

Mother's Knowledge and Attitude regarding Oral Health of their Preschool Children

Hanaa Yahyia El sepaie¹, Salwa Abbas Ali Hassan², Heba Al Kotb Mohamed³,
Farida kamel Yousef⁴

¹B. Sc. Nursing.

²Professor Community Health Nursing, Zagazig University, Zagazig, Egypt.

³Assistant Prof. of Family and Community Suez Canal University, Ismailia, Egypt.

⁴Lecturer of Family and Community Suez Canal University, Ismailia, Egypt

Abstract: Oral health is an integral component of preschool children's health, many of them suffer from dental caries at an early age. The study aimed to assess mothers' knowledge and attitude regarding oral health of their preschool children. **Design:** Descriptive cross-sectional design. **Setting:** the study carried out in 12 governmental nurseries in Fakous city, Sharkia Governorate. **Sample:** multi-stage technique random sample. 360 mothers participate in the study **Sample size:** 360 mothers participated in the study. **Tools:** two tools were used to collect the necessary data, *first tool* ; an interview questionnaire sheet to assess mothers' knowledge and attitude regarding oral health of their preschool children, *second tool*; dental health assessment checklist. **Results:** Preschool children age ranged between 3 and 5 years, with slightly more half were males (51.9%). The most commonly reported dental complaint was pain (73.3%). In total, 50.6% of the mothers had satisfactory knowledge and 29.4% had a positive attitude towards dental health and hygiene. Knowledge and attitude were positively correlated and are influenced by demographic characteristics. The number of abnormal dental assessment findings increased with child age and excess candies intake, but decreased with higher family income, child female gender, and the use of toothbrush. **Conclusion and recommendations:** A large proportion of preschool children have dental problems. Only a half of their mothers have satisfactory knowledge and fewer ones have positive attitude towards dental health and hygiene. **Recommendation:** the recommended that the mothers should have strong dental health programs for promotion of preschool children's oral health with screening programs.

Keywords: Attitude, Knowledge, Oral health, Preschool.

1. INTRODUCTION

Oral health is an integral component of preschool children's health and well-being. Unfortunately, many children suffer from dental caries at an early age, even before they become 12 months of age (*Prakash et al., 2012*). Those affected often have a reduced oral health-related quality of life as compared to their caries-free counterparts (*Al-Zahrani et al., 2014*). Pain caused by severe caries can cause poor chewing and affected the quantity and variety of food eaten. Also, it can make eating of high sucrose diet more likely that can compromise intake of other nutrients (*Chen et al., 2014*).

Children with early childhood caries may also develop associated problems such as local infections, oral pain that also manifests as difficulty in eating and sleeping, reduced growth, psychosocial problems and increased risk of caries in permanent dentition (*Hooley et al., 2012*).

Significance of the study

Preschool children are one of the major target groups under the primary oral healthcare program. They have limited self-care abilities; therefore, parents need to be knowledgeable about oral healthcare so they can supervise, teach, and act as role models for their children. Parents' knowledge and positive attitude toward good dental care are very important in the preventive cycle. Hence, young children's oral health maintenance and outcomes are influenced by their parent's knowledge and beliefs, which affect oral hygiene and healthy eating habits. This study is an attempt to provide information on preschool children mothers' knowledge of oral health.

Aim of the study

The study aim to assess mother's knowledge and attitude towards oral health of their preschooler

Research questions:

1. What are oral health problems of preschool children?
2. What are the knowledge and attitude of mothers regarding oral health of their preschool children?

2. SUBJECTS AND METHOD

Study design

A descriptive design was used in the study, where all variables are measured at the same point in time.

Setting

The study was conducted at 12 governmental nurseries in Fakous city. Eight of these nurseries were selected randomly from the 44 nurseries in urban areas, and four were selected from the 22 nurseries in rural areas.

Study population:

The Study population involved the mothers of the children enrolled in these governmental nurseries during the time of the study. They were eligible according to the following criteria.

- **Inclusion criteria:**
 - Mother of a preschool child (3-5 years old) enrolled in the selected nurseries;
- **Exclusion criteria:**
 - Mothers of children having any physical or mental disabilities.

Sample size

The sample size was calculated to estimate an expected level of satisfactory knowledge of 50% with 3.5% standard error and a design effect 1.5 for complex sampling, at 95% level of confidence. Using the Open-Epi statistical software package, the required sample size turned to be 294 mothers. It was increased to 360 mothers to compensate for a non-response rate of about 20%.

Tools of data collection:

Two tools were used to collect the necessary data. It designed by the researcher based on relevant literature were. **Tool I:** Interview questionnaire sheet consisted of four parts. **First part:** concerned with the demographic data of the children and their families. **Second part:** intended to collect data about child's health and dental status. **Third part:** testing mothers' knowledge of dental health and hygiene. It consisted of a series of questions in various forms (Multiple Choice Questions [MCQ], True/False, and open-end questions). **Fourth part:** This part measuring mother's attitude towards dental health and hygiene. **Tool II:** Dental health assessment checklist to examined the following: Teeth(caries, cavities, stains, dental work); Gums: (bleeding, recession, swelling); Mouth: (bad odor, lumps, sores); Tongue:(red, moist, rugae)

Scoring:

- For the knowledge items, a correct response was scored 1 and the incorrect zero. For each area of knowledge, the scores of the items were summed-up and the total divided by the number of the items, giving a mean score for the part. These scores were converted into percent scores. Knowledge was considered satisfactory if the percent score was 50% or more, and unsatisfactory if less than 50%.
- For attitude items, the response to each statement was on a 5-point Likert scale “strongly agree”, “agree”, “uncertain”, “strongly disagree”, and “disagree.” *Scoring:* The responses from “strongly agree” to “strongly disagree” were respectively scored from 5 to 1. The scoring was reversed for negative statements so that a higher score indicates a more positive attitude. The scores of the items were summed-up and the total divided by the number of the items, giving a mean score, which was converted into a percent score. The attitude was considered positive if the percent score was 60% or more and negative if less than 60%.
- Dental health assessment : An abnormal physical finding was scored “1” and the normal scored “0.” The scores were summed for all signs. A child with a total score “0” in each site and in the total checklist was considered to have total “normal” physical findings, otherwise was considered “abnormal.”

Content validity:

It ascertained by 5 experts in the field of study who the tools content for clarity, relevance, comprehensiveness, and understandability.

Pilot study:

A pilot study was carried out on a (10%) of study sample approximately 36 of the mothers of pre-school children. It was done to test the applicability, feasibility, practicability of the tools, and to determine the time needed to fill-in the forms. The necessary modifications were done according to the results of pilot study and the tool was finalized.

Ethical considerations

The study protocol was approved by the Research and Ethics Committee at the Faculty of Nursing, Suez Canal University. A full brief explanation about the aim and importance of the study was provided to the participating mothers of preschool children. They were reassured about the confidentiality and anonymity of any information obtained, and informed about their rights to refuse participation or to withdraw from the study at any time. Then, a verbal informed consent was obtained from each participant.

Field of work:

The recruitment of mothers was done according to the eligibility criteria. The eligible mothers were invited to participate, and were provided a full explanation of the study aim and maneuvers, along with re-assurance of their rights. Each mother who consented to participate was interviewed using the interview questionnaire sheet. This provided their level of knowledge and attitude. Then, each mother accompanied her child for dental health assessment using the corresponding checklist.

The fieldwork lasted from December 2018 to April 2019. The work was done three days per week from 9:00 AM to 1:00 PM. The interview with each mother lasted 20-25 minutes. Then, the dental health assessment of the child took approximately 15 to 20 minutes.

Data analysis

Package for the Social Sciences (SPSS) version 20.0 were used to analyze data. Data were presented using descriptive statistics in the form of frequencies and percentages for qualitative variables, and means and standard deviations and medians for quantitative variables. Cronbach alpha coefficient was calculated to assess the reliability of the developed tools through their internal consistency. Qualitative categorical variables were compared using chi-square test, Fisher exact test, Spearman rank correlation, multiple linear regression analysis. Statistical significance was considered at p-value <0.05.

3. RESULTS

Table (1): Demonstrates that preschool children's age ranged between 3 and 5 years, with (51.9%) of males. The median number of siblings was 2.0. Only (31.9%) of the children were firstborn.

Figure (1): Demonstrates that (40.6%) of the children were using toothbrush.

Table (2) Shows that (46.9%) of them were brushing their teeth and only 64.5% of these used to do it regularly; and (42.6%) in the morning. (90.0%) of the children visited a dentist within the last six months. However, the reason for the visit was mostly for complaints (87.78%).

Figure (2): Shows that (50.6%) of the mothers in the study sample were having total satisfactory knowledge of dental health and hygiene.

Figure (3): Illustrates that (29.4%) of them were having a positive attitude.

Table (3): Points to statistically significant relations between mothers' knowledge and their education ($p=0.01$) and job ($p=0.003$), as well as their husbands' education ($p=0.048$), and job ($p=0.007$). It is evident that the percentages of mothers with satisfactory knowledge were higher among those or their husbands were having university education, those working, and those whose husbands were employees.

Table (4) shows a statistically significant relation between mothers' total knowledge and attitude ($p=0.008$). It is evident that the percentage of mothers with satisfactory knowledge was higher among those having a positive attitude.

Table (1): Demographic characteristics of pre-school children in the study sample (n=360)

Items	Frequency	Percent
Child age:		
3-	145	40.3
4+	215	59.7
Range	3.0-5.0	
Mean±SD	3.7±1.3	
Median	4.0	
Gender:		
Male	187	51.9
Female	173	48.1
Siblings:		
0	63	17.5
1+	297	82.5
Range	0-7	
Mean±SD	2.1±1.5	
Median	2.0	
Birth order:		
1	115	31.9
2	98	27.2
3+	147	40.8
Firstborn:		
Yes	115	31.9
No	245	68.1

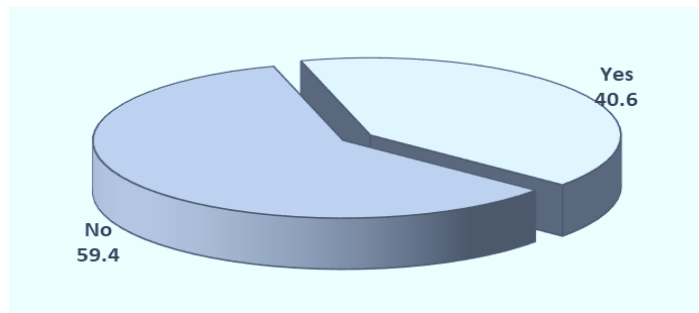


Figure (1): Use of toothbrush among pre-school children in the study sample (n=360)

Table (2): Dental hygiene practices among pre-school children in the study sample (n=360)

Items	Frequency	Percent
Brush teeth:		
No	191	53.1
Yes	169	46.9
Regularly:		
No	60	35.5
Yes	109	64.5
Timing:		
Any time	3	1.8
Morning	72	42.6
Before bedtime	47	27.8
After meals	47	27.8
Last dentist visit since (months):		
<6	324	90.0
6+	36	1.0
No. of visits:		
Range	1-12	
Mean ± SD	3.2±1.3	
Median	3.0	
Reason of visit:		
Checkup	44	12.22
Complaint	316	87.78

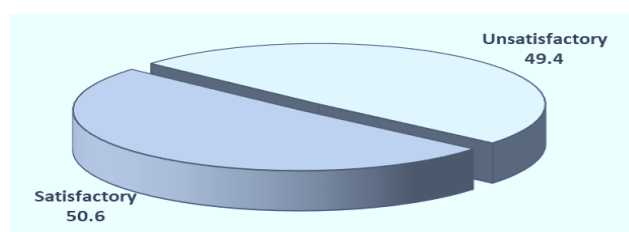


Figure 2: Total knowledge of dental health and hygiene among mothers of pre-school children in the study sample (n=360)

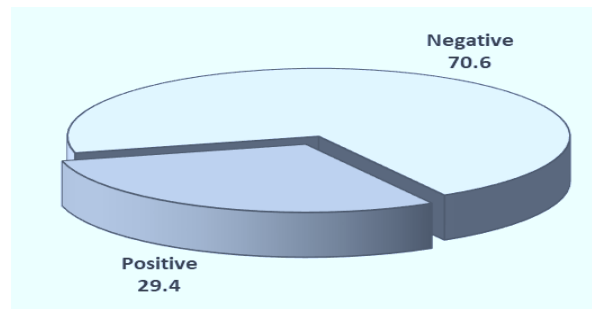


Figure 3: Total attitude towards dental health and hygiene among mothers of pre-school children in the study sample (n=360)

Table(3): Relations between mothers’ knowledge and parents’ characteristics

Items	Knowledge				X ² test	p-value
	Satisfactory		Unsatisfactory			
	No.	%	No.	%		
Mother age:						
<25	53	53.5	46	46.5	1.11	0.57
25-	66	47.1	74	52.9		
30+	63	52.1	58	47.9		
Mother education:						
Illiterate/Read/write	20	43.5	26	56.5	10.54	0.01*
Basic	9	40.9	13	59.1		
Secondary	85	45.9	100	54.1		
University	68	63.6	39	36.4		
Mother job:						
Housewife	121	45.8	143	54.2	8.83	0.003*
Working	61	63.5	35	36.5		

(*) Statistically significant at $p < 0.05$

Table (4): Relations between mothers’ knowledge and attitude

Items	Attitude				X ² test	p-value
	Positive		Negative			
	No.	%	No.	%		
Total knowledge:						
Satisfactory	65	35.7	117	64.3	6.97	0.008*
Unsatisfactory	41	23.0	137	77.0		

(*) Statistically significant at $p < 0.05$

4. DISCUSSION

Dental disorders, especially caries, is a public health problem of major concern in all communities, particularly in developing countries (Zhang et al, 2019). The problem is even more serious in preschool age children when teething is at a developmental stage and where odontogenic infections are quite common (Lim et al, 2019). Such problems may have considerable negative impacts on the wellbeing of these children as well as their families (Sakaryali et al, 2019). Nevertheless, there is still a paucity of research in oral health among preschool children (Yuan et al, 2019).

The study aim was to assess mothers' knowledge and attitude regarding oral health of their preschool children through assessing mothers' knowledge and attitude regarding oral health of their preschool children. The results indicate generally low satisfactory knowledge among mothers, with mostly negative attitude towards dental health and hygiene, with a positive correlation between the knowledge and attitude scores.

The characteristics of the study sample indicate its representativeness of the community in the study settings with a majority of the mothers and fathers having a secondary level of education. Moreover, most mothers were housewives, and the families were extended and were having sufficient income. This indicates the success of the sampling technique in the selection of a representative sample reflecting the characteristics of the local community.

According to the present study data, the majority of the preschool children in the sample who had a visit to the dentist did it because they were having complaints or problems, while only a small minority did it for regular checkup. This indicates a poor dental health behavior among their parents with no awareness about the importance of prevention in dental health care. In this regard, *Tonpe et al (2019)* highlighted that early detection of dental disorders is of major importance in the prevention of future problems and loss of teeth.

This parents' low dental health awareness and behavior among the parents of preschool children in the current study was also reflected in their children's related practices. Thus, only less than a half of these children were brushing their teeth, and not all of them did it regularly. It was also mostly done in the morning and not before bedtime. This might explain the high prevalence of dental problems and complaints among these children. In congruence with this, a study on Chinese preschool children demonstrated that failure to brush teeth was a major determinant of dental caries occurrence among these children (*Zeng et al, 2018*).

A main objective of the present study was to assess preschool children mothers' knowledge of dental health and hygiene. The study findings revealed a wide variation in their knowledge. Thus, only around one-tenth of them had satisfactory knowledge of the deciduous teeth, and less than one-third had satisfactory knowledge of the permanent teeth. This lack of knowledge about deciduous teeth is quite risky since the problems of these transient-type teeth have a major impact on the health of the permanent teeth replacing them. In congruence with this, a study in Brazil revealed the importance of good care for primary or deciduous teeth in order to have healthy permanent teeth (*Paixão-Gonçalves et al, 2019*).

Another area of deficient knowledge revealed among the mothers in the current study is that of cleaning teeth. The results indicated that only less than one-fifth of the mothers were having related satisfactory knowledge. Such deficient knowledge can explain the lack of regular and proper tooth-brushing among their children as the study findings revealed. A similarly low level of mothers' knowledge of dental hygiene and care was reported in a study in India, and this was related to their level of education (*Gurunathan et al, 2018*).

Furthermore, the current study demonstrated that only around one-third of the mothers were having satisfactory knowledge of the risk factors and risky habits that may endanger their children's dental health. This deficient knowledge could underlie the high prevalence of the risky habit of excess intake of candies among their children. Similar gaps of Qatari preschool children mothers' knowledge of dental hygiene and related risk factors (*Alkhtib and Morawala, 2018*).

On the other hand, high percentages of the mothers in the present study were having satisfactory knowledge of other areas of dental health and hygiene such as the pediatric teeth disorders/prevention, drugs affecting teeth, scaling, and dental caries. This high level of knowledge might be related to that the majority of their children had a visit to the dentist during the preceding six months, and this was mostly for caries and other related complaints. Hence, they might have been informed by the dentists during these visits. Similar findings were reported by *Finlayson et al (2019a)* in a study in the United States.

Overall, around one-half of the mothers in the current study were having total satisfactory knowledge of dental health and hygiene. This is quite a low percentage of knowledge and awareness of dental health and hygiene, and it could be attributed to the generally low level of education among these mothers. Nevertheless, and in agreement with this rate, a study in Italy revealed that a high percentage of parents of preschool children had deficient knowledge of proper oral care (*Calcagnile et al, 2019*).

The low percentage of mothers having satisfactory knowledge in the present study is quite alarming given the importance of mothers' knowledge in achieving a high level of dental health and wellbeing for their children. In fact, the current study

demonstrated significant negative correlations between mothers' scores of knowledge and the numbers of complaints and of abnormal physical findings among their children. This means that the children of the mothers having better knowledge have less dental complaints and abnormal dental assessment findings. In congruence with this, a study in Brazil showed a higher prevalence of dental caries among preschool children whose family caregivers had low oral health literacy (*Montes et al, 2019*).

Concerning the factors influencing mothers' knowledge, the current study findings identified certain demographic characteristics such as parents' education and job, and family income. Thus, a higher level of education, a working mother and an employee father, as well as a high income family are factors with positive influence on mothers' knowledge. This is quite expected given the impact of such socioeconomic indicators on people's health awareness and behavior in general. A study in India similarly revealed a significant association between dental problems among preschoolers and their mothers' educational as well as socioeconomic level (*Nagarajappa et al, 2019*).

Meanwhile, mothers' knowledge had a positive influence on their children's dental health. Thus, the present study results demonstrated that significantly more children of the mothers having satisfactory knowledge were brushing their teeth, using toothbrush, and having less dental complaints. In agreement with this, a study in the United States demonstrated that mothers' knowledge of child oral health had a significant influence on their children's habit of brushing their teeth (*Finlayson et al, 2019b*).

A second main objective of the present study was to assess mothers' attitude towards dental health and hygiene. The study findings revealed that only less than one-third of these mothers were having a positive attitude. This predominantly negative mothers' attitude towards dental health and hygiene is of major concern since the attitude has a strong influence on the health behavior and practices. Thus, a mother with a negative attitude towards dental health and hygiene would not be keen to teach their children good dental health habits and how to avoid related risky behaviors. In agreement with this, *Soltani et al (2018)* in a study in Iran found that mothers' attitudes towards dental health and hygiene was a main determinant of their children's oral hygiene behavior.

As it was noticed regarding the factors influencing mothers' knowledge, the present study results demonstrated that some demographic characteristics such as parents' education and job, and family income had a positive impact on their attitude scores. This is again explained by the positive effect of these socioeconomic indicators on mothers' health behaviors and attitudes. In agreement with this, a study in the United Arab Emirates demonstrated a significant association between the attitude of the mothers of preschool children towards oral health and their demographic characteristics (*Mahmoud et al, 2017*).

An interesting finding of the current study was the relation between mother's attitude towards dental health and hygiene and the child's birth rank. Thus, the mothers of firstborn children were having significantly more positive attitude towards dental health and hygiene compared with those with higher rank children. This was also confirmed by the negative correlation found between mother's attitude score and child's birth order, as well as in multivariate analysis. The finding might be explained by the higher care the mothers provide to their firstborn babies in comparison with the following ones. The finding is in congruence with the results of a study in India, which demonstrated increasing risk of dental problems with higher birth order rank among preschool children (*Dabawala et al, 2017*).

The results of the current study demonstrated that significantly more mothers with satisfactory knowledge were having a positive attitude towards dental health and hygiene. Moreover, a significant positive correlation was shown between mothers' scores of knowledge and attitude. Further, the multivariate analysis identified mothers' knowledge score as an independent positive predictor of their attitude score. The findings affirm the great influence of knowledge on shaping the attitude of people, thus underscoring the importance of education and provision of sound information on shaping their attitudes. In agreement with this, a study in Iran demonstrated a direct relation between preschool children mothers' knowledge and attitude towards oral health and dental status (*Azimi et al, 2018*).

A rather important finding of the current study in this respect is that the nurses were the most commonly used source of information as reported by the mothers of preschool children. This emphasizes the important role the nurses have in this area of health education. Thus, given that they are the most preferred or most used sources of information, nurses should be well trained in dental health and hygiene in order to be able to fulfill this role efficiently. In line with this, *Mahat and Bowen*

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(2017) emphasized that nurses should play a major role in children's dental health through providing health education to their parents in various health care settings as well as at schools.

On the other hand, the mass media such as the television and radio were the least reported sources of information by the mothers of preschool children in the present study. The finding is of great concern, and indicates the urgent need for dental health educational programs and materials to be provided by these media given their widespread scope of outreach. However, the information provided by these media should be simple, clear, and sound and not leading to confusion as reported by *Liu et al (2019)* in a study in China.

5. CONCLUSION

The results of the study lead to the conclusion that a large proportion of the preschool children in the study settings have dental complaints and abnormal dental assessment findings, with risky behaviors as excess intake of candies and no regular tooth-brushing. Only a half of their mothers have satisfactory knowledge and fewer ones have positive attitude towards dental health and hygiene

6. RECOMMENDATIONS

In view of the main study findings, the following is recommended.

1. Nurseries should have strong dental health programs for promotion of preschool children's oral health. They should include:
2. Regular checkups for early detection of any deviation from normal;
3. Screening programs for specific conditions that may increase the risk of dental problems
4. Training of preschool children in sound dental care habits such as proper tooth-brushing, etc. This should include simulation and role playing.
5. Training of teachers/nursery caregivers to be able to teach children good dental care practices.
6. Further research is proposed to examine the effectiveness of educational interventions to improve mothers' knowledge and attitudes towards dental health.

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