



## **Socio-Economic Condition in Relation to Oral and Dental Health Status Through the Study of 184 Iraqi Pupils**

**Dr. Bushra Hamza, \***

**Dr. Menahil Muhammed Hussein, \*\***

**Dr. Sabah Mukhtar, \*\*\***

### **Abstract**

The aim of this study is to evaluate the relationship between the social and economic condition of the studied pupils with the health of oral and dental condition and the manifestations inside the oral cavity of those tested pupils reflected this relation.

A sample of 184 pupils was collected from different middle schools with ages ranging between 12-18 years. This sample consists of 84 males and 100 females.

The pupils were divided into 3 groups: Group A: pupils with missing fathers and low income level. Group B: pupils with their fathers and mothers work and of high income level. Group C: pupils with their mothers being house keepers and of middle income level.

Information related to those groups of pupils were collected and statistically analyzed to obtain the relationships between the socio-economic status of the studied cases of pupils and the following variations: dental caries, teeth extraction, gingivitis, visits to the dentist and asking oral and dental services and psychological and general health status. The obtained results showed that, gingivitis, loss of teeth and dental caries will increase when the socio-economic status decreased and the opposite of that was correct. Which means those pathological conditions decreased when the socio-economic level increased. Visits to dentists and asking for dental care depending on the dental education and the economic level of the pupils, again psychological and general health status also depend on the socio-economic levels, so according to this study many good psychological and health status were found in high income pupils.

### **Introduction**

Engerio conducted a study showed that dental caries is a common chronic disease that cause pain and problems if left untreated and may lead to infection, tooth loss and edentulism<sup>[1]</sup>.

Population with severe decays in general were mostly of low socio-economic status and revealed variation in DMFT (Decay, Missing, Filling,

Treatment) scores were associated primarily with parents education<sup>[2]</sup>.

Dental caries as a common problem, this pathology in underdeveloped countries still the disease that depend on three factors diet, micro-organisms, and host defense multifactor, socio-economic status establish caries risk, factors like

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\*Assistant Professor, Institute of Medical Technology

\*\*Lecturer, Institute of Medical Technology

\*\*\*Assistant Lecturer, Institute of Medical Technology

clinical and microbiological data <sup>[3]</sup>.

A complex process that may involve numerous factors that are related to tobacco use ,diet ,health behaviors ,all these factors aid in the teeth loss in addition to that the socio-economic status and deficient care play a role in this aspect <sup>[4]</sup>.

Many studies reflected that the prevalence and severity of periodontal diseases among young adult were very low and these studies revealed very mild conditions of periodontal diseases that could be treated by cleaning the mouth and follow the oral hygiene instructions high clinical levels of oral hygien had been done to improve the periodontal diseases states in the tested young adult group <sup>[5]</sup>.

We have in Iraq so many families whose mothers are house keepers, they may be educated or non-educated, and these families had lower incomes than those families with both parents were working.

Our recent study were arranged to identify the relationship between the socio-economic condition of the studied Iraqi pupils and the status of caries, missing teeth, gingivitis, visit to the dentist and finally general health and psychological status.

The importance of this study comes from that wars and terrorism affect all the Iraqi people status with different aspects of life specially the socio-economic condition which in turn affects the oral and general health status in addition to the psychological conditions. All these influence the relationship between the socio-economic conditions and the oral and dental care statement.

## Materials and Methods

A. the material used in this study described as follow:

- a. The diagnostic instruments for oral and dental lesions which are:

Mirrors, Probes and periodontal measuring pocket probe.

- b. Special case-sheets were filled with information about the pupils status and used for diagnosis by collection of these information and analyzed these information statistically.
- c. Camera and its requirement for photography some studied cases related to this study.
- d. The sample which is used for the study consist of 184 pupils [100 females and 84 males]. The age of those pupils ranged between 12-18 years, they are pupils of middle intermediate schools.

### B. The methods:

We visited many middle intermediate schools for boys and girls in Baghdad, then 184 pupils [84 males and 100 females] were examined clinically and case-sheet was filled for each pupil, in addition to that the pupils were asked about information related to the family status and the healthy and psychological conditions needed for filling the case-sheet. Also many notes were taken during examining the pupils, such as the pupil's personality and dental care.

Those studied cases were divided into 3 groups:

Group A: Includes pupils with missing fathers which means low-income pupils.

Group B: Includes pupils with their fathers and mothers working which means high income pupils.

Groups C: Includes pupils whose mothers were house-keepers and only their fathers working which means middle-income pupils.

After we collect all the information needed to fill the case sheets then we did statistical analysis to all the records we get which include descriptive package of social sciences [SPSS].

Comparisons were done between males and females in each group about the percentage and the prevalence of caries, extraction of teeth, gingivitis and visits to the dentist.

Chi-square was done for all the records about oral health, general health and psychological status to get the significant variation of each record in each group.

## Results

A statistical analysis was done for all the information obtained from the examination of 184 studied pupils. These findings were arranged in tables to identify the results as follow:

1. Table (1) revealed the following:

1.a. Groups A which represented pupils with missing fathers and low income level. There were 16 cases of male pupils and 14 females out of the total number which was 18 studied cases, that means the percentage of the pupils in this group was 14% among the whole studied pupils.

1.b. Group B which represented pupils with their fathers and mothers work and high income level, there were equal numbers for males and females, each number for both males and females was 28 cases, so that the percentage for this group of pupils was 30% throughout the total number of cases.

1.c. Group C which represented pupils with their mothers were housekeepers and middle income level, in this group there were 40 males and 38 females. The percentage was 56% which was the highest among other percentages.

2. Table (2) showed the followings:

2.a. Group A (low income with missing fathers):

the incidence of dental caries for this group in males was twice than that in females, in other words the percentage of dental caries in male cases was 100% in this group.

2.b. Group B (high income with working parents):

in this group the incidence of dental caries in males nearly twice than that in females, also the percentage of dental caries in males was high.

2.c. Group C (middle income with house keeper mothers):

Dental caries recorded 32 male pupils affected by caries out of 40 pupils while 26 female pupils were affected by caries out of 58 cases.

As general the incidence of dental caries in males higher than that of females according to this study.

3. Table (3) reflected the followings:

3.a. Teeth extraction in pupils with low income level was twice in males than that in females.

3.b. Teeth extraction in pupils with high income level, the incidence of extraction in males about 4 times than that in females, and we found that lower percentage of dental extraction in those pupils with high income specially in females were present in this group pupils.

3.c. Dental extraction among pupils with middle income level again recorded low incidence of extraction of teeth specially in females. While about half of the total male pupils in this group were affected by dental extraction.

4. Table (4) illustrated the following findings:

4.a. Pupils with low income and pupils with high income, the incidence of gingivitis in males was twice than that in females,

and it was equally in both high and low income which was 12 male cases and only 6 females were affected by gingivitis, but however the percentage was high in low income pupils while it was low in high income pupils.

- 4.b. In pupils with middle income level recorded equal number of cases for both gender affected by gingivitis, 34 cases for each males and females, and this represented high percentage.
5. Table (5) reviewed calling dental services by visiting the dentist:
  - 5.a. Visits to the dentist were high in pupils with high income level whose fathers and mothers were working.
  - 5.b. Visits to the dentist in pupils whose mothers were house keeper and with middle income were little.
  - 5.c. The lowest incidence of dentist visits was found in pupils with low income and whose fathers were missing.
6. Table (6) recorded the followings:
 

High incidence of good and fair psychological status was recorded in pupils with high income level, followed by pupils whose income was middle but low income pupils recorded slightly lower incidence of good psychological status.
7. Table (7) pointed to that good healthy status was shown in pupils whose income was high and their parent were working followed by pupils with middle income level whose mothers were housekeepers so we get high Chi Square and less P-value, so the results were highly significant.

## Discussion

Poor oral health affects much low income and other vulnerable population that was with agreement

with our findings, so the low income pupils in this recent study developed many dental problems and different oral health defects. Significant association with dentitions status where level of income and occupation at lower income levels of person mean increasing in dental disease while in highest level, decreasing of oral and dental diseases were found that is in agreement with our findings <sup>[6]</sup>.

Key markers of dental health and the use of services for dental problems such as untreated caries and lost teeth show that low income populations bear disproportionate level of dental diseases and make fewer dental visits, in general environment between the social status and material knowledge and efficiency may be more important than economic factors alone <sup>[7]</sup>, that is agreed our results in relation to poor visits to the dentist, and many dental problems were associated with low income pupils but in this study our findings pointed to the greatest importance of the economic factor for these studied pupils.

A study had been conducted in the United Kingdom to indicate the dental caries status of permanent teeth for adolescent boys, that study appeared benefit from dental sealant <sup>[8]</sup>, while in our study no one of the studied pupils made dental sealant as preventive procedure against caries even those pupils with high income, this may referred to insufficient dental education in Iraq.

Wars and terrorism in Iraq affect the socio-economic status of the society and many Iraqi men who are responsible of big families were killed and became victims for terrorism, our sample was good example for many cases of pupils whose fathers were missing. In this recent study there were about 14% of pupils lost their fathers and this group of pupils was

considered to be low income level as it shown in table (1).

In respect to caries Table (2) revealed that in low income group ( missing father group) whose income was low, there were 16 males and all of them were affected by caries that is mean the percentage of caries in males for this group was 100%, while 8 females of this group out of 14 were developed caries, so the percentage was 60%. In group B pupils whose income was high and their fathers and mothers work, the percentage of caries was very low but still the percentage of caries was higher in males than in females, so one of the important finding of this study that high percentage of dental caries was inversely proportional with the high income level of the studied cases of pupils. As general the high percentage of dental caries in pupils whose ages between 12-18 years and with low income may be belonged that those pupils neglected their teeth without cleaning and not asking for dental care may be due to shortage in economy or in dental education.

Table (3) reflected that pupils of low income developed the high percentage of teeth extraction, about 75% of males and 50% of females extracted their teeth. In middle income pupils about 50% of males and 8% of females had affected by teeth extraction. The lowest percentage of teeth extraction had been found in high income pupils, it was 30% for males and only 7% for females.

Lowest percentage of teeth extraction had been shown in high income pupils, because those pupils can be able to pay the cost of treatment and prevent toothache and extractions, so avoiding teeth extraction by early treatment of caries depending on the economic and education status for these pupils.

These results agreed with the study conducted by Eklund and Burt that explained the effect of risk factors for total tooth loss in USA which appeared that low income people lost six or more teeth than that of higher income <sup>[8]</sup>. High percentage of teeth extraction in low income pupils may be explained that those groups of pupils neglecting their teeth cleaning then the result was dental caries, pulpitis, toothache and finally ended with extraction.

Bawden JW, Stanmeyer WR appeared that current fluoridation therapy in children by drinking water and application decreased the incidence of dental caries in young adults <sup>(9)</sup>. In our schools, the dental or healthy care was limited.

Table(8) reflected highly significant results of teeth extraction in middle income pupils , while it recorded significant results in both pupils with high and low income status of pupils.

B. A. Burt conducted a study in the university of Michigan by application program dental public health which appeared latter good prophylaxis against oral and dental lesions <sup>(10)</sup>, while in Iraq such studies are still yet to be applied.

Table(4) showed that gingivitis affected mainly group of pupils with middle income (whose mothers were housekeeper )while low percentage of gingivitis affected mainly group of pupils with low income were missing and also in high income , in both high and low income pupils males affected twice more than female , while in middle income both gender affected equally. According to this study males were affected more than females that was true when we compared the incidence of gingivitis which affect males with the numbers of visits to dentist which were very rare or absent not visited the dentist by those pupils means more oral diseases and less

dental care, so that the result was gingivitis and other oral and dental problems. On the other hand table <sup>(5)</sup> referred to that high income and middle income pupils showed more visits to the dentist and more calling dental services than those of low income pupils who had little or no visit to dentists neither calling dental services. Visits to the dentist showed significant results in high income pupils as shown in table <sup>(8)</sup>.

The psychological status of the studied pupils appeared significant results and more good results in high income pupils than in low income pupils as it was seen in table <sup>(6)</sup>.

Table (7) illustrated that high significant results were obtained in respect to general health status and the good healthy status recorded the highest percentage.

According to this study important result was concluded which was that the socio-economic status plays a role in affecting the dental caries development, loss of teeth, visits to dentist and asking dental services, gingivitis formation and improvement

of psychological and general health status.

Finally good and accepted socio-economic level for people prefer good dental and oral health.

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Table(1) Grouping of pupils

	Male		Female		Total	
	No.	%	No.	%	No.	%
Low income pupil	16	53.3	14	46.7	30	100
High income pupil	28	50.0	28	50.0	56	100
Middle income pupil	40	40.8	58	59.2	98	100

Table(2) DMF

	Male		Female		Total	
	No.	%	No.	%	No.	%
Low income pupil	16	66.7	8	33.3	24	100
High income pupil	22	68.75	10	31.25	32	100
Middle income pupil	32	55.2	26	44.8	58	100

\*Chi-square=2.064 p=0.0486 P<0.05 Significant

Table(3)Extraction

	Male		Female		Total	
	No.	%	No.	%	No.	%
Low income pupil	12	66.7	6	33.3	18	100
High income pupil	8	80.0	2	20.0	10	100
Middle income pupil	22	84.6	4	15.4	26	100

\*Chi-square=2.044 p=0.047 P<0.05 Significant

Table(4)Gingivitis

	Male		Female		Total	
	No.	%	No.	%	No.	%
Low income pupil	12	66.7	6	33.3	18	100
High income pupil	12	66.7	6	33.3	18	100
Middle income pupil	34	50.0	34	50.0	68	100

\*Chi-square=2.018 p=0.049P<0.05 Significant

Table(5)Visit to dentist

	Male		Female		Total	
	No.	%	No.	%	No.	%
Low income pupil	2	100	0	-	2	100
High income pupil	12	75.0	4	25.0	16	100
Middle income pupil	6	37.5	10	62.5	16	100

\*Chi-square=2.651 p=0.039P<0.05 Significant

Table(6)Psychological status

	Good		Fair		Poor	
	No.	%	No.	%	No.	%
Low income pupil (30)	12	40	10	33.3	8	26.7
High income pupil (56)	30	53.6	18	32.1	8	14.3
Middle income pupil (98)	40	40.8	34	34.7	24	24.5

\*Chi-square=3.647 p=0.023 P<0.05 Significant

Table(7) G. Health status

	Good		Fair		Poor	
	No.	%	No.	%	No.	%
Low income pupil (30)	14	46.7	10	33.3	6	20.0
High income pupil (56)	32	57.1	18	32.1	6	10.8
Middle income pupil (98)	30	30.6	42	42.9	26	26.5

\*Chi-square=11.932 P<0.001 P<0.05 High significant

Table(8)

	Caries		Extinction		Gingivitis	
	Chi-square	P-value	Chi-square	P-value	Chi-square	P-value
Low income pupil (30)	2.160	0.042 S	2.08	0.049 S	2.08	0.049 S
High income pupil (56)	2.918	0.032 S	3.08	0.031 S	2.33	0.042 S
Middle income pupil (98)	3.022	0.039 S	15.7	0.000 HS	2.33	0.048 S

\*P<0.05 Significant

\*\*P<0.001 High significant

Table(9)

	Visit to dentist	
	Chi-square	P-value
Low income pupil (30)	1.656	0.875 NS
High income pupil (56)	3.150	0.042 S
Middle income pupil (98)	0.063	0.802 NS

\*P<0.05 Significant \*\*P>0.05 Non significant

**CASE SHEET**

Name:

Age:

Sex:

Class:

Family Status: Poor

Fair

Good

Father's Job &amp; Education:

Mother's Job &amp; Education:

General Health Status: Poor

Fair

Good

Deciduous Teeth


Permanent Teeth


Oral Health:

Dental Records: According to DMF

Periodontal Health: Poor

Fair

Good

Mal-occlusion:

TMJ:

Dental Care and Visits to Dentists:

Psychological Status: