Original Article

Effect of Social Class on the Prevalence and Severity of Periodontal Disease

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SUMMARY

Objectives: **This study is aimed at assessing the influence of socio-economic status on the severity of periodontal disease.**

Materials and Methods: **A one year retrospective study of 298 patients who had been treated at the periodontics clinic of the University College Hospital, Ibadan was conducted. Case file records were reviewed and information on patients' bio-data, occupation and periodontal health status as indicated by the plaque and gingival indices were retrieved. The patients were categorized into various socio-economic classes, utilizing the occupational strata devised by Famuyiwa et al. The association between periodontal health and socio-economic classes of patients was statistically assessed using Chi-square tests ($P<0.05$).**

Results: **Most of the patients were civil servants accounting for 86 (29.4%) of the group, 79(26.6%) were students, 63 (21.5%) were professionals and 55(19.1%) were classified as unskilled. The semi-skilled group was least represented constituting 10 (3.4%) of the entire patient population. Chi-square analysis revealed no significant association between socio-economic class and periodontal health status.**

Conclusion: **The findings of this study suggest that the severity of periodontal disease does not have a significant association with the socio-economic status of patients. We identified some limitations of the study and suggest further investigation on this subject.**

INTRODUCTION

Epidemiologic surveys have shown the universal distribution of periodontal disease [1] which is usually preceded by gingivitis. However, gingivitis may persist over a long period of time without necessarily progressing to periodontitis. When, the periodontium is involved, there is usually an associated destruction of the alveolar bone with formation of a periodontal pocket, tooth mobility and eventual loss of tooth [2].

The health burden involved in coping with fulminant periodontal disease and tooth loss is considerable and the attendant management is demanding on both patients and clinicians. Preventive approach is therefore recommended. For effective planning and execution of preventive measure, identification of people at greater risk is highly essential hence, some researches have been focused in this direction. Many studies on this subject have shown inverse relationship between the severity of periodontal disease and occupational class. Similar relationship has been established with other socio-economic parameters such as level of education and income. This has been attributed to the close tie between level of education, income and occupation [3,4].

A literature search on this subject revealed that most of the relevant publications were based on studies conducted among non African populations. To the best of our knowledge, only one Nigerian study exists and this was a prospective study earlier conducted in our institution by one of the current authors [2]. Here we embarked on a retrospective review of the case record files of some previously treated patients in our clinic with a view to investigating the relationship between occupational class and severity of periodontal disease and to compare with the findings of the earlier study from the centre.

Materials and Methods

The study was a retrospective analysis of two hundred and ninety- eight patients treated over the last one year in the periodontics clinic of the University College Hospital Ibadan, Oyo state Nigeria.

The case notes were retrieved and reviewed. Data retrieved include patients' occupation, age, sex, gingival index [5] and plaque index [6]. Severity of periodontal disease of individual patient was based on the average scores of the indices. Social stratification of the patients was based on occupational strata as devised by Famuyiwa *et al.* [7] with some modifications.

Statistical association between the indices of periodontal disease and occupational classes was assessed using chi-square tests. Significance was established at 95% confidence interval.

I. Executive managers, Company directors, Professionals (Doctors, Lawyers, Engineers), University Professors, Traditional chiefs.
II. Civil servants, Nurses, Professional Teachers including university and polytechnic Teachers, Secretaries, Businessmen*.
III. Semi-skilled- Tailors, Bricklayers, Carpenters (Joiners), Typists, Sewing mistresses, Clerks. Housewives*
IV. Unskilled- Messengers, Roadside traders, Cleaners, Night guards, Farmers*
V. Students

**Pensioners were classified based on last job before retirement.*
** Indicates modifications to original classification.*

Results

Two hundred and ninety eight patients with age ranging from 16-84 years were reviewed. 151 (50.7%) were males while 147 (49.3%) were females. Majority were within the age bracket of 20 and 70 years with only 10 (3.36%) patients below 20 years and 28 (9.4%) above 70 years of age [Table 1].

Table 1: Occupational strata of Famuyiwa OO, Olorunshola DA and Derin A (1998) - modified.

Table 1: Age and Sex distribution of the subjects

Age groups	Male	Female	Total	%
< 20	7	3	10	3.36
20-29	44	49	93	31.21
30-39	29	20	49	16.44
40-49	17	14	31	10.40
50-59	27	26	53	17.79
60-69	14	20	34	11.41
> 70	13	15	28	9.4
Total	151(50.7%)	147(49.3%)	298	100

into the occupational class I of which 10 (15.9%), 48(76.2%) and 5(7.9%) patients had good, fair and poor oral hygiene respectively. In occupational class II, there are 86 patients while classes III, IV and V have 10, 55, and 79 patients respectively. The proportions of patients with good, fair or poor oral hygiene within each class are presented on table 3. There is no statistically significant difference across the occupational classes (P = 0.70).

Clinical level of oral hygiene is assessed by plaque and calculus accumulation and the correlation between bacterial plaque accumulation and severity of inflammatory periodontal diseases have been proven [2, 8]. In the pathogenesis of periodontitis, bacterial plaque is the most implicated aetiological factor while the clinical picture in individual patients
are modified by certain local and systemic factors which contribute to the progression of the disease. In the present study we recorded the gingival index [5] and plaque index [6] of the subjects as a measure of progression and severity of periodontal disease.

Studies have shown significant difference in the severity of periodontal disease among people of different socio-economic status [3, 9, 10]. Individuals at the higher socioeconomic class are generally believed to have better periodontal health and this is in consonance with the general belief that people in upper socio-economic classes have healthier behavior and lifestyles than do people in lower classes [11]. This has been adduced to the better oral health awareness brought about by literacy level of the individuals. Our findings in the present study contradict this popular

Table 2: The relationship between social classes and the gingival index

	GINGIVAL INDEX			
Social Status	0.1-1.0 (mild gingivitis)	1.1-2.0 (Moderate gingivitis)	2.1-3.0 (severe gingivitis)	Total
I	13(21.0%)	47(75.8%)	2(3.2%)	62(100%)
II	18(20.9%)	63(73.3%)	5(5.8%)	86(100%)
III	-	10(100 %)	-	10(100%)
IV	8(14.3%)	48(85.7%)	-	56(100%)
V	19(24.4%)	57(73.1%)	2(2.6%)	78(100%)
Total	58(19.9%)	225(77.1%)	9(3.1%)	292(100%)

The association between gingival index [5] and occupational class is depicted on table 2. The data on 6 patients were missing and so were not represented on the table. Sixty two patients fell into the occupational class I among whom 13 (21%), 47(75.8%) and 2(3.2%) patients had mild, moderate and severe gingivitis respectively. In occupational class II, there are 86 patients while Class III, IV and V have 10, 56 and 78 patients respectively. The proportions of patients with mild, moderate or severe gingivitis within each class are presented on table 2. There is no statistically significant difference across the occupational classes (P =0.30) Likewise, the association between plaque index [6] and occupational class is depicted on table 3. The data on 5 patients were missing and thus were not represented on the table. Sixty-three patients fell

belief. This could have been due to the fact that majority of our patients attend the clinic for symptomatic treatment and only those considered to have poor oral hygiene are referred for scaling and polishing from the oral diagnosis clinic.

We observed that a comparable proportion of patients in occupational class I (75.8%) and Class IV (85.7%) had moderate gingivitis. The proportions of patients having mild and severe gingivitis were also similar across all the occupational classes, no statistical significance was demonstrated when the plaque accumulation and clinical progression or severity of periodontitis was compared. This is a departure from common belief and it therefore requires further research. Does the assumption of positive correlation between periodontal disease and socioeconomic class

Table 3: The relationship between the social classes and the plaque index

	PLAQUE INDEX			
Social Class	0.00-0.99 (Good)	1.01-2.00 (Fair)	2.01-3.00 (Poor)	Total
I	10(15.9%)	48(76.2%)	5(7.9%)	63(100%)
II	7(8.1%)	72(83.7%)	7(8.1%)	86(100%)
III	-	8(80.0%)	2(20.0%)	10(100%)
IV	8(14.5%)	42(76.4%)	5(9.1%)	55(100%)
V	11(13.9%)	60(75.9%)	8(10.1%)	79(100%)
Total	36(12.3%)	230(78.5%)	27(9.2%)	293(100%)

really hold in our environment? Or is there a changing trend in the attitude to oral health among the higher socioeconomic class? There is no existing evidence based answer to these questions, hence more studies are required.

In our literature search we found only one previous study [2] on this subject conducted in this environment. The finding of this previous study was consistent with the general assumptions and therefore contradicted by the present study. These two individual studies may not be enough to answer the foregoing questions in this environment.

We live in a society where oral health awareness is generally poor and should not be assumed to correlate with general literacy. We believe that the retrospective design adopted for this study has eliminated some observer bias although the possibility of inaccurate recording and inter-examiners error is a reality. This is a shortcoming.

CONCLUSION

Until sufficiently proven, we wish to recommend that it should not be assumed that people of higher socio-economic status have better periodontal health in this environment. It should also not be taken for granted that higher socio-economic status confers sufficient knowledge of oral health care on people. Rather, oral health education, in this environment, should equally be directed at everybody irrespective of their socio-economic status.

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