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Evaluation of Prevalence of Dental Caries and Oral Hygiene among Schoolchildren Aged 6 To 12 Years Old in Msallata City

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Abstract:
Dental caries is considered as the major health problem among children studying in school in Libya. The aim of the study is to evaluate the pervasiveness of dental care and oral hygiene among school children aged 6 to 12 years old in Msallata city. To perform this study a cross-sectional study was conducted involved 340 students attending public schools. The pervasiveness of dental caries was evaluated with WHO criteria, and to evaluate oral hygiene of school children the questionnaire method was used. The collected data were analyzed using Statistical package for social science (SPSS) version 21. The results of this study revealed that the dental caries was a bit high among the participants and welfare oral hygiene among the target children. For recommendation we advise to take care of oral hygiene in regard with cleaning the mouth and regular visiting the dentist. Therefore, this study could benefit all the students and can provide at least a authority for the development of school oral health program to encourage students for oral hygiene practicing that help to decrease the level of dental caries.

Key Words*: Dental caries; oral hygiene; School children; Msallata city.*

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I. Introduction

Poor oral hygiene remains one of the major health problems for the society. Poor oral hygiene has an important impact on general health and is associated with various systemic diseases. Oral health is essential for improving total health of a child, it is therefore outstanding importance to maintain oral hygiene of school going children[1]. Oral health is element of being free from chronic mouth and facial pain, oral and throat cancer, oral sores, birth defects such as cleft lip and tendency, periodontal disease, tooth decay and tooth loss, and other diseases and disorders that affect the oral cavity There is combination between human periodontal disease and convinced systemic disorders such as diabetes mellitus, heart disease and pre-term birth[2,3]. It has been considered ideal for developing health and oral hygiene programs with children in age groups that are favorable for accepting preventive measures[4]. Besides, oral health behaviour is a conclusion of a lifelong learning process, this process can best be achieved by an incorporative collaboration among dentists and professionals such as psychologists and teachers[5,6]. Good oral hygiene should start at early age and should be supervised by adults up to eight years can prevent dental caries[7]. Budding children need proper supervision for healthy growth, upkeep and hygiene of their teeth. Durable teeth erupt during the school age years. Good dental hygiene and regular attention to dental caries are crucial parts of health supervise during this period[3].

The environment present inside oral cavity is applicable to the increase of function micro-organisms discovered there. It provides a source of water and nutrients, as well as a moderate temperature[8]. Oral microbial community is one of the most complex bacterial floras associated with human body. Up to now, more than 700 different bacterial species have been identified from human oral crater which is comprised of many surfaces, each coated with overabundance of bacteria, the proverbial biofilm. Some of these bacteria have been implicated in oral disease such as caries and periodontitis, which are among the most common bacterial infections in humans[9].

Dental caries is a important health problem among the people of all ages but the magnitude of the problem is greatest among young children[10]. In spite of credible scientific advances and the fact that caries is preventable, the disease continues to be a major health problem[11]. Untreated dental conditions and poor oral hygiene have got a destructive impact on the quality of life among school-going children which in turn affects the general health too[10]. According to Okada et al.[12], brushing the teeth at least twice a day especially after

meals and before going to bed is ideal to keep the mouth in a healthy state. Correct brushing techniques and the role of fermentable carbohydrates that play in production of dental caries should be taught or assisted. Regular tooth brushing is the primary method of preventing many oral diseases, and perhaps the most important activity an individual can practice to reduce badge build up[13]. Many oral health care specialists agree that tooth brushing should be done for a minimum of two minutes, and be practiced at least twice a day[14]. Oral health experts recommend the use of a tooth brush with a small head and soft bristles as they are most effective is removing plaque without damaging the gums[15].

Up to day, there is no study focusing on oral hygiene among schoolchildren aged 6 to 12 years old in Msallata city has been published before. As since, oral health considered to be global problem and dental cavity is the most common oral disease among people and significant in young children. There are numerous issues related to dental cavity in children that still not understandable, so it is very important to evaluate them to increase cavity prevention.

Hence, with this in consideration, this study was designed to evaluate prevalence of dental caries and oral hygiene among school children aged 6 to 12 years old in Msallata city. The choosing of this age of the target population was based on the beginning of permanent dentition which at 6 years and the end of it at about 12 years, as oral health problems appears to be a significant problem in the permanent dentition of children according to previous studies.

II. Material And Methods

This study was conducted as cross sectional study in Msallata city. The schools and the total number of the target school children were obtained from education services office in Msallata city. These were two mixed gender schools, two boys schools and two girls schools. The school children were selected randomly from any of the classes, ranging from grade one to grade six. The sample size was calculated by using Steven, statistical formula[16]. The population size (target children) was 3000 students, so the calculated sample size was 340 students. The questionnaire was adopted from some previous studies[17,18]. It was build up in English translated to Arabic and back translated for validation. All participants were asked 13 questions closed-ended questions. This study was conducted between October 2018 and May 2019. Dental examination was performed according to World Health Organization criteria using dental mirror and dental explorer

III. Results

The population studied consisted of 340 school children from the ages of 6 to 12 years in public schools, Msallata city. There were 155 (45.6%) female and 185 (54.4%) males' students. Table 1 shows the prevalence of dental cavity among the students and the relation between gender and dental cavity. The oral examination of the students found that 63.5% have dental cavity while 36.5% don't have dental caries. The results also showed that 60% of males have dental cavity while 67.7% was for females. *P*-value was 0.086 which was more than 0.05, that there wasn't a statistically significant difference between gender and dental cavity.

Table 1: Prevalence of dental caries and the relationship between gender and dental caries.

			Dental caries		Total	*P*-Value sig.
			Yes	No		
Gender	Male	No.	111	74	185	0.086
		Percentage	60.0	40.0	100.0	
	Female	No.	105	50	155	
		Percentage	67.7	32.3	100.0	
Total		No.	216	124	340	
		Percentage	63.5	36.5	100.0	

P-value <0.05 Significant, *P*-value <0.01 highly significant, *P*-value > 0.05 non-Significant.

Figure 1 shows the students oral hygiene. In this study, oral hygiene was found very good among the target students. In which the findings revealed that students who describing their health of teeth and gums as very good, good, poor and don't know, were 51.2%, 28.2%, 9.4% and 11.2% respectively.

Regarding to uses oral hygiene aids, the students who using brush and toothpaste as a method of cleaning the mouth was the common with 80.3% of the students, mouth wash was with 3.5%, toothpicks was

used with 0.6% and Miswak was 0.6 %, dental floss was used by one student 0.3%, however 14.7% of the students did not answer. Additionally, students who brushing their teeth in the morning were 60.9% while 2.6% and 21.5% of the students brushing in the noon and before bed respectively, and 15% with no answer. Besides, students who spend less than one minute on teeth brushing were 23.2%, who spend one minute were 30%, who spend two minutes were 20% and for the students who spend more than two minutes were 11.2%, no answer was for 15.6% of students. Furthermore, students who brushing their teeth once a day were 31.8%, 33.5% were the students who brushing twice, while 16.5% for the students who brushing more than twice. However, the students who don't brush at all were 18.2%.

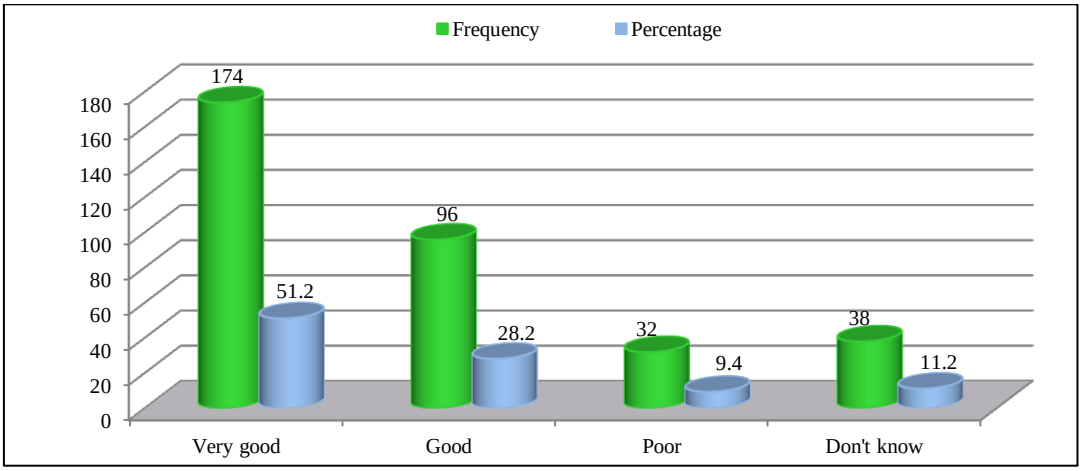

Figure 1: Students oral hygiene.

As for the role of parents in surveillance of oral hygiene, the response for the role of parents in supervision of oral hygiene was 21.8% of the children who their parents watch while brushing, 26.8% just advice their children, 31.2% their parents never cared where as children who only their mothers watch were 20.3%.

With respect to number of times a pain or problem has occurred in the teeth or mouth, the experiencing pain or any problem in the teeth or mouth, 22.4% of children said many times, 34.7% occasionally, 35.3% never and 5.9% don't remember, as well as, 1.8% of the students have no answer.

Concerning to the number of times a dentist visit last year, visiting the dentist in the last 12 months, a total of 24.7% of the children said once, 11.8% said twice, 9.4% more than twice visit the dentist and students who never visit the dentist were 52.4% as well as, 1.8% of the students have no answer.

In reference to the reasons to go to a dentist, the results revealed that, 5.9% of the students declared that the reason of visiting the dentist was for check-up only, however, the students who their reason was because of pain, and dental caries were 6.8% and 31.2% respectively, while the students who visited the dentist for other reasons like orthodontic or space maintainer, were only 3.2%, and 52.9% of the students have no answer.

In relation to the type of treatment, the results illustrated that, type of dentist treatment was extraction for 15.6% and filling for 10.3% of the students, whereas 21.2% of them for others like orthodontic or space maintainer, as well as 52.9% of the students have no answer.

As for the students who never visit the dentist, 8.5% of them said that the reason was fear of dental treatment, 6.8% of them said the cost of treatment is high, 20.6% of them said there is no pain or problem in their teeth and gums, and 18.2% don't care about getting treated by a dentist, also 45.9% of the students have no answer.

Table 2 shows assessment oral hygiene knowledge among the schoolchildren. The last section in the questionnaire was to assess oral hygiene knowledge by using the binomial test. If (*P*-value) less than 0.05 and the ratio was greater than 50%, the agreement level was high. If (*P*-value) was less than 0.05 and the ratio was less than 50%, the agreement level was low. If the (*P*-value) was greater than 0.05, this means that the agreement level was moderate. The results were 97.6% of the children agreed for teeth are an important part of the body, while 2.4% and 0.0% disagreed and don't know respectively. For daily cleaning of teeth can prevent dental caries, 94.7% of the students agreed whereas 5.4% said disagreed and 0.0% don't know. As well as, 96.2% agreed while 3.8% disagreed and 0.0% don't know for regular visit to dentist helps to keep teeth in healthy state. Regarding consuming sweetened food products or drinks does not cause dental caries; the students who agreed were 5.6% whereas 94.4% who disagreed and 0.0% don't know.

Table 2: Assessment of oral hygiene knowledge among the schools children.

S.N	Expressions		Yes	No	*P*-Value	Degree of agreement
1	Teeth are an important part of your body	No.	332	8	0.000	High
		%	97.6	2.4		
2	Daily cleaning of teeth can prevent dental caries	No.	322	18	0.000	High
		%	94.7	5.3		
3	Regular visit to dentist helps to keep your teeth in healthy state	No.	327	13	0.000	High
		%	96.2	3.8		
4	Consuming sweetened food products or drinks does not cause dental caries	No.	19	321	0.000	Low
		%	5.6	94.4		

IV. Discussion

Dental cavity is a compelling health problem among the people of all ages but the magnitude of the problem is big among young children[3]. Oral hygiene is the most effective measure to prevent dental caries and periodontal disease[19]. According to the findings of this study, dental caries prevalence among the target children was 63.5% which is a bit lower than a previous study in India on school children aged from 7 to 12 years which revealed the prevalence of dental caries was 65%[10]. In another two studies on schoolchildren in Saudi Arabia, the prevalence of dental caries was 91.3%[20] and 96%[21] which both are significantly higher than our result. However, Clara et al.[22] reported the pervasiveness of dental caries of 12.2%, which is lower than our study. Caries prevalence is often associated with gender. In this study, girls exhibited higher caries compared with boys of similar age. The findings in this study are in agreement with Manal & Yasser[21] who mentioned that the boys had a higher pervasiveness of dental caries than girls.

With regard to oral hygiene practicing, our study revealed that students who brushing their teeth once a day were 31.8% compared to another study in India on 12 years old students showed that 41.8% cleaned their teeth at least once aday[18]. In a previous studies by Xenith & Islam[3] has conducted on school children in Bangladesh, found that children brushed their teeth twice daily were 50%, while Amanuel et al.[23] in Eritrea reported 19.1%. However, in our study was 33.5%. In the present study, cleaning teeth with tooth brush and tooth paste was the common aid for oral hygiene with 80.3%. However, in Bangladesh was 92.4%[3], in India was 71.4%[18] and in Jordan was 83.1%[24]. As well as, Miswak was used by 0.6 % of the students in the present study compared to 2% in a study in Sudan[17]. Also Mahmoud et al.[24] revealed that 36.4% of students brushing at morning while 52.6% before bed, compared to this study which showed 60.9% and 21.5% respectively.

Significantly, there was good oral hygiene knowledge among the students in this study, with regard to teeth brushing regularly can help caries prevention 94.7%. This result is higher than to that in a study by Abhishek & Gurkiran [18], which was 83.2%. Additionally, the students in the present study had positive opinion regarding regular visiting a dentist helps to keep teeth healthy 96.2% which is clearly high compared to Abhishek & Gurkiran[18] study which was 69.5%. Lastly, 94.4% of the students in our study answered that consuming sweetened food or drinks does not cause caries is false, which showed that the participants in this study more aware compared to the study of Abhishek & Gurkiran[18] that revealed the respond for the same statement was only 41.8%. These differences in percentages in our study and the other studies could be related to many factors that include socioeconomic status, cultural differences, and dietary habits, differences in oral hygiene practicing and knowledge and sample size.

V. Conclusion

Within the impediment of the study, it is concluded that prevalence of dental caries level was a bit high among the participants in comparison with children in some other countries such as India and Saudi Arab and lower than that of children in some other countries such as Nigeria and Tunisia. The pervasiveness of dental caries was found to be higher among the female children than male children in this study but there wasn't a statistically significant difference between genders. With regard to oral hygiene, there was good oral hygiene knowledge among the target children.

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