


Figure 2: Correlation between gender of the participants and the periodontal status

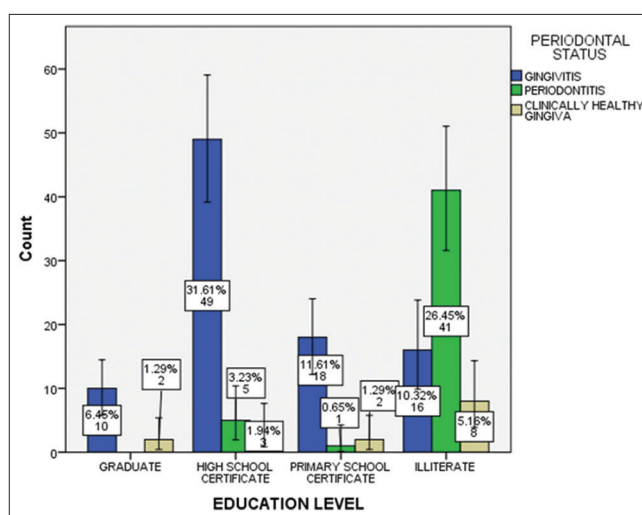


Figure 3: Correlation between education of the participants and the periodontal status

disease. Our findings support the findings of the previous studies, indicating that illiterates are more common than educated patients to acquire periodontitis.

CONCLUSION

Periodontitis was shown to be more common in males 51–60-year-old and illiterates in the current investigation. As a result, there is a link between patients' periodontal health and their age, gender, and educational position.

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Conflicts of interest

There are no conflicts of interest.

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