

## Impact of Socioeconomic Status on Periodontal Health

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### ABSTRACT:

Periodontitis is a chronic inflammatory disease affecting both the soft and hard tissues of the oral cavity. It is a multifactorial disease. Eventhough periodontitis is caused primarily by dental plaque, it is aggravated by variety of factors including age, sex, genetics, systemic factors, smoking, stress, socioeconomic status, education. Socioeconomic status (SES) is one of the prime factors influencing the health status of a nation. It is the measure of the social standing of the individual or a family and has a wide impact on an individual/family's health, educational

attainment, diet, lifestyle. Therefore this study was conducted among 200 patients aged from 35 to 45 years, who had visited the Saveetha Dental College and Hospitals, Chennai from June 2019 to March 2020 were enrolled and assessed the impact of socioeconomic status on periodontal health. The demographic data regarding the patient's socioeconomic status and clinical data regarding periodontal status were retrieved. The socioeconomic status was categorised based on kuppuswamy scale and periodontal health was categorised into periodontitis and gingivitis. Descriptive and inferential statistics were used for data analysis. In the present study, the prevalence of periodontitis (27%) was high among patients belonging to low socioeconomic status. Whereas, only 2% of them belonging to high socioeconomic status presented with periodontitis. Also, there was a positive association between socioeconomic status and periodontal health with  $p > 0.05$ .

**KEYWORDS:** Periodontitis, Gingivitis, Socioeconomic status, Periodontal health.

## **INTRODUCTION:**

The health model which forms the basis is knowledge, attitude, temporary, and permanent behaviors. Currently, more emphasis has been directed towards the combined influence of lifestyle, education, levels and socioeconomic factors, instead of regular risk factors in dealing with chronic illnesses. The present study is conducted to correlate the periodontal health of people with reference to lifestyle, education level, and socioeconomic status. (1,2,3)

The socioeconomic status (SES) is one of the important factors affecting the health condition of an individual or a family. (4,5) The economic and social position relatively is being determined by various variables that are responsible for income, education, occupation, family effluence, physical assets, social position, social participation, caste, political influence, and muscle power and can be measured by SES. Several scales have been proposed and reported to evaluate the socioeconomic classes of families in specific circumstances, such as in urban or rural setting. (6,7,8)

Health literacy includes the ability to understand instructions on prescription drug bottles, appointment slips, medical education brochures, doctor's directions and consent forms, and the ability to negotiate complex health-care systems. (9) The 2006 National Assessment of Adult Literacy survey indicated that 43 percent of the adult population have limited health literacy skills and have difficulty understanding basic health information. (10,11)

Until recently oral health literacy has been largely ignored, but it is a priority for future research. Oral health literacy is the degree to which individuals have the capacity to obtain, process, and understand basic oral health information and services needed to make appropriate health decisions. Limited literacy skills among adults are widespread and are hypothesized to have a large effect on oral health disparities, creating a barrier to achieving better oral health outcome. (12,13) Oral health literacy levels among dental patient populations can be estimated with the

previously validated Rapid Estimate of Adult Literacy in Dentistry (REALD-). In a study assessing oral health literacy among adult general dental patients, it was found that those with incorrect knowledge of dental questions and fair/poor oral health status had greater odds of having a low literacy level than those with correct knowledge. (14,15)

Periodontal disease is a widespread chronic inflammatory dental disease with potential for systemic health implications. (16) Patients may present with a reversible condition: gingivitis, or an irreversible condition: periodontitis. This study focuses on patients with periodontitis as defined by the Centers for Disease Control and Prevention. (17)

Hence, the purpose of the current study was to determine the impact of socioeconomic status on periodontal health among patients who reported to Saveetha Dental College and Hospitals, Chennai. Our research experience has prompted us in pursuing this survey (Hemalatha and Dhanraj, 2016) (Ramya, Pandurangan and Ganapathy, 2019) (Anjum, Ganapathy and Kumar, 2019; Inchara, Ganapathy and Kumar, 2019) (Philip, Ganapathy and Ariga, 2012) (Gupta and Dhanraj, 2009; Mohamed Usman *et al.*, 2013; Indhulekha, Ganapathy and Jain, 2018) (Ganapathy *et al.*, 2013) (Menon and Ganapathy, 2019).

## **MATERIALS AND METHODS:**

The current study was an institutional study which was carried out in Saveetha Dental College and Hospitals, Chennai. Ethical clearance was obtained from the Institutional Ethical Committee (Ethical approval number - SDC/SIHEC/2020/DIASDATA/0619-0320). A total of 200 dental records of patients aged from 35 to 45 years, who had visited the institution for dental check up from June 2019 to March 2020 were reviewed and the demographic data regarding the patient's socioeconomic status and clinical data regarding periodontal status were retrieved. The socioeconomic status was categorised based on kuppuswamy scale and periodontal health was categorised into periodontitis and gingivitis.

## **STATISTICAL ANALYSIS:**

Data was entered in Microsoft Excel Sheets and processed using IBM SPSS (statistical package for social sciences) software, Version 23.0 for analysis. Descriptive and inferential statistics were used. Frequency distribution and percentage was calculated. And Chi-square analysis was used to assess the association between socioeconomic status and periodontal health.

## **RESULTS:**

The present study assessed the impact of socioeconomic status on periodontal health. Total of 200 subjects were included in the study. Out of 200 patients 31% of the subjects belong to lower class, 14% of subjects belong to lower middle class, 21% of subjects belong to middle class,

15% of subjects belong to upper middle class and 19% of subjects belong to upper class according to kuppuswamy scale. (FIGURE 1)

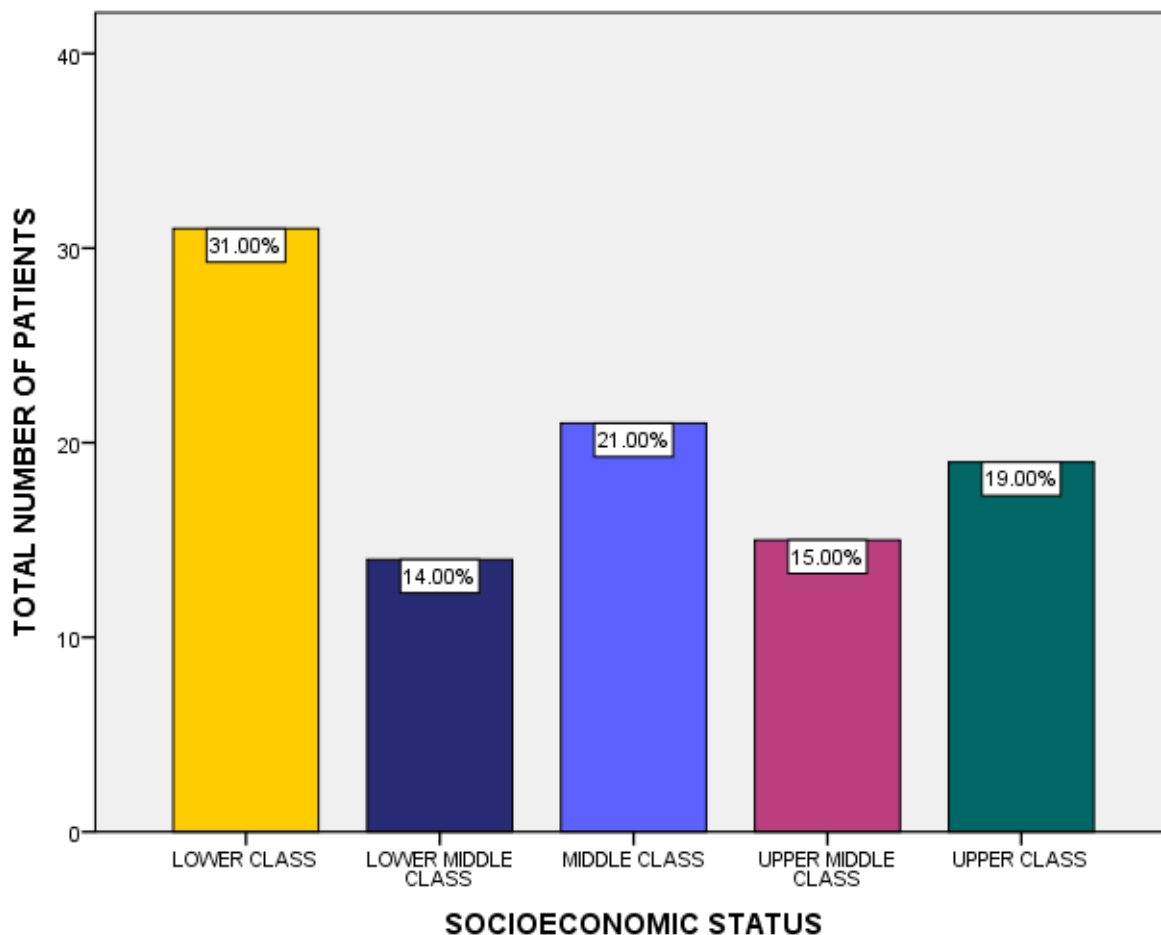


FIGURE 1: Bar graph represents the distribution of study subjects based on the Kuppuswamy scale, where X-axis represents the Socioeconomic status and Y-axis represents the total number of patients. 31% of the subjects belong to lower class, 14% of subjects belong to lower middle class, 21% of subjects belong to middle class, 15% of subjects belong to upper middle class and 19% of subjects belong to upper class.

The distribution of periodontal disease among different socioeconomic categories were assessed. In middle class category, 27% had periodontitis and 4% had gingivitis. In lower middle class category, 8% had periodontitis and 6% had gingivitis. Among middle class people, 9% had periodontitis and 12% had gingivitis and among upper middle class people, 5% had periodontitis and 10% had gingivitis. And in upper class people, only 2% had periodontitis and 17% had

gingivitis. (FIGURE 2) Also, association between socioeconomic status and periodontal health was found to be statistically significant ( $p>0.05$ ).

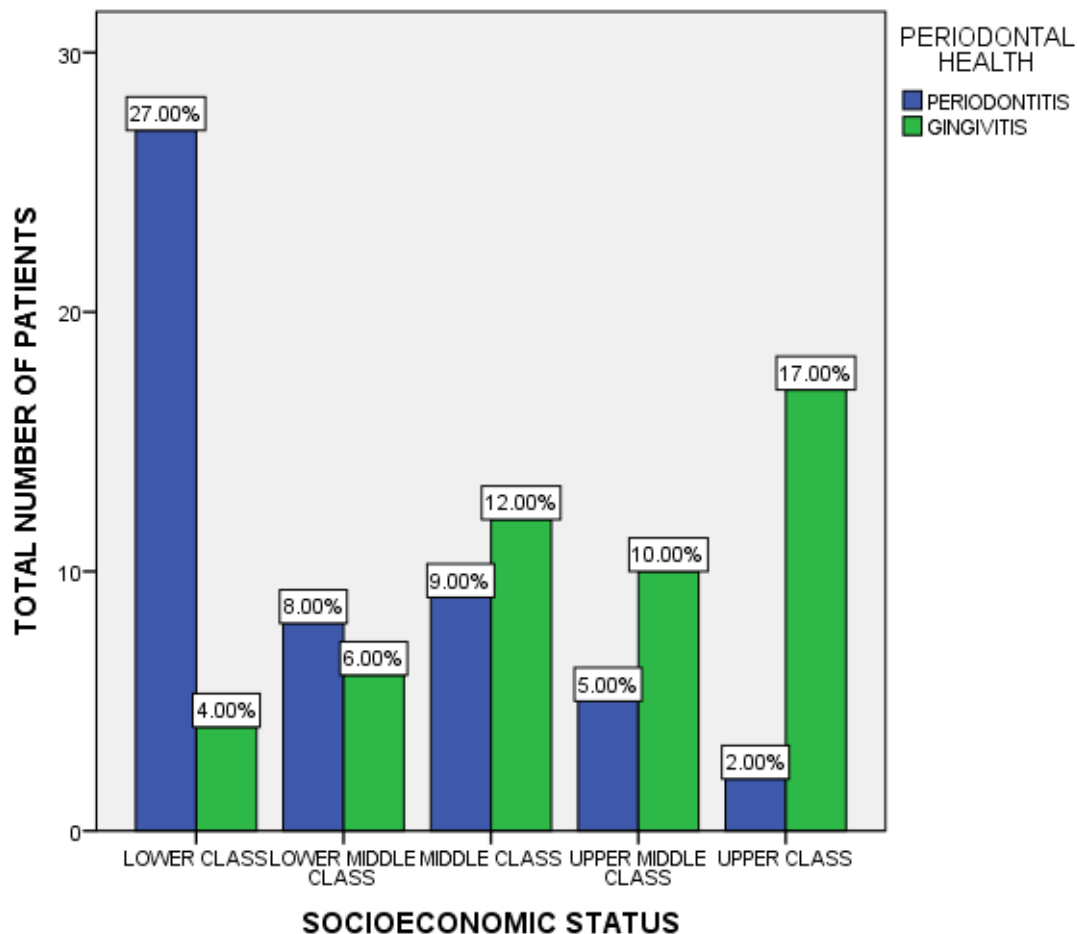


FIGURE 2: Bar chart representing the association between subjects based on periodontal index and number scale, where X-axis represents the socioeconomic status and Y-axis represents the total distribution of patients. Periodontitis was present more commonly in lower class people and relatively less in the upper class population.

### DISCUSSION:

The present study was conducted to assess the impact of socioeconomic status on periodontal health. In the present study, periodontitis was most common in lower class population when compared to upper class population. Also majority of the upper class population was diagnosed with gingivitis when compared to lower class population.

Gundala R et al conducted a study to assess the effect of lifestyle, education and socioeconomic status on periodontal health and found that there was a strong association of lifestyle, education level and socioeconomic status with periodontal health.(18) Sakki Tk et al conducted a study to investigate the association between lifestyle and periodontal health and found the probing pocket depth and attachment loss was increased with an unhealthier lifestyle as compared with people with healthy lifestyle.(19)

Gautham DK et al conducted a study to assess the dental awareness and periodontal health status in different socioeconomic groups in the population of Sundernagar, Himachal Pradesh, India and observed that oral hygiene awareness and periodontal condition were significantly associated with socioeconomic status.(20) Park HJ et al conducted a study to evaluate the effects of socioeconomic status, oral health consciousness and behaviors on the periodontal health disparities among Korean adult and demonstrated that there is a strong association between socioeconomic status and periodontal health.(21)

These studies are in agreement with the previous studies, as 27% of the lower class population were diagnosed with periodontitis whereas only 2% of the upper class people were diagnosed with periodontitis.

Sreenivasan PK et al conducted a study on oral health practices and prevalence of dental plaque and gingivitis among Indian adults and observed that oral health practices were neglected among lower socioeconomic status people as compared to people with high socioeconomic status. Also, the plaque and gingival index scores were high among low socioeconomic status people when compared to people with high socioeconomic status.(22) Chandra Shekar BR et al assessed the oral health status in relation to socioeconomic factors among the municipal employees of Mysore city and found that overall dental treatment needs were more in lower class people than in upper class people.(23)

Hass AN et al studied the occurrence and predictors of gingivitis and supragingival calculus in a population of Brazilian adults and found out that the percentage of calculus and occurrence of gingivitis was associated with age, self reported proximal cleaning, smoking, dental care and socioeconomic status.(24) The results of the present study was in accordance of these previous studies.

## **CONCLUSION:**

The present study showed the prevalence of periodontitis (27%) was high among patients belonging to low socioeconomic status. Whereas, only 2% of them belonging to high socioeconomic status presented with periodontitis. Also, there was a positive association between socioeconomic status and periodontal health. Therefore the study emphasizes the need for more oral health awareness programmes among low socioeconomic status people to improve their oral health.

### **AUTHOR CONTRIBUTIONS:**

Author 1 (Noorul Aneesa.N) carried out the retrospective study by collecting data and drafted the manuscript after performing the necessary statistical analysis. Author 2 (Dr. Arvina Rajasekar) aided in the conception of the topic, participated in the study design, statistical analysis and supervised in preparation of the manuscript and helped in study design and coordinated in developing the manuscript. All the authors have equally contributed in developing the manuscript.

### **CONFLICTS OF INTEREST:**

There are no conflicts of interest.

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