



Relation Between Mothers' Awareness and Oral Health Status of Preschool Children

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Abstract

Background: Mothers are directly responsible for the dental health of their children and can play an important role in preventing oral diseases in children. They clean teeth of their children, teach them proper hygiene and dietary habits, and organize professional dental care. **Aim of the study:** was to assess relation between Mothers' Awareness and oral health status of preschool children. **Design:** A descriptive cross-sectional design was utilized to conduct the current study. **Setting:** the study was conducted at governmental nursery schools (11nurseries) in Awlad Sakr city at Al Sharkia Governorate. **Sample:** The current study enrolled 400 preschooler mothers and their children. **Tools:** Three tools were used to collect study data include 1) an Interview questionnaire composed of three parts: Socio-demographic characteristics, the dental history of child, Data related the mother during pregnancy and labour, 2) Mothers' awareness tool, 3) Observation checklist for oral health assessment. **Results:** Study results found that 75.5% of the studied mothers had satisfactory total awareness regarding oral health and 36.7% of preschooler had poor or un healthy oral condition. Moreover there were statistically significant relation between mother's awareness and oral health status. **Conclusion:** Statistically significant negative correlation was found between mothers' awareness and child oral health status **this mean the lower mothers awareness lead to the higher unhealthy oral status among preschoolers.** **Recommendations:** Continuing awareness programs about oral health of preschool children is a useful in preventing and early detection of oral health diseases.

Keywords: Awareness, Oral health status, Mothers, preschool children.

I. Introduction

The preschool age is important age, a child of 3 or 4 year is considered a preschooler (Hu et al., 2020). Mothers' awareness of the importance oral health hygiene has been found to be directly associated with establishment of better

brushing habits and more frequent daily brushing in children(Finlayson et al,2017).

Also, the parents should be aware of tooth brushing and the importance regular brushing, Nutrition plays a key role in oral and dental health. Similarly, oral health affects nutrition status and diet intake. Consumption of much cariogenic nutrients

such as sugar affects dental and gum health. Knowledge of the dietary factors that affect the oral health is a major component in the dental care system (**Badrasawi et al., 2020**).

Educating parents, giving guidance about dietary intake regarding their child's dental care and counseling them to acquire preventive measures for them ((**Mangi et al., 2020**).

Oral health status assessment is an important aspect of general health with preschool children through performing routine assessments of the child's oral health, including checking for tooth decay, gum inflammation, and other potential issues. Identify any abnormalities or concerns and refer the child to a dentist as needed (**Wong, 2022**).

Studies affirmed that Parental awareness of their children's oral hygiene and their primary teeth status may play an important role in preventing future oral health problems. There is an association between oral health knowledge, which are directly linked to the status of their children's oral health (**Dieng et al., 2020**)

Nurses play a key role in promoting children's oral health and preventing dental caries, teaching proper oral hygiene technique (**Tinanoff et al., 2019**) Educate the parents about the importance of maintaining a healthy diet despite dentition problems. Adequate nutrition is vital to healthy teeth and the body. Educate the parents regarding the importance of dental checkups and follow-ups. Checkups help identify dental problems early (**Haber, & Hartnett, 2019**).

Significance

Oral health is an important aspect of general health with preschool children at high risk for developing oral diseases (**Khan et al., 2021**). Indeed, parents play a pivotal role in cultivating a positive dental attitude and healthy dietary and hygiene practices in their children if they have accurate knowledge and awareness about oral diseases and healthy dental practices (**AIBlehed et al., 2021**). Kindergarten oral health assessments help to increase access to care by identifying children who do not have an established dental home and connecting their families to dental providers, thereby encouraging regular dental visits and establishing a dental home for preventive and comprehensive needs(**California Department of Public Health Office of Oral Health,2022**).

Aim of the study: The current study aimed to assess relation between Mothers' awareness and oral health status of preschool children.

Research questions

1. What is mothers' awareness regarding oral health of preschool children?
2. What is oral health status of preschool children?
3. Is there relation between mothers' awareness and oral health status of preschool Children?

II. Subjects and Methods

2.1. Research Design: Cross sectional descriptive design was used to conduct this study

2.2. Study Setting: The study was conducted at governmental nursery schools (11nurseries) in Awlad Sakr city at Al Sharkia Governorate.

2.3. Subjects: The current study enrolled 400 preschooler mothers and their children, plus 40 preschooler mother enrolled in the pilot study and excluded from the main study sample. There fore the total subjects in the study were 400 preschooler and their mothers.

The inclusion criteria were:

- Both sexes.
- Age from 3 to 5 years.
- Free from mental and physical disability or chronic disease.
- Agree to participate in the study.

Sampling technique:

A random Multistage Cluster Sampling technique was used for recruitment of this study Subjects as follows:

- **Stage 1:** Sharkia governorate consists of 23 district and one district select randomly was Awlad Sakr.
- **Stage 2:** This stage involved random Selection of nursery schools, from Awlad Sakr educational administration includes 41 nursery Schools,11 nursery schools randomly selected.
- **Stage 3:** This stage involved selection of one class from each nursery.Total classes were 11 classes. All Students in the selected classes were included in the sample.

The sample size

The sample size is computed to estimate the prevalence of mothers' satisfactory

knowledge or adequate practice regarding their preschool children's oral care of 47.0% and 44.3% according to **Mahmoud and ELsayed (2017)**. Using the Open Epi software package for prevalence sample size calculation at 95% level of confidence and 5% absolute precision, the required sample size is 380 mothers. This will be increased to 400 to account for an expected 5% non-response

2.4. Tools for data collection: three tools were used to collect data they were:

Tool I- An Interview questionnaire:

An Interview questionnaire developed by the researcher in the light of the current related literature and composed of:

Part A. Socio-demographic characteristics of the pre- school children' mothers include as father education, father occupation, mother education,mother occupation, residence, family income, healthy environment,presence of computer, the number of family member, the number of rooms in the house,crowded index,family type. further more, **data about preschoolers as** Age, sex, birth order,nursery name.

Scoring System: This part was used to assess social class of the participants. It adapted by **El-Gilany et al. (2012)** which include; age, class, place of residence, fathers' and mothers' educational level, fathers' and mothers' job, number of family member, number of rooms in the house, family income, and the condition of the house. The total score is 48 grades.

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If the total social score:

From 70-100% (33.6-40) considered as high social class.

From 40-77% considered medium. While less than 40% (19.2 grade) considered low social class.

Part B. The dental history of child composed of four questions such as child suffers from oral and teeth problem, type of child oral problem (Tooth decay, gingivitis, Tooth abscess, broken teeth and gingival bleeding). The child has teeth injury or not. additionally, where the injury occurred.

Part C. Data related the mother during pregnancy and labour: consisted of four questions such as the age at the marriage, the number of pregnancy, the number of labour and Follow up during pregnancy.

Tool II: Mothers' awareness regarding oral health consisted of:

1) These Questions adapted from **Mahmoud et al (2017)** and consisted of 16 questions include:

(A) Knowledge about the milky teeth: composed of three questions: the number of milky teeth of the child, when did you take your child to the dentist, sources of information about oral health.

(B)-Knowledge about the tooth paste: is composed of two questions: the tooth paste contain Fluoride or not, the importance of fluoride.

(C)- Knowledge about the most common dental disease, causes and prevention: composed of four questions: the most

common dental disease in the child, the causes of gum disease additionally the preventive measures of gingivitis and gingival bleeding.

(D) Knowledge about the teeth beauty: composed of four questions: the causes of irregular teeth, the irregular placed teeth be aligned in the correct position or not, the child wash the teeth after each meal or not. further more, the child brushes the teeth alone, or with mother, with father, with grand parents or the child cannot brush teeth.

(E) Questions related to dietary awareness adapted from **Alkhtib (2018)** composed of three questions: such as 1- the impact of food stuff on child oral health: sweets, sweetened drinks and foods likes vegetables, fruits, milk and cheese 2- frequency of sugary foods 3- type of infant feeding (breast feeding, bottle feeding or both).

Awareness 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 a percent score, and means and standard deviations were computed. The total score was 25, and knowledge was considered satisfactory if the percent score was (≥ 15) 60% or more and unsatisfactory if less than (< 15) 60%.

Tool III: Observation checklist :

Researcher assessed oral health of preschool children through observation checklist using oral health assessment tool for non-dental professionals included nurses

and adapted from **chalmers et al(2005)** and included 7 categories about Lips, Tongue, Gums and tissues, Saliva, Natural teeth, Oral cleanliness and dental pain .

Scoring system:-

The response to each category was scored zero (healthy oral cavity), and two (unhealthy oral cavity). Total scores ranged from 0 to 14; **the higher the score (≥ 8.4). Considered as un healthy oral health.**

2.5. Preparatory phase:-

For full understanding of the research problem and the technique used, the researcher spent enough time to review the available related literature and theoretical knowledge of the different aspects of the research using books, articles, on line periodicals and magazines and develop the tools for collecting necessary data for the study topic.

2.6. Content validity:-

It was conducted by group of three expertise included 2 professors of community health nursing and 1 assistant professor of community health nursing in Zagazig University, who review the content of tools for clarity, relevance, comprehensiveness and understandability. The tools were modified according to their comments and suggestions.

2.7. Content reliability:-

Internal consistency of the tools was assessed by calculating Cronbach alpha coefficients. Their reliability proved to be satisfactory as shown by the values of Cronbach alpha coefficient in the following table

Tool	Cronbach Alpha
Awareness	.860
Oral health standard	.84

2.8. Pilot study:-

A pilot study was carried out on a sample of 40 participants attending the nursery schools in Awlad Sakr educational administration representing 10% of the total studied sample. The purposes of the pilot study were to test the feasibility, Clarity and applicability of the study tools, Also to appraise the necessary time for completion of the data collection tools. All participants received a clear clarification for the Study purpose. pilot Study excluded from the studied sample.

2.9. Fieldwork:-

Once permission was granted to proceed in the study. The researcher upon agreement from mother to participate in the study, Then in the morning the researcher assess oral health for each child by observation check list and take five minutes for each child then the researcher collects the mothers and distributes interview questionnaire for them and each mother lasted (20-25 minutes) in filling the questionnaire sheet. Work continued for three days per week included Saturday, Monday, wenedsday.from 9:00 AM to 1:00 PM.,Data were collected through six months starting from beginingof October 2022 to the end of March 2023.

2.10. Ethical Considerations:-

Firstly, from the Research Ethics Committee (REC) in faculty of Nursing, Zagazig University. Then, the agreement of

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participants will be taken from parents (mothers) after full explanation of the aim of the study. Participants will be given the opportunity to refuse participation and they will be notified that they could withdraw at any time of the data collection also, they will be assured that the information would be confidential and used for the research purpose only. The researcher will assure maintaining anonymity and confidentiality of the subject's data.

2.11. Administrative Design:-

The Administrative design implemented through submission of a formal letter containing aim of the study from the Post - graduate department at faculty of Nursing Zagazig University to the director of Awlad Sakr educational administration. The Director General referred the researcher to the directors of the selected nursery schools with approval letters. Then the research met with of each them and explained the aim of the study and the nature of tool used for collecting data. The researcher gave the director of the school and the social worker a copy of the tool and the formal letters.

2.12. Statistical Design:

Data entry and statistical analysis were done using SPSS 22.0 statistical software package. 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. The Cronbach alpha coefficient was calculated to assess the reliability of the developed tools through their internal consistency. Qualitative categorical variables were compared using a chi-square test (X^2). Whenever the expected values in one or more of the cells in a 2x2 tables was less than 5, Fisher exact test was used instead. The Spearman rank correlation was used for assessment of the interrelationships among quantitative variables and ranked ones. In order to identify the independent predictors of the awareness, practice, attitude and oral health assessment scores multiple linear regression analysis was used after testing for normality, and homoscedasticity, and analysis of variance for the full regression models were done. Statistical significance was considered at p-value <0.05.

Results

Part I. Nursery School children' Characteristics& dental history

Table (1): Demographic characteristics of pre- school children (n=400)

Demographic characteristics	Frequency	Percent
Age:		
3 – 4	38	9.5
> 4 -5	362	90.5
Mean±SD	4.56 ±.54	
Rang	(3 – 5)	
Sex :		
Male	201	50.2
Female	199	49.8

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Child Birth order:		
Alone	14	3.5
The first	112	28.0
The last	203	50.7
Other	71	17.8
Residence:		
Rural	247	61.7
Urban	153	38.3

Table (1) shows that 90.5% of preschool children were at age group (4-5)years with mean age $4.56 \pm .54$ years, 50.2% of them were male, also 50.7% were the last birth order, and 61.7% from rural area.

Table (2): Dental history of pre-school children (n=400)

Dental history	Frequency	Percent
Suffering from oral and teeth problem:		
Yes	207	51.8
No	193	48.3
If yes, oral & teeth problem include@:		
Tooth decay	186	46.5
Gingivitis	36	9.0
Dental abscess	16	4.0
Broken teeth	46	11.5
Bleeding gum	2	0.5
Suffering from accidents / injury in teeth:		
Yes	112	28.0
No	288	72.0
The place of accident: n=112		
The house	99	88.4
The nursery	3	2.7
The street	9	8.0
The club	1	0.9

Table (2) reveals 51.8% of preschoolers suffer from oral and dental problem, also 46.5% the main teeth problem was tooth decay. On the other hand 28% of preschoolers exposed to dental accident at home (88.4%).

Part II: Mothers awareness & oral health assessment for preschool children

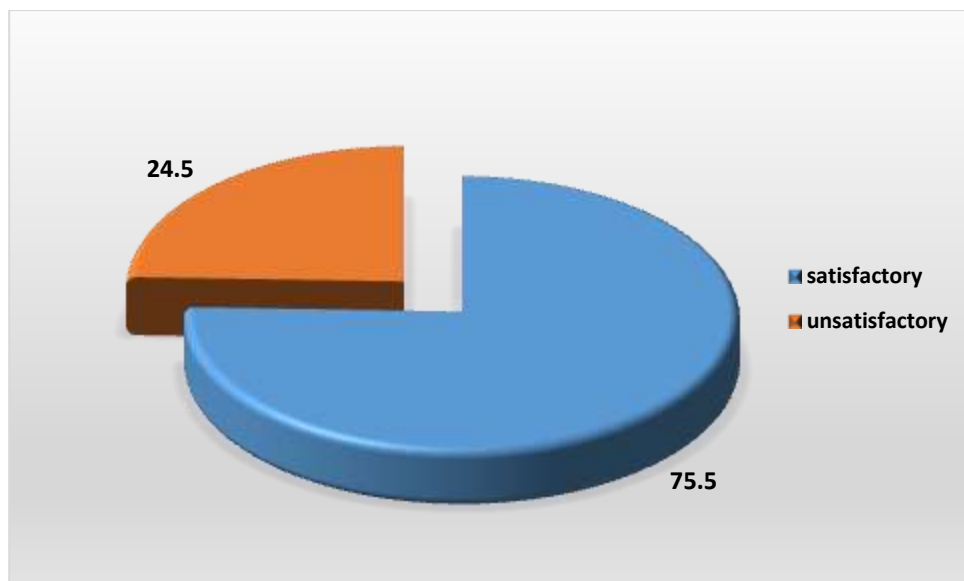


Figure (1): total level of mothers awareness about oral health (n=400)

Figure (1) illustrates the mother level of awareness about oral health; according to the figure 75.5 % of them had satisfactory level of knowledge.

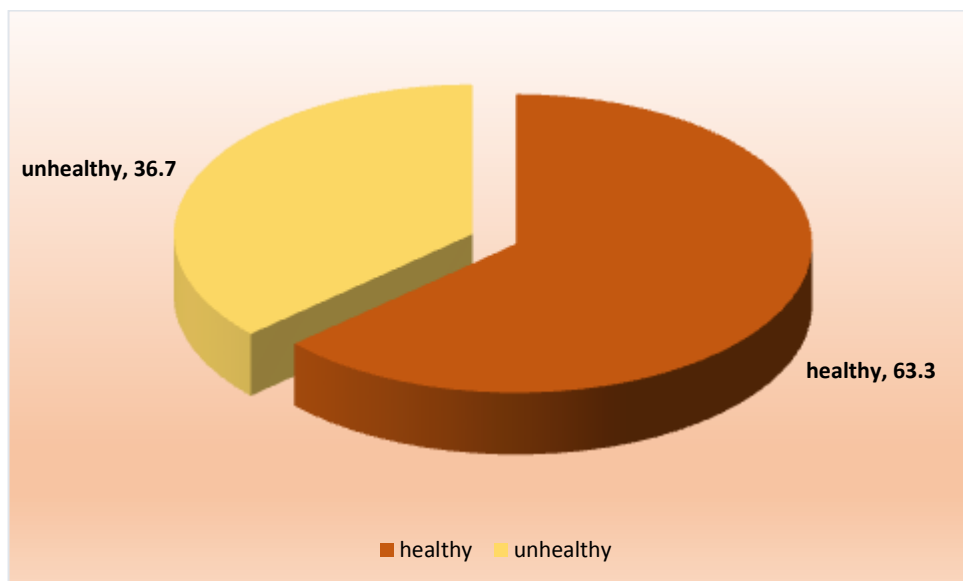


Figure (2): preschooler oral health status (n=400)

It is clear from figure (2) that 36.7% of preschooler had poor or un healthy oral condition.

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Part III: Relations between mother's awareness and oral health status of preschool children

Table (3): Relation between mothers' awareness and their demographic characteristics

Demographic characteristics	Total awareness				X ² test	p-value
	Satisfactory (n=302)		Unsatisfactory (n=98)			
	No.	%	No.	%		
Age of marriage:						
≤ 18	92	64.3	51	35.7	14.99	.000**
19 – 32	210	81.7	47	18.3		
Number of pregnancy:					14.95	.001*
≤ 2	103	70.1	44	29.9		
3- 4	192	81.0	45	19.0		
≥ 5	7	43.8	9	56.2		
Number of labor:					2.81	.246
≤ 2	113	71.1	46	28.9		
3- 4	185	78.4	51	21.6		
≥ 5	4	80.0	1	20.0		
Mother's Educational level:					59.02	.000**
Can't read & write	7	53.8	6	46.2		
Read & write	12	48.0	13	52.0		
Basic education	9	34.6	17	65.4		
Secondary	92	70.2	39	29.8		
University	175	88.4	23	11.6		
Post graduate	7	100.0	0	0.0		
Mother's job:					1.48	.224
Not work [house wife]	232	74.1	81	25.9		
Work	70	80.5	17	19.5		
Residence:					2.43	.119
Rural	193	78.1	54	21.9		
Urban	109	71.2	44	28.8		
Social class :					16.86	.000**
Low	15	46.9	17	53.1		
Medium	203	76.3	63	23.7		
High	84	82.4	18	17.6		

Table (3) shows statistical significant relation between mothers' awareness, and their age at marriage, number of pregnancy, mother education and their social class (p=.000).

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Table (4): Relation between children oral health status and their mothers' characteristics

Demographic characteristics	Total oral health status				X ² test	p-value
	Healthy (n=253)		Unhealthy (n=147)			
	No.	%	No.	%		
Age of marriage:						
≤ 18	70	49.0	73	51.0	19.58	.000**
19 – 32	183	71.2	74	28.8		
Mother's Educational level:						
Can't read & write	10	76.9	3	23.1	19.95	.001*
Read & write	12	48.0	13	52.0		
Basic education	11	42.3	15	57.7		
Secondary	72	55.0	59	45.0		
University	142	71.7	56	28.3		
Post graduate	6	85.7	1	14.3		
Mother's job:						
Not work [house wife]	188	60.1	125	39.9	6.28	.012*
Work	65	74.7	22	25.3		
Social class :						
Low	16	50.0	16	50.0	8.83	.012*
Medium	161	60.5	105	39.5		
High	76	74.5	26	25.5		
Regular checkup with a dentist:						
Yes	25	62.5	15	37.5	3.82	.148
No	29	51.8	27	48.2		
When there is a problem	199	65.5	105	34.5		
Type of baby feeding:						
Breast feeding	143	63.3	83	36.7	.844	.656
Artificial feeding	21	56.8	16	43.2		
Both of them	89	65.0	48	35.0		

Table (4) reveals that statistically significant relation were found between total oral health assessment, mothers at age of marriage $p = (.000)$, educational level $p = (.001)$, mother's job $p = (.012)$, and mothers' social class $p = (.012)$.

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Table (5): Relation between mothers' awareness and child oral health status

Variables	Total awareness				X ² test	p-value
	Satisfactory (n=302)		Unsatisfactory (n=98)			
	No.	%	No.	%		
Children oral health status						
Healthy	203	80.2	50	19.8	8.35	.004*
Unhealthy	99	67.3	48	32.7		

Table (5) reveals presence of statistical significant relation between mothers total awareness and child oral health status=(p=.004).

Part IV. Correlates and predictors of mothers' awareness and children oral health assessment

Table (6): Correlation matrix of awareness and Children oral health status

Scores	Total Mean score
	Awareness
Awareness	
Children oral health status	-.257**

Table (6) illustrates statistically significant negative correlation was found between awareness and child oral health status. (R= -.257 respectively) .

Table (7): Best fitting multiple linear regression model for mother awareness score

Variables	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
(Constant)	8.178	1.707		4.792	.000	4.823	11.534
Age of marriage (19-32)	1.133	.442	.123	2.563	.011	.264	2.002
Pregnancy number	.095	.390	.012	.244	.807	-.672	.862
Mother education level (high)	1.567	.240	.374	6.535	.000	1.096	2.039
Social class level	.131	.468	.016	.280	.780	-.789	1.052

R square =.42 model a nova :f=20.75,p <0.01

Table (7) presents best fitting linear regression model for mother awareness score. It indicates that the age of mother at marriage, mother educational level were statistically independent positive predictor of mother awareness score, The regression model explains 42% variation in mother awareness score as indicated by r square value.

Table (8): Best fitting multiple linear regression model for children oral health status score

Variables	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
(Constant)	2.333	.986		2.365	.018	.394	4.272
Setting (urban)	-.519	.245	-.104	-2.122	.034	-1.000	-.038
Mother education level	.023	.155	.010	.150	.881	-.281	.327
Mother job	-.038	.314	-.007	-.122	.903	-.655	.578
Age of mother marriage (19-32)	-.643	.259	-.127	-2.483	.013	-1.153	-.134
Social class	-.034	.029	-.081	-1.163	.245	-.092	.024
Total awareness score	-.085	.032	-.156	-2.645	.008	-.149	-.022

R square=0.36 model Anova f= 7.32,p<0.01

Table (8) presents best fitting linear regression model for children oral health status score. It indicates that the setting, Age of mother and total awareness score were statistically independent negative predictor of children oral health status score. The regression model explains 36% variation in children oral health assessment score as indicated by r square value.

Discussion

The oral health care provided by the parents to the pre-school children is of crucial importance as this determines not only the current oral health status of the child but also lays the backbone of attitudes and practices that a child adopts in this age which he carries over in his or her adulthood. Improvement in children's oral health depends on parents' awareness and knowledge (Naidu & Nunn, 2020). Parent's awareness can be one of the main factors in preventing oral diseases and promoting the oral health of their children (Mohamed, 2020).

Concerning demographic characteristics of the studied pre- school children, the present study showed that most of preschool children were at age group (4-5) years old with mean age $4.56 \pm .54$ years. This reflect the fact that age of preschool entry is 4-5years in Egypt. This result was close to a study carried out by Mahmoud et al., (2017) and stated that the average age reported among preschool children in United Arab Emirates was (3.49 [+1.63 years]). In the same context, a study in Qatar done by Alkhtib & morawala (2018) found that most of the studied preschool children ranged in age 3-4 years old.

In addition, the present study revealed that about half of the studied children were male. This result was in accordance with a study in India performed by **Sultana et al., (2022)** found that more than half of the studied children were males.

Moreover, the current study displayed that about half of the studied children were the last birth order. The explanation of this result might be due to most females married early in rural area, so may be the last birth order. This result was against a study in India conducted by **Pawar et al., (2018)** and demonstrated that the largest proportion of the studied children were the second order. Also, a study in Iran carried out by **Yazdani et al., (2018)** and found that most of the studied children were the first child in order.

Additionally, the results of the present study revealed that slightly more than three fifths of the studied children were residing in rural area. This result might be due to most of study sample collection was in villages. This result was consistent with a study conducted in Egypt by **Salamaet al., (2020)** reported that nearly two thirds of the studied children were from rural area.

Concerning dental history of pre-school children, the current study findings indicated that about half of them were suffering from oral and teeth problem and nearly half of them the main teeth problem was tooth decay. This may be attributed to the studied mothers were uninformed and unconcerned about their child's dental health and did not practice good oral hygiene. In the same line, **Al Salami et al., (2018)** in United Arab Emirates demonstrated that high prevalence

of oral and teeth problem and caries among the studied children. Also a study performed by **Lin et al., (2021)** in Nepal and reported that more than half of the studied children had tooth decay.

Additionally, the study result showed that most of dental accident was at home .This might be due to Low awareness of mothers about how to deal with dental accidents. This result was against a study done by **Köse et al., (2023)** in Turkey and stated that the minority of children' dental accident was at home.

Concerning answering the first research question about mothers awareness regarding oral health of preschool children. The results of the present study demonstrated that about three quarters of the studied mother had satisfactory total awareness regarding oral health, while almost one quarter of them had unsatisfactory total awareness. This might be due to educational programs presented by social media or campaigns and the parents give the current study had high level of education. And high level of awareness.

This result matched with **Nepaul & Mahomed, (2020)** who conducted a study in South Africa found that most of the parents had satisfactory knowledge about oral health of their children. Correspondingly, a study in Iran by **Basir et al., (2022)** affirmed that the parents' level of knowledge about oral health of their children was satisfactory. the present study finding with disagree with a study in USA, performed by **Naidu & Nunn, (2020)** and mentioned that Parents

and caregivers of preschool children in this sample had fair oral health knowledge.

In the opposite line, the current study result was inconsistent with **Khanduri et al., (2018)** who carried out a study in Nepal and stated that the level of awareness among parents was relatively low and concluded that, there is a need to create more awareness about the knowledge and importance of deciduous teeth, regular dental visits among the society, and implementation of oral health awareness programs for parents. This contradiction may be related level of education and socioeconomic differences between both study subjects.

Concerning answering the second research question about assessing oral health status of the studied preschool children, the current study declared that more than one third of preschoolers had poor or unhealthy oral condition .This result might be due to more than two thirds of mothers were having poor practice regarding oral health. This result was compatible with, a study by **Matsuyama et al. (2020)**, done in **Adachi City, Tokyo** and reported that less than half of studied children suffered from dental caries and poor oral health. In the contrast the result of a study by **Dieng et al. (2020)**, carried in Pikine , and contradicted with the present study showed more than half of mothers were following satisfactory practices toward a children's oral health and so oral status for their children were healthy. This result may be related to level of education and

socioeconomic differences between the study subjects.

Concerning answering the third research question about relation between mother's awareness and oral health status of preschool children.

As regard relation between mothers' awareness and oral health assessment of their children, the current study indicated that that highly statistically significant relations were found between mothers' awareness and child oral health status .From the researcher point of view, this might be due to the more mothers' awareness, good oral health assessment. This reflects the best oral health for their children.

Likewise, **Pawar et al., (2018)** who found that there were significant relations between mothers' knowledge and children oral health status. They concluded that good knowledge of mothers regarding child's oral hygiene positively affect dental health status of the studied children.

In the same context, studies conducted by **Chala et al., (2018) in Morocco** and **Khanduri al., (2018) in Nepale** clarified that there was a relation between level of knowledge of parents regarding oral health of their children, and hence, it can affect the level of parental care, which will affect health status of their children in general and oral health status in specific.

According to relation between mothers' awareness and their mothers characteristics, the result of the current study highlighted that highly statistically significant relations were found between mothers' awareness , and their age at marriage , number of

pregnancy , mother education and their social class. This can be interpreted as mothers who have older marriage age high level of education and social condition and have more number of pregnancies are more likely to have higher level of awareness regarding their children oral health than others.

This result was in accordance with the studies conducted by **Chen et al., (2020)** in China and **Dumitrescu et al., (2022)** in Romania where in it was shown that parents with higher education level and social standard had better knowledge regarding the oral health care of their children. In the opposite line, **Alblehed et al., (2021)** who reported that there was no significant relation between gender, education, age and number of pregnancies of parents participated in the study and their level of knowledge regarding oral hygiene. This discrepancy might be due to difference in the sample characteristics.

Concerning relation between children oral health status and their mothers' characteristics, the present study demonstrated that highly statistically significant relations were found between total oral health status , mothers age at marriage, educational level, mother's job., and mothers' social class . This can be interpreted as mothers with high level of education, older age of marriage, higher social class and working mothers are more likely to have children with healthy dental condition.

The current study findings were in agreement with **Emadian et al., (2020)** in **Sari, Iran** who mentioned that children oral health condition was associated with their

mothers' level of education, occupation and social class. In the same line, prior study conducted by **Xiao et al., (2019)** in United States reported that there was a significant association between mothers age of marriage and the child oral health assessment.

Pertaining to correlations between mothers' awareness and children oral health status, the present study portrayed that significant negative correlation was found between awareness and child oral health status. . This might be interpreted as high level of mothers' awareness have a significant positive impact children oral health which lead to lower prevalence of oral health problems. In this concern, **Alshammary et al., (2019)** who carried out a study in Saudi Arabia mentioned that parent's knowledge can be one of the main factors in preventing oral diseases and promoting the oral health of their children.

On the other hand, **Gurunathan et al (2018)** reported that the oral health status score of the children in the study was significantly affected by parent's knowledge.

Concerning best fitting linear regression model for mother awareness score. the present study result indicated that age of marriage and mother educational level were statistically independent positive predictor of mother awareness score. This might be interpreted as mothers' age of marriage and educational level has a significant impact on mothers' awareness. **Chen et al., (2020)** reported that mothers with younger age of marriage and lower

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level of education also have low levels of oral health knowledge. Mothers with a general, improved level of education may be able to assess appropriate source of information and understand that information more completely.

Additionally, the present study result highlighted that residence, age of mother and total awareness score were statistically independent negative predictor of children oral health status score. This can be interpreted as mothers who live in urban areas, have older age of marriage and high level of awareness seem to have children with healthy oral condition.

In this concern, **Shin & Park, (2017) and Dieng et al., (2020)** whose studies affirmed that Parental awareness of their children's oral hygiene and their primary teeth status may play an important role in preventing future oral health problems. There is an association between oral health knowledge, age, and the education level of mothers, which are directly linked to the status of their children's oral health.

In the same line, **Sowmya et al., (2021) and Chapain et al., (2022)** stated that mothers' place of residence, knowledge of oral health directly affect their children's dental health outcomes. Parental awareness about proper feeding habits, oral health, association with general health, consequences on overall health and quality of life.

Conclusion

According to the present study findings: It can be concluded that about three quarters of the studied mothers had satisfactory total

awareness regarding oral health, More than one third of preschoolers had poor or unhealthy oral condition More Over, there were statistically significant relation between mothers awareness and oral health status, additionally Statistically significant negative correlation was found between mothers' awareness and child oral health status **this mean the lower mothers awareness lead to the higher unhealthy oral status among preschoolers.**

Recommendations

Based on the findings of the present study, the following recommendations were suggested:

- 1-Continuing awareness programs about oral health for preschoolers' mothers.
- 2- Regular assessment of oral health status for preschool children helps to early detection of dental problems
- 3-Further studies are needed to assure study results.

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