

Mother's Knowledge, Attitude, and Practice on Children's Oral Care During Covid-19 Pandemic in Surabaya, Indonesia

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Abstract—Introduction: Children under the age of 5 years old continue to have a high prevalence of dental caries in Indonesia. One of the risk factors is parental ignorance of oral health awareness. The status of children's oral health can be determined by the mother's good conduct. There are various behavioural changes regarding the maintenance of the children's dental health, especially during the Covid-19 pandemic. **Aim:** To assess mother's knowledge, attitude, and practice on children's oral care during Covid-19 pandemic. **Material and methods:** A cross sectional study was conducted amongst 339 mothers who have children under 5 years old in Surabaya, Indonesia. An established OHKAP measurement tool was used in this study. Descriptive analysis, chi square test, and mcnemar test were performed. **Results:** Approximately, 82% mothers had low knowledge levels, 61% had poor attitude, and 52% had poor practice on their children's oral care during Covid-19 pandemic. There was a significant difference between the frequency of mothers who had knowledge on children's oral care before and during Covid-19 pandemic with p -value < 0.001 . **Conclusions:** Most mothers had low and poor KAP on their children's oral care during pandemic. A significant difference was found between knowledge frequency before and during Covid-19 pandemic.

Keywords— Oral care, Children, Covid-19, Knowledge, Attitude, Practice.

I. INTRODUCTION

The novel coronavirus (COVID-19) pandemic affected all facets of life and disrupted financial stability, stress levels, and daily routines. It also caused job losses with associated financial burdens and affected people's ability to adjust to the abrupt change in their daily life including their health behaviours.⁽¹⁾ which are fundamental indicators of oral health status. Effective and efficient oral hygiene practices are an essential tool for achieving good oral health and it is interrelated with general health. Oral diseases can lead to infection, inflammation, and other serious impacts on overall health. Oral health is an important part of determining the health status of children.⁽²⁾ There are several parenting behavioural changes towards children's oral care during Covid-19 pandemic. Changes on toothbrushing behaviour, there were 53.3% parents brushed their children's teeth only once a day.⁽³⁾ Changes on dietary intake towards the children due to the income loss, there were 77% of people increased the intake of high-carb foods and high sugar contained food. Changes on taking their children to visit the dentist due to the

fear of Covid-19 transmission, there were 86% of mothers who had children with severe oral condition and did not take them to the dentist.⁽⁴⁾

Children under 5 years old usually spend most of their time with parents and caregivers, especially during preschool. These early years involve primary socialization that forms children's habits, including the habit of maintaining oral health, and the behaviour of the closest person is believed to be able to form children's habits. Parents are considered as the biggest influence for children to do something and the positive influence of parents can determine the level of dental health of children.⁽⁵⁾

Dental caries highly prevalent in developing countries worldwide like Indonesia. Indonesia faces significant challenges in poor oral health in children that remain untreated until they grow up.⁽⁶⁾ According to the 2018 Basic Health Research (Riskesdas), The prevalence of dental caries in children is still very high, which is around 93%.⁽⁷⁾ Possible causes of high dental caries prevalence in children under 5 years old are exposure to dietary sugar, high levels of cariogenic bacterial colonization, saliva flow rates, low socioeconomic status, and poor maternal oral hygiene. Other risk factors include a lack of oral care, insufficient teeth brushing or usage of fluoride-containing toothpastes, and lack of parental knowledge about oral health.⁽⁸⁾ The assessment of parental oral care knowledge, attitude and practice is an important technique for predicting parent's outlook toward their children's oral health. Dental hygiene helps to prevent dental cavities and allows for early detection of any abnormalities.⁽⁹⁾

The high dental caries rate on children < 5 years old was 67% in the accumulated percentage for 7 consecutive months in Mulyorejo sub-district and it had the lower dental health interventions compared to the other area, including individual health efforts at School Dental Health Unit program to take the form of individual interventions for children who require dental health care and mouth protection such as educating children about dental and oral health, training or demonstration on how to maintain dental and oral health cleanliness and hygiene, instilling healthy and clean lifestyle habits that can be implemented in everyday life. It can be implemented in schools, Puskesmas, or at the practice of an

individual dentist/family dentist.⁽¹⁰⁾ During Covid-19 pandemic in Surabaya, there were 10.678 children need dental treatment, but only 2.675 which is only 25% children got treatment from Puskesmas.⁽¹¹⁾

II. MATERIAL AND METHODS

A. Study Design and Sample Size

A cross sectional study was conducted in Mulyorejo sub-district, Surabaya, Indonesia.

This study used Purposive sampling technique and Slovin’s formula to calculate the sample size. The total sample of this study was 339 mothers aged 20-49 years old who have children under 5 years old and have electronic devices with internet connections as the inclusion criteria. The mothers who have severe illness that caused inability to participate were excluded.

B. Measurement Tools

The measurement tools used was an established OHKAP questionnaire⁽¹²⁾ and additional questions that developed by the researcher. It has been approved by the experts and it has been proven to be valid and reliable with the Cronbach’s alpha value 0.787. It was adapted to a google form questionnaire to assess mother’s parenting knowledge, attitude, and practice of toothbrushing, sugary dietary intake, and dental attendance behaviour on children’s oral care during Covid-19 pandemic.

The first part contained sociodemographic characteristics identification. The second part contained mother’s KAP before and during Covid-19 pandemic. This part also contained additional questions to assess the tools that the mothers used to brush and floss their children’s teeth. The scoring system for measurement was as follows: each correct answer received a score of one (1), while each incorrect answer received a score of (0). Bloom’s modification cut off point of 75% was used in this study.^(13, 14) Mothers with a score of 75% or higher were classified as having a high level of knowledge, good attitude, and good practice, while those with a score of less than 75% were classified as having a low level of knowledge, poor attitude, and poor practice.

C. Data Analysis

Data were analyzed using IBM SPSS (Statistical Package for the Social Sciences) Statistic 22. Descriptive analysis was used to determine the frequency and the percentage of sociodemographic characteristic and each question on KAP assessment. A chi-square test was used to determine the association between sociodemographic characteristic with knowledge and practice levels. The researcher also used McNemar test in order to determine the difference between KAP frequencies before and during Covid-19 pandemic. P < 0.05 was considered as significant.

D. Ethical Consideration

This study received ethical approval from the Faculty of Medicine and Health, Muhammadiyah Jakarta University, Indonesia.

III. RESULTS

A. Sociodemographic Characteristic

Table I showed the mother’s responses to each question regarding the sociodemographic characteristic of the mothers. From the total samples of this research, there were a half of mothers aged more than 35 years old and there were a half of mothers with the range of age 20-35 years old. Slightly more than a half the mothers (53%) attended college degree or higher, the rest of them did not attend college. There were also more than a half of housewife mothers (56%) compared to those who worked during Covid-19 pandemic. There were slightly almost a half (49%) mothers did not experience income changes during pandemic. There were less than a half mothers with a percentage of 27% got the monthly income above the provincial wage and the majority of them got less than the provincial wage. The majority of the mothers (93%) were married while only a few of them were divorced or widowed.

TABLE I. Sociodemographic characteristic

Variables	n = 339 n (%)	
Age (Mean±SD: 36±7.289)		
20 – 35 years old	169	(49.9)
>35 years old	170	(51.1)
Education		
No school	2	(0.6)
Primary school	5	(1.5)
Junior high school	27	(8.0)
High school	127	(37.5)
College and higher	178	(52.5)
Job		
Housewife	189	(55.8)
Governmental worker	35	(10.3)
Private sector worker	76	(22.4)
Others	39	(11.5)
Monthly income perspective		
Decreased during pandemic	160	(47.2)
Not changed during pandemic	166	(49)
Increased during pandemic	13	(3.8)
Monthly income (IDR)		
< Rp. 1.000.000	64	(18.9)
Rp. 1.000.000 – 2.000.000	91	(26.8)
Rp. 2.000.000 - 4.000.000	104	(30.7)
> Rp. 4.000.000	80	(26.6)
Marital status		
Married	314	(92.6)
Divorced / Widowed	25	(7.4)

B. Knowledge on children’s oral care during Covid-19 pandemic

Table II showed the mother’s responses to each question regarding the knowledge on sugary dietary intake, toothbrushing, and dental attendance. There were less than a half of mothers (24%) knew that sugary diets are best given only to the meal times. Almost all of the mothers did not know that it is better for the children to take all sweets in one go. There were slightly more than a half (51%) knew that fruit drinks designed specially for children are not safe to teeth. The majority of mothers knew that most medicines are not sugar free. There were only (25%) of mothers knew that they should take care their child’s oral hygiene since after birth. There

were a half of mothers knew that they should brush their children's teeth after meal to prevent decays.

TABLE II. Knowledge on children's oral care during Covid-19 pandemic

Items	n = 339 n (%)	
Sugary snacks / drinks are best limited to mealtimes	215	(63.4)
No	81	(23.9)
Yes	43	(12.7)
Do not know		
A better way for your child to eat sweets if your child had a bag of sweets		
All in one go	5	(1.5)
A few now and rest later	319	(9.1)
Do not know	15	(4.4)
Fruit drinks designed specially for are children safe to teeth	174	(51.3)
No	105	(31)
Yes	60	(17.7)
Do not know		
Most medicine are not sugar free		
No	54	(15.9)
Yes	214	(63.1)
Do not know	71	(20.9)
First age to take care children's oral hygiene		
At birth	85	(25.1)
When first teeth come through	155	(45.7)
1 – 2 years old	70	(20.6)
Over 2 years old	29	(8.6)
You should brush your child's teeth after each meal to prevent decay		
No	160	(47.2)
Yes	170	(50.1)
Do not know	9	(2.7)
Frequency of your child's teeth should be brushed each day		
Once	12	(3.5)
Twice	242	(71.4)
Three times	82	(24.2)
Do not know	3	(0.9)
The amount of toothpaste should be used for each brushing of a child's teeth		
The size of a pea	159	(46.9)
½ brush head length	129	(38.1)
Whole brush head length	46	(13.6)
Does not matter	1	(0.3)
Do not know	4	(1.2)
Fluoride strengthens tooth enamel		
No	12	(3.5)
Yes	212	(62.5)
Do not know	115	(33.9)
First age to take your child to the dentist		
0 - 12 months	38	(11.2)
13 -24 months	82	(24.2)
25 -36 months	42	(12.4)
When at school	47	(13.9)
When they have a toothache	119	(35.1)
Do not know	11	(3.2)
Reason for taking your child to the dentist		
Because they have a toothache	144	(42.5)
For a check-up	175	(51.6)
To get them used to go	14	(4.1)
Do not know	6	(1.8)

There were (71%) of the mothers knew they have to brush their children's teeth twice and slightly less than a half (47%) knew the right amount of the toothpaste that they used to brush their children's teeth. More than a half mothers (63%)

knew that fluoride strengthens tooth enamel. There were more mothers who knew that they should take their children to the dentist for a check-up (52%) compared those who did not know. But, only (11%) of mothers knew that they should take their children to the dentist at the earliest age.

C. Attitude on children's oral care during Covid-19 pandemic

Table III showed the mother's responses to each question regarding the attitude of mothers toward their children's oral care during Covid-19 pandemic. There were only a few of mothers (19%) of them disagreed that baby teeth do not need to be concerned while almost a half of mothers (48%) agreed. Also, only (17%) disagreed that it is not worthwhile to get baby teeth cavities filled although those teeth will fall out while there were more than a half (54%) agreed.

TABLE III. Attitude on children's oral care during Covid-19 pandemic

Items	n = 339 n (%)	
There is no need to be concerned about baby teeth		
Strongly agree	35	(10.3)
Agree	128	(37.8)
Neutral	112	(33)
Disagree	50	(14.7)
Strongly Disagree	14	(4.1)
It is not worthwhile to get cavities in baby teeth filled because those teeth fall out anyway		
Strongly agree	42	(12.4)
Agree	142	(41.9)
Neutral	96	(28.3)
Disagree	49	(14.5)
Strongly Disagree	10	(2.9)
Regular visits to the dentist are very important		
Strongly agree	104	(30.7)
Agree	141	(41.6)
Neutral	84	(24.8)
Disagree	7	(2.1)
Strongly Disagree	3	(0.9)
Brushing my child's teeth twice a day for 2-3 minutes will keep the gums healthy		
Strongly agree	128	(37.8)
Agree	170	(50.1)
Neutral	29	(8.6)
Disagree	8	(2.4)
Strongly Disagree	4	(1.2)
Treatment that you choose if your child had a bad back tooth and it was not a baby tooth, but a second tooth		
Filled	218	(64.3)
Taken out	84	(24.8)
Do not know	37	(10.9)
Treatment that you choose if your child had a bad front tooth and it was not a baby tooth, but a second tooth		
Filled	192	(56.6)
Taken out	106	(31.3)
Do not know	41	(12.1)
Some children insist on brushing their own teeth from a very early age. Does your child:		
Brush his/ her own teeth	59	(17.4)
Has it done for him/her (adult always assists and repeats)	121	(35.7)
Sometimes do it alone and sometimes have it done for him/her	159	(46.9)

TABLE IV. Practice on children’s oral care during Covid-19 pandemic

Items	n = 339 n (%)	
Frequency of your child brush his/her teeth or have them brushed		
Less than once a week	14	(4.1)
At least once a week	22	(6.5)
Once a day	31	(9.1)
Twice a day	229	(67.6)
More than twice a day	43	(12.7)
Using toothpaste to brush your child’s teeth		
No	36	(10.6)
Yes	303	(89.4)
Toothpaste that you use to for your child contain fluoride		
No	14	(4.1)
Yes	196	(57.8)
Do not know	93	(27.4)
The amount of toothpaste that you use to brush your child’s teeth		
The size of a pea	131	(38.6)
1/2 brush head length	116	(34.2)
Whole brush head length	52	(15.3)
Does not matter	2	(0.6)
Do not know	2	(0.6)
Drink that you usually give to your child before bed/during the night		
Nothing	35	(10.3)
Non-cariogenic drink	268	(78.4)
Cariogenic drink	36	(11.3)
Frequency of your child take something to drink before bed or during the night		
Every night		
4-6 nights a week	255	(75.0)
1-3 nights a week	22	(6.5)
Less often than once a week	15	(4.4)
	12	(3.5)
Frequency of your child having snacks between meals in weekend		
Most of the time	9	(2.7)
Some of the time	65	(19.2)
Once in the while	70	(20.6)
Rarely	189	(55.8)
Never	6	(1.8)
Frequency of your child having snacks between meals during the day		
Most of the time	10	(2.7)
Some of the time	68	(19.2)
Once in the while	65	(20.6)
Rarely	191	(55.8)
Never	5	(1.8)
An aid you use to clean your child's teeth		
Finger	12	(3.5)
Toothbrush	307	(90.6)
Twig	2	(0.6)
Miswak	11	(3.2)
Others	7	(2.1)
A tool you use to remove food debris in-between your child’s teeth		
Dental floss	61	(20.5)
Toothpick	82	(27.6)
Others	154	(51.8)

But the majority of mothers with (72%) agreed that it is important to visit the dentist regularly and also (88%) of mothers agreed that brushing their children’s teeth twice a day for 2-3 minutes will keep the gums healthy which were only few of them disagreed. There were (64%) and (57%) mothers agreed that the treatment of bad back and front second tooth is to get it filled. There were less than a half of the mothers

(36%) agreed that adults always assist their under 5 years old child’s brushing practice.

D. Practice on children’s oral care during Covid-19 pandemic

Table IV showed the mother’s responses to each question regarding the practice of mother’s parenting behaviour on children’s oral care during Covid-19 pandemic including sugary dietary intake and toothbrushing. There were more than a half mothers (68%) brushed their child’s teeth twice a day compared to those who brushed less or more than that and most of them (89%) have used toothpaste to brush their child’s teeth, and over a half of them with a percentage of 58% used a fluoride contained toothpaste, but less than a half of mothers which was (39%) put a pea sized amount of toothpaste to their child’s toothbrush. The majority of mothers (89%) gave something to drink to their child before bed, (78%) of them gave non-cariogenic drink. There were more than a half (56%) of mothers who rarely gave snacks between meals to their child during the day or in the weekend. The majority of mothers used toothbrush (91%) and some of them used miswak (3%) as their cleaning tools to brush their children’s teeth Less than (25%) of the mothers used dental floss to clean in between their children’s teeth, while more than (25%) mothers used toothpick.

E. Knowledge, attitude, and practice levels on children’s oral care during Covid-19 pandemic

Table V showed the mother’s KAP levels on children’s oral care during Covid-19 pandemic. Cut off points 75% was used to divide the levels into two categories. Regarding the knowledge levels, there were more than 75% mothers have low knowledge on sugary dietary intake, toothbrushing, and dental attendance. Regarding the attitude levels, there were more than 75% of mothers have poor attitude on toothbrushing and dental attendance. Regarding the practice levels, more than a half of mothers have poor practice on sugary dietary intake and tooth brushing.

TABLE V. Mother’s knowledge, attitude, and practice levels on children’s oral care during Covid-19 pandemic

Knowledge levels n (%)		Attitude levels n (%)		Practice levels n (%)	
Based on 75% cut off points					
High	Low	Good	Poor	Good	Poor
60 (18.7)	279 (82.3)	81 (23.9)	258 (76.1)	164 (48.4)	175 (51.6)

F. Association between sociodemographic characteristic with knowledge and practice levels on oral care during Covid-19 pandemic

Table VI showed the results of bivariate analysis on association between sociodemographic characteristic with knowledge and practice levels on children’s oral care during Covid-19 pandemic. A chi square test was used in order to find this association. There were significant associations between mother’s age with knowledge and practice levels (all p-value <0.05). Followed by a significant association between

mother’s educational level with knowledge and practice levels (p-value<0.01).

TABLE VI. Association between sociodemographic characteristic with knowledge and practice levels on oral care during Covid-19 pandemic

Variables	P Value	
	Knowledge levels	Practice levels
Age	0.01*	0.019*
Education	0.003**	0.646
Job	0.897	0.435
Monthly income perspective	0.129	0.434
Monthly income (IDR)	0.105	0.271
Marital status	0.754	0.428

*P-value < 0.05, **P-value < 0.01

G. The difference between the frequency of KAP before and during Covid-19 pandemic

Table VII showed the results of bivariate analysis on the difference between the frequency of knowledge, attitude, practice levels before Covid-19 pandemic and the frequency of knowledge, attitude, practice levels during Covid-19 pandemic. McNemar test was used in order to find the difference. Regarding the knowledge, there is a significant difference with p-value < 0.001 between the frequency of mothers who had knowledge on sugary dietary intake, toothbrushing, and dental attendance before Covid-19 pandemic and during Covid-19 pandemic. Followed by a significant difference with p-value 0.017. While, there is no significant difference in the frequency of mothers who had good practice on toothbrushing and sugary dietary intake.

TABLE VII. The difference between the frequency of KAP before and during Covid-19 pandemic

Variables	Before Covid-19 Pandemic n (%)	During Covid-19 pandemic n (%)	P value
Knowledge on children’s oral care	13 (3.8)	60 (17.7)	0.000*
Attitude on children’s oral care	79 (23.3)	81 (23.9)	0.860
Practice on children’s oral care	117 (52.2)	164 (48.4)	0.098

*P-value < 0.001

IV. DISCUSSION

The majority of mothers had low knowledge level with a percentage of 76%, which is only 19% had good knowledge. This finding was similar with a study conducted in Iran. It was found that only 4% mothers had high knowledge on their children’s oral care.⁽¹⁵⁾ Slightly more than a half mothers with a percentage of 51% knew that fruit beverages that designed specifically for children are not safe for them, 63% knew that most of medicines are not sugar free, 63% mothers knew that sugary foods and drinks are better limited to mealtimes, but only 2% of mothers knew that it is better to have their children eat all sweets in one go so that there will be no routine for them to eat sweets and the exposure of sugar will also decreased. These findings were in line with a study conducted in Malaysia.⁽²⁾ Sucrose was found in sweet foods and beverages. Continuous exposure to sugar can produce an acidic environment that can decalcify tooth enamel and cause

caries lesions. Leaving caries untreated might result in pulp infection and eventual tooth loss. Additionally, sugar (sucrose) is frequently blended with other chemicals to create more appealing versions of pharmaceuticals, which may increase patient compliance, due to the bitter taste of many medicines.⁽¹⁶⁾

There were only 25% of mothers knew that they should take care their children’s oral hygiene as early since after birth, similar with the other study in Malaysia.⁽²⁾ Even though the oral cavity after birth consists only of gum pads, with the eruption of primary teeth occurring in the latter half, preventive oral care starts in infancy is the foundation for future oral health. Oral health in infants is the foundation upon which preventive oral care must be built in order to decrease dental diseases.⁽⁹⁾ There were 71% mothers who knew that the right frequency of toothbrushing is twice a day, it was in line with a study in Iran.⁽¹⁵⁾ Half of the mothers knew that they should brush their child’s teeth after each meal in order to prevent tooth decay, 63% of them knew that fluoride strengthens tooth enamel. These finding was also similar with a study from Malaysia.⁽²⁾ Similar with a study in Malaysia but different with a study in Iran,^(15,2) slightly less than a half with a percentage of 47%, knew the right amount of tooth paste should be as the size of a pea. These findings were in line with the recommendation that the right frequency of brushing is twice a day using toothpaste in a pea-sized amount on children under the age of five, and even less in new-borns and toddlers, according to the American Dental Association and dental specialists.⁽⁵⁾

The child’s first dental appointment should be done between the ages of 6 and 12 months.⁽⁵⁾ While in this study was not in line with the recommendation, there were only 11% mothers knew that they should take their child to the dentist before 1 years old. It was also similar but higher compared to a study in Qatar with a percentage of less than 1%. The reason of visiting the dentist is for a regular check-up with a slightly more than a half percentage and it was in similar but lower than a study in Malaysia.⁽²⁾ It was in line with the recommendation from the American Academy of Paediatric Dentistry.⁽¹⁷⁾

Regarding the attitude, more than a half mothers agreed that regular checkups to the dentist is important. It was in line with a study in Vietnam⁽¹⁸⁾ which was in compliance with the recommendation by the American Academy of Paediatric Dentistry.⁽¹⁷⁾ The majority of mothers with a percentage of 88% agreed that brushing their children’s teeth twice a day for 2-3 minutes will keep the gums healthy. This finding was in line with a study in Malaysia which was 96% of the participants in this study agreed⁽²⁾ and also in compliance to the guidance from the American Dental Association and dental specialist.⁽⁵⁾ In this study there were less than a half mothers always assist their children to brush their teeth which in line with the previous study in Malaysia.⁽²⁾ The mothers should help brushing their children’s teeth because under 5 years old still need parents to assist them in the formation of a brushing habit.⁽¹⁹⁾

Slightly more than a half mothers in this research have low practice with a percentage of 52% on children’s oral care

during Covid-19 pandemic. This finding was in line with a study in India⁽²⁰⁾ It was because Covid-19 has impacted many life aspects. The level of the impacts especially in developing countries are worst. Thus, it was predicted to suffer greatly and over a longer time period, when compared to other less-populous countries.⁽²¹⁾ It might also because most of the mothers have low knowledge in this research which based on the theory of knowledge, attitude, and practice, knowledge of a person can affect the action of that person.⁽²²⁾ However, it still needs further research regarding the association of knowledge and practice of mothers on children's oral care in this study.

Most of the mothers used toothbrush as their cleaning aid to brush their child's teeth, there were some mothers who used miswak to brush them. In Indonesia, the number of miswak users continues to rise, particularly among Muslims who hold a strong belief in following the religion's guidance. It can be regarded a Muslim community's culture in Indonesia which according to the Indonesian Ministry of Home Affairs, 86.6% of the population is Muslim.⁽²³⁾ There were 90% mothers in this research already used toothpaste and more than a half of the with a percentage of 59% used toothpaste with fluoride to brush their child's teeth. Over a half mothers with a percentage of 68% brushed their child's teeth twice a day. This finding was not in line with a study in Malaysia⁽²⁾ Because in recent years, there were interventions regarding how to maintain a good oral health including toothbrushing, dental attendance, and sugary dietary intake in this research area which were contained of empowerment to the community in the research area related with those behaviours.⁽²⁴⁾ There were less than a half with a percentage of 39% gave the right amount of toothpaste to brush their child's teeth which was similar with a study in Malaysia⁽²⁾. It might because half of them did not knew that they should give a pea sized toothpaste amount to the children under 5 years old based on the knowledge analysis on the previous subchapter. More than a half mothers with a percentage of 74% rinse their child's teeth after toothbrushing. It was because on the brushing teeth guidelines from Indonesian Ministry of Education and Research, they still recommended to rinse after toothbrushing, and based on the previous research in Indonesia, the guideline is still not updated.⁽²⁵⁾ Which according to the American Academy of Paediatrics (AAP), children do not need to rinse after toothbrushing but only spit the excess of fluoridated toothpaste out⁽²⁶⁾.

There were only 20.5% of mothers who used dental floss to clean their child's in between teeth which was not in line with a study in Arab.⁽²⁷⁾ It was because dental floss is not yet widely used in Indonesia, results in a lack of understanding about the product, as well as a lack of awareness about its use. In the other hand, there were mothers who still used toothpicks because those are readily available in Indonesia, people frequently use them to pick up remaining food between their teeth. Toothpicks should not be used to children since they are harmful to the gums and teeth also can cause infection in the oral cavity. Some mothers also used another tool like pieces of wood / sticks because almost every restaurant or family

provided not only toothpicks, but also pieces of wood / sticks on the dining table.⁽²⁸⁾

The majority of mothers as more than 75% gave non-cariogenic drinks such as water and milk with no additional sugar to their child before bed, also more than a half of the mothers rarely gave snack between meals during the day and in the weekend. These findings were significantly better than the findings in a study from Arab which was more than a half of the mothers gave snack between meals.⁽²⁹⁾ For children under 5 years old, sugary dietary intake should likely be significantly lower especially for infants under 2 years old. Healthy eating and drinking habits should be established in infancy in order to prevent negative health effects in later childhood and adulthood. Sugar should preferably be consumed as part of a main meal and in its natural form as human milk, milk, unsweetened dairy products, and fresh fruits instead of fruit juices, smoothies, and/or milk products that have been sweetened. Instead of using liquid free sugars, utilize water or unsweetened milk drinks.⁽³⁰⁾

There was a significant association between mother's age with knowledge and levels on children's oral care. Among those who have high knowledge, the frequency of mothers aged 20-35 were higher than those more than age >35 years old. It might because mothers who actively attended a community-based organization named posyandu were aged 20-35 years old which was they also got more knowledges from the program that was usually done by the primary health care (puskesmas) at that area.⁽²⁴⁾ There was found a significant association between educational levels and knowledge levels of parenting behaviour on children's oral care which among those who have high knowledge, the frequency of mothers with college and higher educational level were higher with a percentage of 70% than those who did not attend college.

It was found in a study in Arab conducted prior to the Covid-19 outbreak, more than a half participants had high knowledge on their children's oral care.⁽²⁹⁾ A separate survey carried out in Malaysia during the Covid-19 outbreak revealed that the participant's average levels of knowledge were poor.⁽²⁾ This occurred because during this pandemic, people tended to be more concerned with the spread of Covid-19 and how it affected their daily lives, which led to the less concern for oral care. In addition, there were a number of restrictions on how health promotion activities, such as educational programs about maintaining oral health could be carried out. In contrast to the findings of the present study, knowledge levels before and during the Covid-19 pandemic differed significantly which the levels of knowledge increased. It was because there were empowerment and educational programs held at the research area in of this research just before the Covid-19 got underway.^(24, 31) However, given that it has been two years since the government proclaimed the pandemic, this finding may be biased.

It was found in a study conducted in Arab before Covid-19 pandemic, more than 90% participants have good attitude on children's oral care.⁽²⁹⁾ While a study in Malaysia conducted during Covid-19 pandemic also showed relatively good attitude on children's oral care.⁽²⁾ Regarding the attitude on children's oral care in this study, there was no significant

difference between attitude before Covid-19 pandemic and during Covid-19 pandemic. This finding on attitude was paralleled with the finding of practice on this study. Which both showed no significant differences between before Covid-19 pandemic and during Covid-19 pandemic.

It was also found in a study conducted in Arab before Covid-19 pandemic, less than 25% of the participants exhibited good practices.⁽²⁹⁾ While a study in Malaysia conducted during Covid-19 pandemic, showed relatively good practice on children's oral care.⁽²⁾ In this study regarding the practices, there were no significant difference between the before and during Covid-19 pandemic. It was because the practices could be different due to the impact of Covid-19 pandemic on economy.^(1, 32) While in this study, most of the participants did not experience monthly income changing during Covid-19 pandemic. Also, the researcher conducted the study after the highest peak of Covid-19 cases which there were less restrictions about self-isolation and social distancing. Which means the mothers started to improve their activities outside step by step leading to a new normal era.⁽³³⁾

V. CONCLUSIONS

Less than a half of the mothers in this study exhibited high knowledge, good attitude, and good practice. Mother's age had a significant association with the knowledge and practice levels, mother's education also had a significant association with the practice levels, and also there was a significant difference between the frequency of the mothers who had good knowledge on children's oral care before and during Covid-19 pandemic.

VI. LIMITATION

This study was conducted in Mulyorejo sub-district. It cannot represent the whole population in Surabaya. But, it can represent the population in Mulyorejo sub-district, East Surabaya.

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