Oral hygiene and gingival health status among teenagers population lived in Al–Rashidiya, Ninevah

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ABSTRACT

The aim of this study is to evaluate the oral hygiene and gingival health among teenagers aged 13 to 16 years old living in Al–Rashidiya in Mosul City.

The sample consisted of 633 students (345 males and 288 females) examined in their schools using plane mirrors and periodontal probes. Plaque index by Silness and Löe (1964) and gingival index by Löe and Silness (1963) were used for detecting plaque and gingival scores respectively.

The results showed that 31.9% and 31.3% of the sample brush their teeth for males and females respectively while 25.1% and 11.7% of students did not. A very highly significant difference has been found in mean plaque and gingival scores between those brushed their teeth and those not in all age groups.

The study revealed that mean plaque score for total males and females were 1.01, 1.00 for those brush their teeth and 1.32, 1.46 for those not and there is no significant difference by sex. While the mean gingival score for total males and females were 1.28, 1.31 for those brush their teeth and 1.63, 1.76 for those not, with no significant difference between sex.

It has been obvious that mean plaque and gingival indices increased with increasing age of the individual.

Key Words: Teenagers, oral hygiene status, tooth brushing.

INTRODUCTION

Bacterial collection with their products accumulate on the teeth or other oral structures is known as "dental plaque".[1] It is firmly attached to the tooth surface and not dislodged easily.

A close relationship between dental plaque and development of periodontal diseases has been recorded by many experimental and clinical studies that showed a low plaque index scores mostly associated with low gingival index.[2–5]

Periodontal disease has been accepted as one of the most wide spread diseases of mankind,[6] and it has been found that periodontal disease is more prevalent among population of developing countries,[7, 8] particularly in rural areas.[9, 10]

High prevalence gingivitis had been found in teenagers age group in rural areas,[11–14] which may lead to early loss of teeth.

Periodontal disease usually begins at childhood as gingivitis and increase in prevalence and severity with age.[15–17] So, oral hygiene is the most effective mean of preventing and controlling periodontal disease and careful tooth brushing can keep the tooth free from plaque and maintain the gingival healthy.[14, 18]

The increasing awareness of prevalence of gingival and periodontal diseases in children and adolescence is coupled with the need for more information regarding

the early stages of periodontal disease, has focused attention upon periodontium in childhood.[19]

This study was carried out to evaluate oral hygiene practices among teenager population lived in a rural area.

SAMPLE AND METHODS

This study carried out in Al–Rashidiya, a rural area in Ninevah Governorate. The sample consisted of 633 students aged from 13–16 years, 288 females and 345 males. This sample was divided into 4 age groups, namely 13, 14, 15 and 16 years old.

Questionnaires have been distributed to all of the students before any clinical examination was done. Information about age, sex and tooth brushing had been taken from them.

The clinical examinations were carried out in schools using adequate daylight, plane mouth mirror and WHO periodontal probe for detecting the dental plaque and gingival health. The examined teeth were upper right first molar, upper right lateral incisor, upper left first premolar, lower left first molar, lower left lateral incisor and lower right first premolar.

The indices used for assessment of oral health were as follow:
1) Plaque index by Silness and Löe[20] for evaluation of plaque scores.
2) Gingival index by Löe and Silness[21] to evaluate the gingival health of the students.

The statistical analysis of data included the mean and standard deviation for plaque and gingival indices using Duncan's Multiple Range Test.

Differences were tested for their significancy for gingival and plaque indices at 0.001 level.

RESULTS

There were 633 students had been examined comprising 54.5% males and 45.5% females. The population sample was divided into 4 age groups, their number and percentage showed in Table (1).

Table (2) revealed the number and percentage of students according to tooth brushing practice. This study indicated that 31.9% of males of the sample brush their teeth and 25.1% of males not brush their teeth and 31.3%, 11.7% for females respectively. Also, we can see that younger age groups had more attitude for tooth brushing.

Table (1): Number and percentage of sample distributed according to sex and age groups

Age Group (Years)	Males		Females		Total	
	No.	%	No.	%	No.	%
13	104	54.5	87	45.5	191	30.2
14	74	45.1	90	54.9	164	25.9
15	87	60.8	56	39.2	143	22.6
16	80	59.3	55	40.7	135	21.3
Total	345	54.5	288	45.5	633	100

Table (2): Frequency distribution of sample according to tooth brushing by sex and age group

Age Group (Years)	Males		Females	
	Yes	No	Yes	No
13	38	66	64	23
14	56	34	51	23
15	55	32	40	16
16	53	27	43	12
Total	202 (31.9%)	159 (25.1%)	198 (31.3%)	74 (11.7%)

Mean plaque index scores were shown in Table (3) for males and females respectively in accordance to tooth brushing. This mean increased with age and there was highly significant difference between those brushed their teeth and those not, at p level of 0.001.

Table (4) showed the mean gingival score for males and females respectively according to tooth brushing divided by age. Mean gingival scores were increased with age and there was highly significant difference between those who brush their teeth and those not.

Table (3): Mean and standard deviation of plaque
index for males according to age group

Age Group (Years)	Tooth Brushing	Males			Females		
		Plaque Index		Duncan's Grouping*	Plaque Index		Duncan's Grouping*
		Mean	$\pm$ SD		Mean	$\pm$ SD	
13	Yes	0.98	0.478	AD	0.92	0.413	A
	No	1.12	0.436	ACD	1.30	0.586	BC
14	Yes	0.95	0.373	A	0.99	0.515	AC
	No	1.40	0.711	BC	1.59	0.783	B
15	Yes	1.02	0.452	AD	1.09	0.563	ACD
	No	1.40	0.629	BC	1.46	0.790	BD
16	Yes	1.10	0.629	ACD	0.98	0.387	AC
	No	1.35	0.852	BD	1.46	0.736	BD

For Males: F–value= 4.31, $p \leq 0.001$; For Females: F–value= 6.36, $p \leq 0.001$.
SD: Standard deviation.
* Means with the same letter were statistically not significant.

Table (4): Mean and standard deviation of gingival
index for males and females according to age group

Age Group (Years)	Tooth Brushing	Males			Females		
		Gingival Index		Duncan's Grouping*	Gingival Index		Duncan's Grouping*
		Mean	$\pm$ SD		Mean	$\pm$ SD	
13	Yes	1.23	0.549	A	1.22	0.486	A
	No	1.45	0.439	AB	1.56	0.668	AB
14	Yes	1.25	0.419	A	1.30	0.540	A
	No	1.67	0.680	B	1.92	0.790	B
15	Yes	1.26	0.505	A	1.42	0.594	AC
	No	1.70	0.619	B	1.71	0.791	BC
16	Yes	1.36	0.590	AB	1.29	0.464	A
	No	1.70	0.780	B	1.86	0.731	BC

For Males: F–value= 5.31, $p \leq 0.001$; For Females: F–value= 5.75, $p \leq 0.001$.
SD: Standard deviation.
* Means with the same letter were statistically not significant.

Table (5) showed that the mean plaque score for total males and females was 1.01, 1.00 for those who brush their teeth respectively, while it was 1.32, 1.46 respectively for those who not brush their teeth, with highly significant difference but there was no significant difference between sex at p level of 0.001.

While in Table (6), the mean gingival index score for total males and females was 1.28, 1.31 for those who brush their teeth and 1.63, 1.76 for those not brush their teeth respectively, with high significant difference between them and no sex difference has been found at p level of 0.001.

Table (5): Mean and standard deviation
of plaque index according to sex

Sex	Tooth Brushing	Plaque Index		Duncan's Grouping*
		Mean	$\pm$ SD	
Males	Yes	1.01	0.060	A
	No	1.32	0.130	B
Females	Yes	1.00	0.069	A
	No	1.46	0.117	B

F–value= 20.90, $p \leq 0.001$.
SD: Standard deviation.
* Means with the same letter were statistically not significant.

Table (6): Mean and standard deviation
of gingival index according to sex

Sex	Tooth Brushing	Gingival Index		Duncan's Grouping*
		Mean	$\pm$ SD	
Males	Yes	1.28	0.055	A
	No	1.63	0.121	B
Females	Yes	1.31	0.081	A
	No	1.76	0.160	B

F–value= 18.39, $p \leq 0.001$.
SD: Standard deviation.
* Means with the same letter were statistically not significant.

DISCUSSION

Oral health has been defined as a standard of health of oral and related tissues which enable an individual to eat, speak and socialized without active disease, discomfort or embarrassment and which contributed to general well being.[7]

Periodontitis might concerned as the second major oral problem after dental caries and this disease has a destructive nature. Once it occurs, it may end with the loss of teeth if left untreated. Thus, it should receive a significant attention in every day practice.[22] These in turn may need more and more information regarding its prevalence, severity and distribution in a community to allow for planning of oral health programs.

According to this study, tooth brushing data indicated that the percentage of females that not brush their teeth (11.7%) was lower than that of males (25.1%); i.e., females reported a better attitude for tooth brushing than males and that because of more attention for facial appearance. This finding was in agreement with other studies,[23–25] and disagreed with others.[19, 26, 27]

Results of present study showed that all of the sample had gingivitis (100%). This result was higher than the findings of other studies.[5, 19]

The high percentage of gingivitis reported in this study may be attributed to poor concern about oral hygiene status, or due to other causes like hormonal changes due to puberty, or due to less attitude to visit dental clinics and even for those brush their teeth, they brush in incorrect way, as a high plaque were reported (100%) and this finding confirmed by other studies.[3,4,28] These results were supported the idea of a positive association between decreasing level of oral cleanliness and increasing gingival inflammation. This gives an agreement with other studies.[4, 5, 19]

A very highly significant difference has been found in mean plaque and gingival scores for males and females between those brushed their teeth and those who are not. This was found in all age groups and this give an agreement with other studies.[14, 17]

The mean plaque score for the total males and females were moderate (1.01, 1.00) for those who brush their teeth and 1.32, 1.46 for those who not respectively

and there was no statistically significant difference of oral hygiene condition between different genders, and this was in accordance with other studies.[24, 29]

Also, this study revealed that males reported slightly better gingival health and this disagreed with other studies.[19, 25, 27] However, there was no statistical significant difference between different genders in gingival health and this agreed with other studies.[10, 30, 31]

The importance of oral health status for improving oral health condition and preserve tooth for long time in oral cavity, need more attention about giving students a proper oral health program for them and their parents about oral home care instructions including correct way of tooth brushing, frequency of tooth brushing, food types, regular visit for dental office and use of oral preventive measures for keeping oral cavity healthy.

CONCLUSIONS

From this study, it has been shown that gingivitis has been caused mainly by plaque and gingivitis increased as the age of the subject increase due to accumulative nature of the disease. So, it is recommended that educational programs about oral health and mouth clearance for the community is very important started from early stage of life. Also, dentist in general should made more aware of the importance of doctor–patient relationship.

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