

**The effect of social class on periodontal condition
and treatment needs of 13-15 year old students in
Mosul city - Ninevah : Iraq**

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ABSTRACT

This Study was carried out on 900 intermediate school students aged 13-15 years from high, middle and low socioeconomic classes in the center city of Mosul in order to determine the prevalence of periodontal disease and treatment need with the three different socioeconomic levels .

The CPITN (Community Periodontal Index of Treatment Needs) was used to assess the periodontal condition and treatment needs . The results showed that the disease was prevalent in 97.6% of the sample , with a slight higher percentage of students with healthy gingiva in high social class group compared to middle and low class(4% , 2% and 1.3%) respectively , but with no statistically significant difference between them .

The result indicated that there was statistically significant difference in the mean number of healthy sextants in the three groups (1.78 , 1.32 and 0.91) for high , middle and low class respectively .

Results also revealed a significant healthier gingiva in females compared to males (1.55 for females and 1.12 for males) .

The periodontal treatment needs for the students were massive with no significant difference between the three socioeconomic level, while there are statistically significant differences between males and females , as more males need prophylactic scaling and polishing compared to females.

Key words : CPITN , Social class , periodontal health, treatment need .

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الخلاصة

أجريت الدراسة على عينة من 900 طالب وطالبة تتراوح اعمارهم 13-15 سنة من المدارس الثانوية لثلاث فئات اجتماعية ومالية مختلفة (عالية ، متوسطة وواطنة) من مركز محافظة الموصل لكي يتم تقييم حالة التهاب اللثة والاحتياجات العلاجية مع هذه الفئات الاجتماعية والمالية .
استخدم دليل الاحتياجات العلاجية في مجال امراض ما حول الاسنان لتقييم حالة التهاب اللثة والاحتياجات العلاجية لها .

اظهرت النتائج ان 97.6% من الطلبة مصابون بالتهاب اللثة . وان الفئة العليا سجلت افضل نسبة من حالة اللثة السليمة 4% مقارنة بـ 2% و 3.1% للفئات المتوسطة والواطنة ولا يوجد فرق احصائي بينهما . بينما كان هناك فرق احصائي بمعدل حالة اللثة السليمة بين المجاميع الثلاثة (1.87 و 1.32 و 0.91) للفئات العالية ، المتوسطة والواطنة على التوالي .

كذلك سجلت النتائج بان حالة اللثة السليمة عند الاناث افضل من الذكور بفارق احصائي (1.55 عند الاناث و 1.12 عند الذكور) .

اما الحالة العلاجية للطلاب فكان هناك احتياج كبير للعلاج التهاب اللثة للفئات الثلاثة وبدون فارق احصائي ، بينما وجود فرق احصائي للاحتياجات العلاجية بين الذكور والاناث (فالذكور يحتاجون الى تنظيف الاسنان عند طبيب الاسنان اكثر من الاناث) .

INTRODUCTION

Many studies in developed countries reported the relationship between dental health and socioeconomic studies ⁽¹⁻⁶⁾ . A number of studies have demonstrated the present relationship between Social status and dental caries ^(7,8) . They found that five year olds from social classes (IV) and (V) had twice as many teeth with decay experience as their counterparts from professional household . Thus is both the prevention of decay and control of it, children of parents from the top social class group do significantly better than the others. Also other studies showed that a similar pattern is found with regard to gingival disease in adults ^(1,9) .

Thus the need for treatment for both dental caries and periodontal disease is greater in the lower social classes .

While in the third world countries there is little information available in the relationship between dental health and socioeconomic status ^(9,10) .

So the purpose of this study is to evaluate the periodontal conditions and treatment needs is relationship to socioeconomic status in Mosul city center .

MATERIALS AND METHODS

In Iraq there is no proven accepted system of classification of socioeconomic status (social class) , therefore it is difficult to assess the individual student to which social class are . So we decide to classified the schools into three social classes (high, middle and low) according to the location of the schools , educational level and income of the majority of head of household of the students in the school .

The target population of the study are intermediate school student , aged 13-15 years. The intermediate schools selected were 12 schools from the center city of Mosul , four school selected to represent each socioeconomic class. For each social class two school for boys and two for girls were selected . From each school seventy

five students were selected randomly , the total number of students that were examined were 900 .

The assessment of the Periodontal health status and treatment needs of the students were performed using the CPITN as recommended by WHO ⁽¹¹⁾ . The examination was performed by the use of a special designed light weighted periodontal probe ⁽¹²⁾ .Six index teeth were examined in stead of ten in order to avoid classifying crevices associated with the eruption of second molars as periodontal pockets ⁽¹³⁾ .

Pocket depth was not measured (i.e, code 3 and 4) because it has been suggested that for children under 15 years of age , only the presence or absence of gingival bleeding and calculus (i.e, code 1 and 2) should he recorded due to the presence of false pockets with the eruption of permanent teeth which will give misleading results ⁽¹⁴⁾ .

Statistical analysis was carried out using Chi square test to determine if there was significant differences at 0.05 level between the three social classes and between sex .

RESULTS

Table (1) displays the distribution of the sample by different social class and sex , the sample was composed of 900 students 300 students were examined to represent the three different social class .

Table (1): Distribution of the sample by different socioeconomic classes and sex .

Socioeconomic class	Male		Female		Total	
	No	%	No	%	No	%
High	150	50	150	50	300	33.3
Middle	150	50	150	50	300	33.3
Low	150	50	150	50	300	33.3
Total	450	50	450	50	900	100

Table (2) shows the number and percentage of the students distributed according to the highest CPITN code by social class and sex. The result revealed that the students from high class had a slight higher percentage of healthy gingiva 4% than middle and low classes that had only 2% and 1.3% respectively , there was no statistical significant differences between them. Also reported no significant difference between males and females .

Table (2): Number and percentage of students distributed according to the highest CPITN Code by Socioeconomic status and sex

Social Class	Sex	Healthy		Bleeding		Calculus	
		No.	%	No.	%	No.	%
High	Male	5	3.3	39	26	106	70.7
	Female	7	4.6	48	32	95	63.4
Total		12	4	87	29	201	67
Middle	Male	4	2.6	25	16.7	121	80.7
	Female	2	1.3	29	19.3	119	79.4
Total		6	2	54	18	240	80
Low	Male	1	0.7	22	14.7	127	84.6
	Female	3	2	32	21.3	115	76.7
Total		4	1.3	54	18	242	80.7
Total Male		10	2.2	86	19.1	354	78.7
Total Female		12	2.7	109	24.2	329	73.1
Total sample		22	2.4	195	21.7	682	75.9

Social class $X^2 = 0.786$ d.f = 4 P= N.SSex $X^2 = 3.809$ d.f = 2 P=N.S

Table (3) demonstrates the number and mean number of sextants affected per student for each stage of the disease according to the socioeconomic status and sex. The result indicated that there was a statistically significant differences between the three social classes ($p < 0.01$). The students in high class had a higher mean number of healthy sextants (1.78) compared to middle and low classes that had a mean of (1.32) and (0.91) respectively, also low class had a higher mean number of bleeding sextants (3.05) compared to the other two classes. Calculus was less in high class group compared with other.

A highly significant sex difference was found ($p < 0.001$). The study reported that females tended to have a better periodontal condition than the males, in the three social class.

Table (4) shows that the periodontal treatment needs expressed as percentage of students distributed according to the type of treatment required by social class and sex. No statistical significant differences existed between the three different social class in treatment needs, while significant differences were found between males and females ($p < 0.001$) as more males needed prophylactic Scaling and polishing compared to the females.

Table (3): Number and mean of sextants affected per student for each stage of the by Socioeconomic status and sex

Social Class	Sex	Healthy code		Bleeding code		Calculus code	
		No.	Mean	No.	mean	No.	Mean
High	Male	251	1.67	410	2.72	242	1.61
	Female	283	1.88	395	2.63	219	1.46
Total		534	1.78	805	2.68	461	1.54
Middle	Male	150	1	435	2.9	315	2.1
	Female	246	1.64	366	2.44	288	1.92
Total		396	1.32	801	2.67	603	2.01
Low	Male	105	0.7	462	3.08	333	2.22
	Female	169	1.13	451	3	280	1.87
Total		274	0.91	913	3.05	613	2.04
Total male		506	1.12	1307	2.9	890	1.98
Total Female		698	1.53	1212	2.7	787	1.75
Total sample		1204	1.34	2519	2.8	1677	1.86

Social class $X^2 = 57.148$ d.f = 4 P = <0.01
Sex $X^2 = 461.72$ d.f = 2 P = <.001

Table (4): Periodontal treatment need expressed as percentage of student distributed according to type of treatment required by Socioeconomic status and sex

Social Class	Sex	Healthy		Bleeding		Calculus	
		No.	%	No.	%	No.	%
High	Male	5	3.3	145	96.7	106	70.7
	Female	7	4.6	143	95.3	95	63.4
Total		12	4	288	96	201	67.1
Middle	Male	4	2.6	146	97.3	121	80.7
	Female	2	1.3	148	98.7	119	79.4
Total		6	2	294	98	240	80
Low	Male	1	0.7	149	99.3	127	84.6
	Female	3	2	147	98	115	76.7
Total		4	1.3	296	98.6	242	80.7
Total male		10	2.2	440	97.7	354	78.7
Total Female		12	2.7	438	97.3	329	73.1
Total sample		22	2.4	878	97.5	683	75.4

Social class $X^2 = 4.103$ d.f = 4 P = N.S
Sex $X^2 = 745.805$ d.f = 2 P = <.001

DISCUSSION

The community periodontal Index of treatment Needs (CPITN) was originally developed for the purpose of rapid and practical assessment of various periodontal treatment needs in population surveys ⁽¹⁵⁾, despite it is overestimation of the real treatment needs ⁽¹⁶⁻¹⁸⁾, it is an easy and practical tool for the assessment of periodontal status in 12 and 15 year old children in different nations and environments⁽¹⁹⁾.

This study was designed to evaluate the relationship between periodontal disease and social class . The findings of the study reported high prevalence of the disease (97.6%) . This findings is more than that reported in other studies carried out in Iraq ^(20,21) . The study indicated that there was differences in the percentage of the students distributed according to the highest CPITN code by social class , as high social class had (4%) of the students with a healthy gingiva, middle had (2%) and lower social class reported only (1-3%) there was no statistical significant differences between them .

According to sex, the females tend to have very slight healthy gingiva (2.7%) compared to males (2.2%) , but there was no statistical significant differences between them .

Most of the males and females in the three social classes had calculus as the most frequently observed periodontal condition (75.9%) , this is in contrast to the findings reported in other studies ^(20,22), were most of the students had gingival bleeding as the highest score. This may be attributed to the reason of limited dental attendance and neglect of oral health.

There was a statistically significant difference between the three social class in the mean number of healthy sextants ($p < 0.01$) , as high social class had a mean of (1.78) , middle class (1.32) and low class (0.91) . This is in agreement with other studies that found unfavorable periodontal conditions in the lower income and lower social class groups ⁽²³⁻²⁶⁾.

This may be attributed to the reason that high social class individuals who had a higher level of education and had more knowledge about dental health, so they perform more regular oral hygiene measure and more regular in their dental visits for professional cleaning and other preventive measures⁽²⁷⁾.

Females tended to have amore healthier gingiva compared to males with a mean of (1.55 & 1.12) respectively, the differences were highly significant ($p < 0.001$) . This may be attributed. to the reason that females at this age begin to pay more attention to their external appearance and begin to perform more regular oral hygiene measure than the males, this finding is in agreement with other studies ^(10,20,28,29,30).

The study showed that the periodontal treatment needs were massive in the three socioeconomical groups , as the disease was prevalent in (97.6 %) of the sample with no statistical significant difference between the three social classes in the treatment needs . Oral hygiene instruction was needed in more than (96%) of the sample , while professional prophylaxis was needed in 67% ,80% and 80.7% in the high, middle and low classes respectively .The high percentage of prophylaxis treatment reflects the massive need for periodontal therapy . This condition is universal in most of third world countries ^(19,21) .

Periodontal treatment needs were needed more in males than in females with statistically significant at ($p < 0.001$) .This may be attributed to the reason that females have a healthier : gingiva due to the reason that females generally brush their teeth more frequently than males this finding was reported in many studies ⁽³¹⁻³³⁾.

Negligence of Oral health was a general problem for the total sample of students especially with the low social class group .

The finding of this study indicate that periodontal disease is prevalent in this population in general, the treatment needs were massive and were more towards oral hygiene procedures and scaling as recommended in the CPITN methodology with more focusing on the low Social class group that have a more unfavorable periodontal condition as in other studies^(19,26).

The all social classes students are in need of dental preventive program. The priority should be given to primary prevention programmes that aimed to improving the periodontal health by instruction the students to carried out thoroughly and regularly good oral hygiene. This can be achieved in school setting program where it is possible to reach large number of school students with well planned preventive measures, in addition to regular attendance to dental clinic to carry out dental prophylaxis treatment.

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