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Oral health among primary school children among rural areas in Minia, Egypt

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Abstract

Background: Oral health is very important to general health and well-being. Little is perceived about oral health in Egypt.

Objective: to review the oral health knowledge, attitudes, and practice among school children in rural areas of Minia governorate. **Methods**: A cross-sectional school-based study. Data were collected by using structured interview questionnaires. The questionnaire was designed to describe the knowledge, attitude, and practice of grade school children. **Results**: This study included 1030 grade school students distributed along 8 public schools in 4 districts of Minia governorate. About 60% of students usually clean their teeth. Materials used for teeth cleaning were tooth brush and tooth paste (65%). Knowledge and practice about oral health among study participants were poor, soextended oral health educational projects for both children and their parents are required.**Conclusion** Well- structured oral health educational programs are required to achieve better oral health.

Keywords:**Oral health; primary school children; rural areas**

Introduction:

Oral health **is very important** to general health. About 90% **of** children world-wide have experienced caries(1). These **might be** attributed **to** lack of oral health awareness and over consumption of refined carbohydrate (2). **O**ral health problems affect children's performance in schools and their success in life(3).

Prevalence and severity of oral diseases have been witnessed to decrease among the population of the developed countries(4,5). **Dental care** has determined dental health attitudes among children(6). **There is a great difference in teeth protection between**

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population in devolped countries and Arab world (7,8).

Subjects and Methods

Aim of the study:

1- To describe oral health knowledge, attitude and practice among primary school children in rural areas of Minia governorate.

2- To show the relationship between oral health knowledge and attitude of primary school children and their socio-demographic characteristics.

Study population: cross-sectional school- based study was carried out from September 2019 to January 2020. All the participants were older than 10 years old and participated voluntarily. Written consent was taken from the students and their parents.Minia district has 56 villages andaccording to their geographic location, schools in rural areas of Minia governorate were divided into four groups: Eastern, Western, Northern, and Southern. From each group, one district was chosen by simple random sample. From each district a primary school was selected randomly.

Sample size: Students in the 5^{th} and 6^{th} grades of primary schools. Younger students below ten years didn'tparticipate in the study as they were too young to answer the questions. In each school, the first class was selected randomly then every other class was included in the study. Total number of 5^{th} and 6^{th} year primary school children in rural areas of Minia governorate was about 115,000. Considering the expected frequency of 50% and the worst acceptable level of 60%, the required sample size was 48 by using EPI INFO version 3.5.1 (2008). Considering design effect of 10. The required sample size was 480.

Questionnaire: Structured interview questionnaire was designed to evaluate the knowledge, attitudes, and practice of primary school children regarding their oral health and dentaltreatment.

- Questions to describe knowledge included the effects of brushing, the meaning of bleedinggums and dental plaque.

- Questions to describe attitudes included feelings on the first visit to the dentist and the appearance of decayed teeth.

Assessment of participants' oral health practice included brushing activity, the parents' role in participants' oral hygiene and dental visits.

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Statistical analysis

Data were analyzed using (SPSS version 20, SPSS Inc., Chicago, IL, USA) software.

Ethics approval

The research protocol of the present study was approved by the ethical standards of the Minia University research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Results

This study included 480 primary school students distributed along 4 public schools in 4 districts of Minia governorate. Table (1) showed that the average age (± SD) was 11.6 (± 0.67) years. Males were about 48% of pupils included in the study. Jobs of parents were worker in 42.1% and farmer in 35.3% of fathers and96.7% of mothers were housewives. Regarding level of parents' education 28.3% of fathers and 40% of mothers were illiterate **(Table1)**.

Table (2)described knowledge about gingival bleeding definition was correct in 11.4% of cases. Definition of dental plaque was correct in only 4.5%. Majority of students knewthat sweats negatively affect teeth (91.9%) and teeth cleaning prevent dental caries (94.3%).

Table (3)described positive attitude towards dentists as they treat their teeth problems (86.2%). **Table (4)** showed that the most commonly used material for teeth cleaning was tooth brush and tooth paste (65.9%). 55.6% of children visited the dentist before. The commonest cause of dentist's visit was toothache (92%).**Table (5)** showed a significant relationship between higher parentseducation, small family number and oral health knowledge and positive attitude**.**

Table (1): Socio-demographic characteristics of the studied primary school children in rural areas of Minia governorate, September 2019to January 2020.

	No. (n= 480)	%
Age:		
< 12years	231	48.1
≥ 12years	249	51.9
Mean ± SD (Range)	11.61 ± 0.67 (10 – 13)	
Sex:		
Male	229	47.7
Female	251	52.3
Academic year:		
5th year	207	43.2
6th year	273	56.8

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Father's work:		
Worker	203	42.1
Farmer	170	35.3
Employee	86	18.0
Unemployed	21	4.6
Mother's work:		
Housewife	464	96.7
Employee	16	3.3
Father's education:		
Illiterate	136	28.3
Read & write	178	36.9
Primary / Preparatory	94	19.5
Secondary / University	72	15.3
Mother's education:		
Illiterate	192	40.0
Read & write	136	28.3
Primary /preparatory	88	18.3
Secondary /university	64	13.4
Family size: Mean ± SD (Range)	7.06 ± 1.99 (3 – 12)	

Table (2): Knowledge of the studied primary school children in rural areas of Minia governorate, September 2019 to January 2020

Knowledge	Correct		Incorrect	
	No.	%	No.	%
Definition of gingival bleeding	55	11.4	425	88.6
Definition of dental plaque	23	4.7	458	95.4
Effect of plaque on the teeth	22	4.5	459	95.6
Number of milk teeth	22	4.5	460	95.8
Number of permanent teeth	190	39.5	290	60.4
Sweats negatively affect teeth	441	91.9	39	8.1
Fizzy drinks negatively affect teeth	314	65.4	166	34.6
Teeth cleaning prevents dental caries	453	94.3	28	5.8
Use of Fluoride is essential for teeth	275	57.3	205	42.7
How can you protect yourself from bleeding gums	36	7.5	444	92.5

Table (3): Attitude of the studied primary school children in rural areas of Minia governorate, September 2019 to January 2020

Attitude	Positive		Negative	
	No.	%	No.	%
Can you decide type of treatment you need?	120	25	360	75.1
Is it necessary for patients to determine their needs of dental treatment?	255	53.1	226	47.0
The appearance of decayed teeth affects human	398	82.9	83	17.2
The regular visits to dentist are essential	327	68.1	154	32.0
The dentists treat the teeth problems and solve it	414	86.2	66	13.7
The dentist examines the patients and inform about dental problems	386	80.4	95	19.7

Table (4): Practices of the studied primary school children in rural areas of Minia governorate, September 2019 to January 2020

	No. (n= 480)	**%**
Do you clean your teeth		
Yes	289	60.2
No	191	39.8

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How many times		
< once per	137	28.
day Once	180	5
per day	163	37.
≥ Twice per day		5
		34
What material used for teeth cleaning		
Tooth brush & tooth paste	315	65.7
Mouth wash	73	15.2
Siwaak	45	9.4
Thread for teeth cleaning	10	2
More than one	37	7.7
When do you clean your teeth:		
At the morning	220	45.8
After eating	21	4.3
Before going to sleep	65	13.5
At any time	155	32.5
Don't remember	19	3.9
What time needed for cleaning teeth:		
<One minute	55	11.4
One minute	70	14.5
Two minutes	75	15.7
> two minutes	90	18.7
Don't know	190	39.7
Parents follow the child during cleaning teeth:		
Parents follow the child	91	18.9
Not watch the child but give advice only	221	46.1
Mother only follow the child	27	5.6
No interest from parents	141	29.4
Did you visit dentist before		
Yes	267	55.6
No	213	44.4
Feelings on the first visit to the dentist:		
Positive	93	19.4
Negative	387	80.6
When did you visit dentist for last time:		
Before 6 months	325	67.7
From 6-12 months	10	2
From 1-2 years	110	23
Since 2-5 years	35	7.3
In general, when do you visit dentist:		
When suffer from tooth ache	360	75
Regularly every 6-12 months	12	2.5
Sometimes	108	22.5
Cause of the last visit to the dentist:		
Tooth ache	442	92
Advice from family and friends	12	2.5
Don't remember	26	5.5
What were the services provided in the last visit:*		
Teeth examination	212	44.2
Teeth extraction	140	29.1
Teeth X-ray	30	6.2
Dental measurement	15	3.1
Treatment of gums	22	4.6
Don't know	61	12.8
Number of decayed teeth:		
None	105	21.8
One - two	330	68.7
Three or more	45	9.5
Number of filled teeth:		
None	396	82.5
One	64	13.5
Two	10	2
Three or more	10	2
Do you have extracted teeth		
Yes	365	76
No	115	24

Table (5): Relationship between knowledge and attitude of studied primary school children and their socio-demographic characteristics.

	Knowledg e	**Attitud e**

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	Satisfactory	Un-satisfactory	P - value	Positive	Negative	P - value
Age:						
< 12 years	24 (10.3)	207 (89.7)	<0.001	116 (50.2)	115(49.8)	<0.001
≥ 12 years	92 (36.9)	157 (63.2)		213 (85.5)	36(14.5)	
Sex:						
Male	49 (21.3)	180 (78.7)	0.484	157(68.5)	72(31.5)	<0.001
Female	58 (23.1)	193 (76.9)		190(75.7)	61(24.3)	
Academic year:						
5thyear	21 (10.1)	186 (89.9)	<0.001	22(10.6)	185 (89.4)	<0.001
6thyear	75 (27.4)	198 (72.6)		240(87.9)	73(12.1)	
Father's work:						
Employee	26 (30.1)	60 (69.9)		177(87.1)	26 (12.9)	<0.001
Farmer	27 (15.8)	143 (84.2)	<0.001	120(70.5)	50(29.5)	
Worker	43 (21.2)	160 (78.8)		58(67.4)	28(32.6)	
Unemployed	10 (47.6)	11 (52.4)		15 (71.4)	6 (28.6)	
Mother's work:						
Housewife	102 (21.9)	362 (78.1)	0.148	330(71.1)	134(28.9)	<0.001
Employee	5 (31.2)	11 (68.8)		16(100.0)	0 (0.0)	
Father's education						
Illiterate	27 (19.8)	109 (80.2)		86(63.2)	50(36.8)	<0.001
Read & write	28 (15.7)	150 (84.3)	<0.001	126(70.7)	52(29.3)	
Primary/ prep.	11 (11.7)	83 (88.3)		88(93.6)	6(6.4)	
Second. /university	40 (55.5)	32 (44.5)		67(93)	5(7)	
Mother's education						
Illiterate	44 (22.9)	148 (77.1)		125(65.1)	67(34.9)	<0.001
Read & write	27 (20)	108 (80)	0.008	108(79.4)	28(20.6)	
Primary / prep.	15 (17)	73 (83)		66(75)	22(25)	
Second. /university	21 (32.8)	43 (67.2)		48(75)	16 (25)	
Family size:						
3 -5	42(43.7)	54 (56.3)	<0.001	74(77.0)	22(23.0)	0.008
6 -7	42(19.4)	174 (80.6)		162(75)	54(25.4)	
> 7	23 (13.6)	145(86.4)		112(66.6)	56(33.5)	

Satisfactory knowledge: Right answers for ≥ 50% of questions
Positive attitude: Positive attitude for ≥ 50% of questions

Discussion

In Minia, information available on oral health among children is not accessible; hence the present study proposed to provide such information with regards to school children aged 10 to 13 years

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old.

Oral health knowledge among the students was low and this is in agreement withSohail& Muhammad [(9)] in Pakistan;Jabeen[10]et al. in Lahorewho saw that the majority of students in Pakistan had poor information of dental diseases.The awareness of periodontal disease seems to be low among the children in rural areas of Minia governorate. Most of the children were not aware about bleeding gums, dental plaque and the consequences of dental plaque. Only few children were aware of gingival bleeding as an indicator to periodontal diseases. Our observation is similar to Tavares[(11)]&Priya et al. [(12)], who reported that only few children knew periodontal disease was a disease of the gingiva.

Study observation showed that only few children (7.5%) practice tooth brushing as a valuable tool to fight against gingival bleeding which is similar to study by Raga et al. [(13)]inDerna city, Libya.

According to the children's answers, the main factors that cause dental problems were sweets (91.9%), which coincide with a study in India during which participants also thought that sweets is the main explanation of dental caries(81.8%)[(12)].

Only 4.5% of participants knew the right number of milk teeth while about 40% knew the right number of permanent teeth, similar to a study conducted in north Jordan that agrees with us, only 2.7% of the subjects knew the correct number of the deciduous teeth, while 54 % knew the correct number of permanent teeth. About 75 % of the subjects reported having two or fewer carious teeth while 91% reported having two or fewer filled teeth [(13)]. In our study 68.2% had one or two carious while only 17.5% had one or more filled teeth.

The students demonstrated positive attitudestowards their dentists and high awareness of the relation between oral health and overall health by (82.8%) which is coincide with a study conducted in India by Chennai [(12)], that (71.8%) of students had that positive attitude& other studies conducted on Jordanian school children (76.8%)[(13)] and on Pakistani school children (69.4%)[(14)].

As regard the dentists treat teeth problems and solve it & the dentists examine the patients and inform about dental problems (86.2%) & (80.3%) had positive attitude respectively and this is often parallel to a study done by Priya et al. [(12)]during which dentist cares properly about patients (87.5%) & dentists always explain procedures before applying treatment (91.4%).

In general, the children have less understanding regarding oral diseases; this might be seen within the light of fact about the regular visit to their dentist. Quite two thirds of participants (68%) were conscious of the importance of regular dental attendance. Consistent with a study conducted in China [(15)] 73.6% of the children knew that regular dental check- ups are necessary. Similarly, 71.6% of the children in Chennai, Indiaknew the importance of regular dental visit, but in reality only 19.1% of them practiced it[(12)]. Thesefindings were observed in Malaysian,Jordanian and Pakistani studies also [(13,14, 16)].

As regard **practice** of pupils regarding dental health care 33.8% clean their teeth twice or more per day which is lower than Priya et al. [(12)] 58.3% of children performed the recommended practice of brushing the teeth twice a day & what observed in some industrialized countries of

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east Europe [17-19]. This observation is similar to the study conducted by Harikiran et al. (38.5%) [20].

This study found that a low percentage of the children brushed their teeth twice per day and this was not fully organized or supported by parents, since about half of them (46%) only advised and never watched their child during tooth brushing These findings could be explained by the fact that many of our subjects were teenagers when children try to achieve independence and start their attempts to build their own identity without family interference. Lack of both parental and child oral health education might also explain these findings. This result is in accordance to study conducted in Jordan (59%) [13]& Chennai (India) 61.7% [12].

Brushing preferably in the morning (45.7%) may indicate that such habits are difficult to change merely through mass health education. This result is in accordance to studies conducted by Peng et al.[21]&Priya et al. [12]

Nearly two thirds of children (65.9%) used tooth brush and tooth paste for cleaning their teeth, the use of other recommended oral hygiene methods such as mouthwash & thread was found to be low; this also could be attributed to the lack of oral health education and/or the cost of such aids. Similar results were reported by Al- Omiri et al. (83.1%)[13] , Priya et al. (98%)[12], WHO (83%)[19] and Punitha and Sivaprakasam (62.9%)[22]. This result is not in accordance with that reported by Mahesh et al. [23] in Chennai, where in their study sample some of the children resorted to the use of charcoal as a medium to brush their teeth than the tooth brush. This could be probably due to lack of awareness or affordability for tooth brush and paste.

There were 75.3% of the children who would seek dental service only when they suffered from pain. On the contrary 44.4% of them had never visited the dentist which is similar to a study by Mirza et al. [14] where 46% reported that they never visited the dentist. The drive for the last visit was due to pain in 91.8% of the children may be due to deficient knowledge about other drives among rural children which is more compared with a study done by Punitha and Sivaprakasam[22] among rural children of Kanchipuram where 58.97% of them visited the dentist since they suffered from pain & study conducted by Priya et al. (32.4%) [12].

Role of parents was found very important in developing healthy habits among the young children. Children of educated parents showed higher level of knowledge, attitude and practice of oral health. Results of the current study showed that parental education was significantly associated with knowledge and attitude of school children ($P<0.001$). This is similar to study conducted in Pakistan byMuhammad Arfan[24].

Conclusion

Based on the previous results, the authors thought that oral health knowledge and practice among primary school children were poor and needs to be improved. Well- structured oral health educational programs are required to achieve better oral health.

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