Association Between Socioeconomic Status And Oral Health Among Selected South Indian Population

Research Article

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Abstract

Background: Socioeconomic factor is one of the major predisposing factors in the development of periodontal disease. People from low economic status less frequently visit the dentists for preventive care compared to those of higher status.

Aim: The aim of the study was to assess the association between socioeconomic status and periodontal status among a selected South Indian population.

Materials and Methods: The present cross-sectional study was carried out among 150 out patients who reported to the Department of Periodontics, Saveetha Dental College and Hospitals, Chennai between December 2020 - February 2021. The patients were categorised based on their socioeconomic status and periodontal status. Based on the periodontal status, patients were categorized into clinically healthy gingiva (50 patients), gingivitis (50 patients), periodontitis (50 patients). Based on Prasad's scale of socioeconomic status, patients were categorized as: upper class, upper middle class, middle class, lower middle class, lower class. The association between socioeconomic status and periodontal status was then assessed. The data was analyzed using Statistical Package for Social Sciences (SPSS Software, Version 23.0). Chi-square test was done for data summarization and presentation.

Results: Majority of the patients who belonged to the upper class had clinically healthy gingiva (15.33%) and the patients who belonged to the lower class had periodontitis (16.67%). The association between socioeconomic status and oral health status was done using chi square test and it was found to be statistically significant p=0.03 (p<0.05).

Conclusion: The present study reveals that periodontitis was more commonly seen in people who belong to lower socioeconomic status and people who belonged to higher socioeconomic had clinically gingiva. Therefore, there is a positive association between socioeconomic status and oral health status.

Keywords: Oral Health; Socioeconomic Status; Periodontitis; Innovative; Gingivitis.

Introduction

Gingivitis is a site-specific inflammatory condition initiated by dental biofilm accumulation [1]. The accumulation of dental plaque on the gingival margin triggers inflammatory effects that can become chronic [2] Gingivitis with dental plaque affects the protective tissues of the teeth and may lead to the development of a wide range of clinical signs and symptoms, such as bleeding, bad breath edema, redness, and gingival enlargement [3]. This inflammatory condition called gingivitis is characterized by gingival redness, edema, and bleeding on probing without detectable alveolar bone loss or tooth-supporting structures [4]. Gingivitis is reversible without permanent damage if properly treated. However, if left untreated, it can progress to periodontitis leading to the destruction of alveolar bone and subsequently may lead to tooth loss. Gingivitis management is a crucial strategy to prevent the development of advanced periodontal disease [5]. Furthermore, gingival inflammation leads to the release of inflammatory mediators into the circulatory system, which may have a negative impact on overall health [6].

Periodontitis is defined as an inflammatory disease of support-

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ing tissues of teeth caused by specific microorganisms or groups of specific microorganisms, resulting in progressive destruction of the periodontal ligament and alveolar bone with periodontal pocket formation, gingival recession or both [7]. Periodontal disease includes a group of inflammatory conditions, typically initiated by oral bacteria, progressing from reversible accumulation of plaque and inflammation of gingival tissue (gingivitis) to irreversible breakdown of the supportive tissues of the teeth and eventually tooth loss (periodontitis) [8-12]. High prevalence of periodontal disease in adolescents, adults, and older individuals makes it a public health concern. Several risk factors such as smoking, poor oral hygiene, diabetes, medication, age, hereditary, and stress are related to periodontal diseases [13-21]. Smoking is one of the most important risk factors for periodontitis, and the reduction in periodontal disease prevalence is related to the drop in smoking rates [22]. Bacteria are the primary etiological agent in periodontal disease, and it is estimated that more than 500 different bacterial species are capable of colonizing the adult mouth [23]. Periodontal infection may significantly enhance the risk for certain systemic diseases or alter the natural course of systemic conditions; and conditions in which influences of periodontal infection are documented include coronary heart diseases (CHD) and CHD-related events such as angina and infarction, atherosclerosis, stroke, diabetes mellitus; preterm labor, low-birth-weight delivery; and respiratory conditions such as chronic obstructive pulmonary diseases [24]. Periodontitis initiates systemic inflammation and can be monitored by inflammatory markers like C-reactive protein or fibrinogen levels. Pathogens of the subgingival microbiota can interact with host tissues even without direct tissue penetration, and the subgingival microbiota accumulate on the oral cavity to form an adherent layer of plaque with the characteristics of a biofilm.

Periodontal diseases are more frequent and more severe among individuals of low socioeconomic status (SES) than among their peers of higher socioeconomic status [25]. In cases of periodontal diseases, higher neighborhood socioeconomic status will be associated with healthy behaviors among community members like reductions in smoking prevalence and dissemination of health-related information to these individuals, which in turn could prevent periodontal diseases independent of individual socioeconomic status. The socioeconomic status of a geographic area can influence the available supply of health professionals [26]. Our team has extensive knowledge and research experience that has translate into high quality publications [27-46]. The current study was done to assess the association between socioeconomic status and periodontal status among a selected South Indian population.

Materials and Methods

The present cross-sectional study was carried out among the out patients who reported to the Department of Periodontics, Saveetha Dental College and Hospitals, Chennai. This study was Conducted between December 2020 - February 2021. The ethical approval of the current study was obtained from the Institutional ethical board and a written consent was obtained from all the study participants.

A total of 150 patients were enrolled. The demographic details of the patients were collected. The patients were categorised based on their socioeconomic status and periodontal status. Based on the periodontal status, patients were categorized into clinically healthy gingiva (50 patients), gingivitis (50 patients), periodontitis (50 patients). The patients were diagnosed based on the clinical parameters including bleeding on probing, clinical attachment loss and probing depth. Patient who presented with no bleeding on probing, 1-3 mm pocket depth and no clinical attachment loss were categorized under clinically healthy gingiva, patients who presented with bleeding on probing, 1-3mm of pocket depth with no attachment loss were categorized under gingivitis and patients with bleeding on probing, pocket depth of more than 3 mm with attachment loss were classified under periodontitis. Based on Prasad's scale [47] of socioeconomic status, patients were categorized as: upper class, upper middle class, middle class, lower middle class, lower class. The association between socioeconomic status and periodontal status was then assessed.
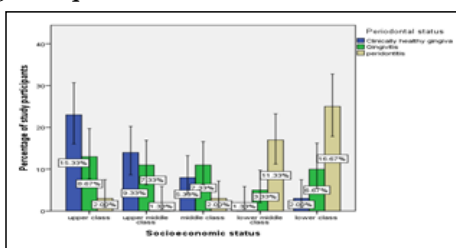
The data was analyzed using Statistical Package for Social Sciences (SPSS Software, Version 23.0). Chi-square test was done for data summarization and presentation. The Chi-square test was employed with a level of significance set at p<0.05.

Results

In the current study, 150 patients were enrolled. The patients were categorised under gingivitis, periodontitis and clinically healthy gingiva based on their periodontal status. Out of 150 patients, 50 patients were found to have clinically healthy gingiva, 50 patients had gingivitis and 50 patients had periodontitis. The association between socioeconomic status of patients and periodontal status was assessed.

Among patients who belonged to the upper class, 15.33% of them had clinically healthy gingiva, 8.67% of them were found to have gingivitis and 2% of them were found to have periodontitis.

Figure 1. Barchart shows the association between socioeconomic status and periodontal status. The X-axis represents socioeconomic status and Y-axis represents the percentage of patients with clinically healthy gingiva (blue), gingivitis (green) and periodontitis (brown). Majority of the patients who belonged to the upper class had clinically healthy gingiva (15.33%) and the patients who belonged to the lower class had periodontitis (16.67%). The association between socioeconomic status and oral health status was done using chi square test and it was found to be statistically significant p=0.03 (p<0.05).

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Among upper middle class, 9.33% had clinically healthy gingiva, 7.33% were found to have gingivitis and 1.33% were found to have periodontitis. Among the middle class, 5.33% had clinically healthy gingiva, 7.33% were found to have gingivitis and 2% were found to have periodontitis. Among the lower middle class, 1.33% were found to have clinically healthy gingiva, 3.33% were found to have gingivitis and 11.33% were found to have periodontitis. Among the lower class, 2% were found to have clinically healthy gingiva, 6.67% were found to have gingivitis and 16.67% were found to have periodontitis. It was evident that the majority of the patients who belonged to the upper class had clinically healthy gingiva (15.33%) and the patients who belonged to the lower class had periodontitis (16.67%). The association between socioeconomic status and oral health status was done using chi square test and it was found to be statistically significant p=0.03 (p<0.05).

Discussion

The present study was done to assess the association between socioeconomic status and oral health status among a selected South Indian population.

Socioeconomic status is one of the risk determinants which influence the occurrence of periodontal disease. The current study shows that patients who belonged to higher socioeconomic status had clinically healthy gingiva. Borrell et al., conducted a study on the association of periodontitis among blacks and whites in the US. It has been reported that periodontal diseases are more frequent and more severe among individuals who belonged to low socioeconomic status (SES) than among their peers of higher SES [48]. Another study conducted by Luisa et al., revealed that people who belonged to higher socioeconomic status had clinically healthy gingiva and it also indicates that individuals' income level was associated with severe periodontitis [49].

In a similar study by Beck et al., it was found that there was more pocket depth in blacks when compared to whites. In Beck's study blacks were considered belonging to lower socioeconomic status and whites were considered belonging to higher socioeconomic status [50]. Our results are in agreement with the above studies.

Also, the current study indicates that the majority of the patients who belonged to lower socioeconomic status presented with periodontitis. A previous study conducted by Locker et al., documented differences in periodontal health according to socioeconomic status indicated that people who belonged to lower socioeconomic status are more prone to periodontitis[51]. In a similar study carried out by Rupasree et al., it was documented that there is a strong association of lifestyle, education level, and socioeconomic status with periodontal health [52].

In a similar study conducted by Jose et al., concluded that socioeconomic factors such as primary education and low social class, as well as gender, age and smoking, were associated to a significant degree with greater prevalence of periodontal disease [53]. In a study conducted by Ahmed et al., it was observed that people belonging to the lower class are more prone to periodontitis [54]. Our results are in agreement with the above studies. This might be because of the variation in the oral hygiene practices and access to dental services between upper and lower socioeconomic groups may result in poor oral hygiene leading to periodontitis. Therefore the present study emphasizes the need to create awareness among people belonging to low socioeconomic status about the importance of oral health.

Conclusion

The present study reveals that periodontitis was more commonly seen in people who belong to lower socioeconomic status and people who belonged to higher socioeconomic had clinically gingiva. Therefore, there is a positive association between socioeconomic status and oral health status.

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