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December 2022

## Knowledge of Dental Health among Mothers of Poor Families during the Pandemic in East Java

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## Knowledge of Dental Health among Mothers of Poor Families during the Pandemic in East Java

By Udijanto Tedjosasongko,<sup>1</sup> Thalca Hamid, Satiti Kuntari, Seno Pradopo, and Gilang R. Sabdho Wening

### Abstract

Mothers play an extremely important role with regards to monitoring the dental health of their children. Hormonal changes associated with pregnancy and poor oral hygiene are responsible for the development of gingivitis. Gingivitis is more common in pregnant women with pre-existing gum problems due to not following careful oral hygiene practices. Identifying mothers with poor oral hygiene and educating them on the importance of their own oral health and that of their unborn child can change previous trajectories of predicted gum disease. The research below focuses on the efforts of pregnant women to optimize the oral hygiene of children under five years of age in poorer communities within the East Java province during the COVID-19 pandemic. Qualitative methods are complemented by quantitative data utilizing a gender perspective. The location of this research centered on: Tomoron village, Omben district, Sampang regency; Bandung Rejosari village, Sukun district, Malang regency; and Gaji village, Kerek district, Tuban regency. The subjects of this study were specifically pregnant women and mothers who have toddlers, as well as health workers from *puskesmas* (community health centers) and local community leaders in poorer villages. The data were collected through interviews with 180 respondents, consisting of 60 respondents from each research location. The results of this study show: 1) Mothers' knowledge of dental health and their efforts to preserve it during the COVID-19 pandemic; 2) Obstacles faced during this period, which included the lack of socializing and the prohibition on gathering within communities, and their effects on the health of mothers and children. Furthermore, limited services from *puskesmas* for dental health were found to be detrimental to both children and the general health of the community.

**Keywords:** Children, COVID-19 Pandemic, Dental Health, Women's Health

### Introduction

Awareness of the importance of a healthy diet during pregnancy can directly affect the growth and development of the fetus in the womb, including the development of the teeth of the fetus. Calcium and phosphorus minerals are an integral part of dental health. Such minerals are readily available in dairy foods such as milk, cheese, yogurt, and various types of meats. Any expectant mother should be aware of the need to consume adequate levels of calcium and phosphorus. Other minerals required during pregnancy include vitamin D, as it helps the body to absorb and retain calcium and phosphorus. Vitamin D is present in oily fish such as salmon, and tuna, and gathered by the body via exposure to direct sunlight. During pregnancy, mothers eat more and often eat sweet foods.

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In order to prevent future dental concerns, the mother should choose foods that are nutritious such as raw fruits and vegetables, yogurt, and cheese (Kiang, 2018). In children, Early Childhood Caries (ECC) can occur soon after tooth eruption. ECC attacks all surfaces of the primary teeth, progressing rapidly and having a lasting detrimental impact on the dentition. It is prevalent in infants from low socioeconomic backgrounds who tend to consume high levels of sugar in their diet, and whose mothers are not adequately educated. Children with ECC run a high risk of carious lesions and permanent dentition problems.

Parents, especially mothers, will pass their dental habits on to their children based on knowledge, attitudes, and beliefs. Maternal behavior is influenced by socioeconomics, social demographics, and other supporting factors such as culture, environment, and personal health facilities (Sujana & Pannu, 2015).

Research conducted by Thalca Hamid et al (2018 & 2019) reported that methods of empowering pregnant women to optimize the development of oral hygiene in children under five in poor communities included the recognition of the importance of toothbrushes. That study focused on the East Java province comprising research locations in Temoran Village, Omben District; Sampang Regency, Bandung Rejosari Village, Sukun District; Malang Regency and Sidotopo Lor Village, Semampir District; and Surabaya City. There is little information about the development and growth of the teeth of the fetus during pregnancy. Health facilities for pregnant women are provided by community health centers but as they are dependent upon government support, mothers are still not fully aware of the importance of these facilities. Health workers are often prevented from running dental health programs for pregnant women and mothers of children under five to the fullest potential. Therefore, efforts to increase knowledge for pregnant women and mothers of children under five years of age are essential for optimizing the growth and development of children's teeth in poor communities in East Java.

Hormonal changes associated with pregnancy and poor oral hygiene are primarily responsible for instances of gingivitis. Gingivitis is more common in pregnant women with pre-existing gum problems. Delivering educational information about preventive therapies to parents may lead to a reduction of incidences of ECC, prevent the need for dental treatment, and improve the oral health of children.

Parental knowledge about dental health in children is influenced by factors such as educational background, lifestyle, access to health information, and access to health facilities. The high risk of dental disease in children of low-income families is not only caused by a lack of knowledge of oral health resulting in missed dental checks but also an inadequate intake of nutrients (Kadtane, 2014; Prakash, 2012).

In accordance with the national health system, Community health centers are the first port of call for dental concerns. Dental nurses at these community health centers help promote knowledge, with the support of trained non-dental workers, in order to improve awareness of dental health within the community.

COVID-19 has had a tremendous impact on society regardless of economic and social background (Muqsith, 2021). This has been especially true for pregnant women and mothers of young children from poorer communities due to limited education. In addition, some parents are hesitant and worried about bringing their children to the hospital or health center to carry out immunizations and routine health checks for fear of contracting the coronavirus. The adoption of social restrictions in low and middle-income countries shows a clear impact on maternal and child health services. Prior to the emergence of COVID-19, quality, sustainable, and timely maternal health services were not available and there were still difficulties to access and reach health services for millions of women. Currently, the implementation of social restrictions such as curfews and restrictions on the use of public transportation hampers the community, especially mothers and children, from accessing health services. The challenge of

the availability of tools and the implementation of infection prevention in the COVID-19 pandemic situation is getting more severe, causing a negative impact on public health, especially maternal and child health (MCH). (Ashokka et al., 2020).

The airborne infection transference of COVID-19 means that dental treatment runs a particularly high risk within the clinical setting (Peng et al., 2020). To prevent cross-infection and the spread of infection, most dental clinics worldwide have suspended routine dental treatment. The majority of parents who did not seek dental care for their children during the pandemic cited COVID-related reasons: the risk of exposure and dental offices being closed for business or only seeing urgent patients. Most parents (67%) believed it was safe for their child to receive dental care during the pandemic, while 14% felt it to be unsafe and 19% were unsure (Clark, 2021).

The aims of this study were to determine: (1) knowledge of pregnant women and mothers with babies about children's dental health; (2) the role of health workers in the regulation of the health of these women in the poorer communities of the East Java province during the COVID-19 pandemic.

### **Research Method**

This research was based on an observational and analytical approach, conducted in several districts in East Java: Temoran Village, Omben District, Sampang Regency; Bandung Rejosari Village, Sukun District, Malang Regency; and Gaji Village, Kerek District, Tuban. Sixty pregnant women and mothers of children under five years old were given a questionnaire.

The stages of research carried out in this activity were: First, reviewing secondary data about the health conditions of pregnant women and mothers with children under five years old from relevant agencies in the districts studied. This secondary data analysis is important to obtain a macro picture of the health condition of pregnant women and mothers who have toddlers. Second, primary data was collected by distributing questionnaires to 180 mothers of children under five years old. The data obtained was checked to rule out incomplete answers and then processed using quantitative techniques, namely coding and tabulation. The results of in-depth interviews with 30 informants from 3 districts were analyzed to ascertain the presence of insufficient data, then processed by making transcripts of all the interviews. Quantitative data was analyzed by creating frequency tables and cross-referencing percentage calculations. Furthermore, theoretical analysis was carried out to examine any patterns or trends. The qualitative data already transcribed was analyzed by categorizing the data using the File Analysis technique. Next, an empirical generalization was carried out so that theoretical points could be formulated as a result of logical inferences obtained from the empirical data.

### **Result and Discussion**

#### *Knowledge of Mothers Regarding Children's Tooth Health during the Pandemic*

Before discussing mothers' knowledge about children's dental health, the following is a review of the income of respondents during the COVID-19 pandemic. Data collected at the three research sites show that during the pandemic the income of most respondents in Tuban and Sampang was less than 1 million rupiah. This is understandable because during the COVID-19 pandemic it was difficult to find work in the village. Meanwhile, in Malang, half of the respondents have an income of 1 million-3 million rupiah. In Malang, there are quite a lot of respondents who earn 3 to 5 million, or even more than 5 million rupiah. This condition might be due to the fact that residents of city or suburban areas not only have higher education

but also higher creativity to succeed in business, so their income is relatively stable and even increases during pandemics.

**Table 1: Monthly Income**

Income (per month)	TUBAN		MALANG		SAMPANG	
	freq	%	freq	%	freq	%
<IDR 1.000.000	40	66.7	15	25.0	45	75.0
IDR 1.000.000 - 3.000.000	20	33.3	30	50.0	15	25.0
IDR 3.000.000 - 5.000.000	-	0.0	13	21.7	-	0.0
>IDR 5.000.000	-	0.0	2	3.3	-	0.0
TOTAL	60	100.0	60	100.0	60	100.0

The COVID-19 pandemic caused most people to experience a declining income. Many people lost their jobs due to bankruptcy of companies or companies decreasing their employees for efficiency reasons. The consequence was an increase in unemployment, decline in productivity levels, and increased poverty (Yamali & Putri, 2020). The data shows that the respondents (mothers of children under five) come from lower middle-class families.

Children from families of a low socioeconomic background have higher prevalence of caries than children from families who are of a high socioeconomic status. Parents from a low socioeconomic background with an education level lower than secondary school generally display poor knowledge of dental and oral health. Hygiene products such as mouthwash, interproximal brushes, and toothpaste are not available to this sector of the community due to the cost involved. Higher economic status ensures easy access to all oral health benefits. The economic status of underprivileged communities affects the lack of education and access to health information and the need for treatment at health facilities. Low socioeconomic status can increase the risk of dental disease. Children who come from low-income families generally pay less attention to dental and oral health and do not undergo regular dental checkups. This can directly impact the development of caries. In addition, inadequate nutrition can also affect the development of caries in children (Kadtane, 2014; Prakash, 2012).

A person's level of education can determine his or her knowledge and ability to access information, including about children's dental health. Knowledge is the base for the formation of behavior. A person is said to lack knowledge if he or she is unable to recognize, explain, and analyze a situation. Green in Notoatmodjo (2012) tried to analyze human behavior regarding health. The health of a person or society is influenced by two main factors, behavioral causes and non-behavioral causes. The behavior itself is determined by the predisposing factors of knowledge, attitudes, beliefs, values, and socio-economics.. Supporting factors in the physical environment include the availability of health facilities, *puskesmas*, medicines, and so on. The attitudes and behavior of health workers or other officers, family, teachers, and friends influence community behavior.

The data as shown in Table 2 shows that in Sampang most mothers of children under five have low education (elementary school), while in Tuban most mothers of children under five have a junior high school education. There are no mothers in Tuban or Sampang with a university education. In contrast to Malang, more than half the mothers of children under the age of five have a high school education. Many of them have a bachelor's degree, and some even a master's degree.

**Table 2: Education**

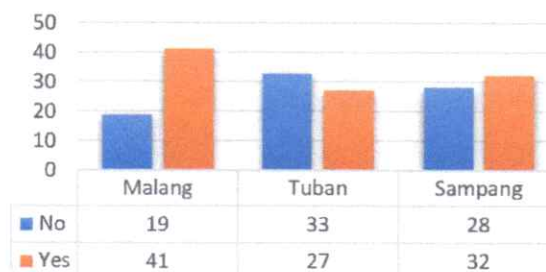
Education Level	TUBAN		MALANG		SAMPANG	
	frek	%	frek	%	frek	%
Elementary School	13	21.7	1	1.7	36	60.0
Junior High School	40	66.6	7	11.7	15	25.0
Senior High School	7	11.7	32	53.3	9	15.0
Diploma	-	0.0	3	5	-	0.0
S1	-	0.0	14	23.3	-	0.0
S2	-	0.0	3	5	-	0.0
TOTAL	60	100.0	60	100.0	60	100.0

Mothers with a higher education can identify severe dental caries and poor oral health. It also educates them about the importance of oral health for themselves and their future children, which can positively impact their quality of life. Sharing preventive measures and therapeutic information can reduce the incidence of Coronary Heart Disease (CHD), lowering the need for dental rehabilitation and improving their childrens’ oral health.

Health education can be used to reduce behavioral factors that cause health problems. It can also increase a person’s knowledge about how to maintain health and change behavior that is not beneficial to health (Retnaningsih, 2013). Economic status or social status and education level affect a person’s healthy living behavior. Income has a direct effect on medical care; if income increases the costs for health care also increase. People with low economic status and low levels of education tend to ignore healthy living behaviors. Children from low economic groups tend to be at severe risk (Azwar, 1983).

Respondents’ data show that the monthly income of mothers from remote areas such as Tomoron Village, Omben District, Sampang Regency, and Kerek Tuban Regency, is lower than those in Bandung Rejosari Village, Sukun District, and Malang Regency. Malang Regency provides much more diversified job opportunities including in the private sector. Throughout the areas investigated in this study, most of the mothers were housewives.

**Table 3: The Effects of Gingivitis on Pregnancy**

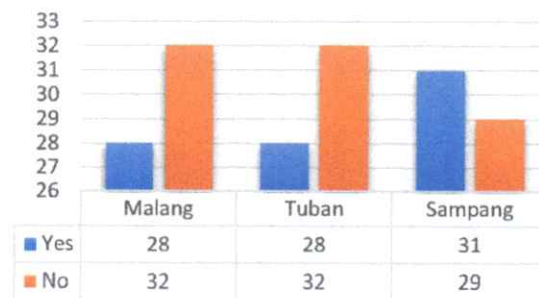




Knowledge regarding gingivitis in Malang, Tuban, and Sampang regencies is limited, but in Malang Regency there is more awareness of the condition than other areas due to higher levels of women's education. Many pregnant women feel that information available about maintaining good oral hygiene, including bleeding gums as an indication of inflammatory disease, is inadequate. They also feel that there is not enough help available. Maternity service providers need to emphasize the importance of dental and oral health at antenatal education clinics. Hormones released during pregnancy can make gum tissue more susceptible to plaque. Gums can become red, tender, and bleed easily when brushing due to increased vascular flow. It appears to be more visible around the incisors than the posterior teeth. (Hefferman, 2020). This is gingivitis, which is very common during pregnancy and after if a mother chooses to breastfeed. Dentists may recommend more frequent cleaning to address gingivitis. Hormonal changes caused by pregnancy can affect gum health. This is particularly the case during the third and the eighth month of pregnancy.

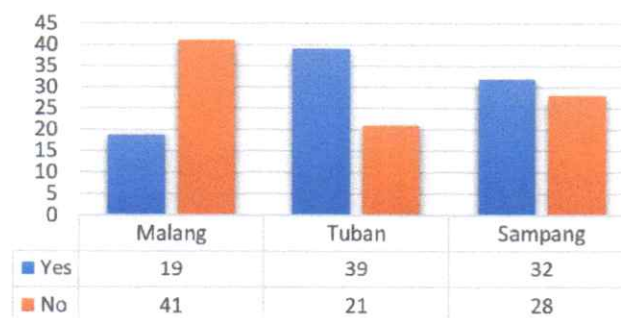
Table 4 below shows that in Tuban and Sampang there is still a lack of knowledge regarding poor oral health and premature birth.

**Table 4: The Effect of Poor Oral Health on Premature Birth**



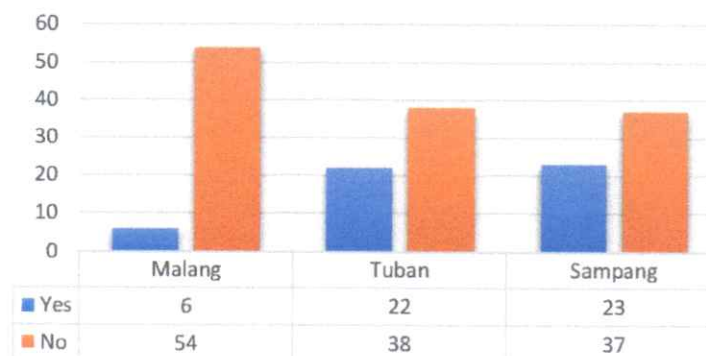
Less than half of pregnant women are aware of the effects of poor oral health on premature babies. However, in the Sampang area knowledge is above 50% because services are available and checks have been carried out three times in the last three years. During the first six weeks of pregnancy, tooth development begins in the fetus. Early Childhood Caries occurrence in children is directly related to pregnancy. An abnormality occurring during pregnancy such as anemia, malnutrition, or the consumption of drugs can cause dental deformities. It is important for expectant mothers to maintain their health during pregnancy to ensure the best results for children's tooth development.

**Table 5: Husbands Monitoring the Condition of Wives' Oral Health During Pregnancy**



The husband's role in monitoring the health of their expectant wives is viewed as insignificant in the region's studies. Since the start of the COVID-19 pandemic, there has been a decrease in husbands' attention to their pregnant wives. During the pandemic, the husband should be more active in fostering the growth and development of his baby. This includes the oral health of pregnant women, because the fetus is directly affected by the health of the mother. Most mothers during the COVID-19 pandemic realized that toothache should not be left unchecked.

**Table 6: Instances of Medical Health Advice Sought for Tooth Pain**



More than half of the respondents acknowledged that they did not seek advice for tooth pain in their children. This may be due to the lack of services and health facilities available; thus, child tooth decay is a major problem. American Pediatric Dentistry recommends that children receive regular dental checkups every six months, beginning with the eruption of the first tooth. These checkups provide an opportunity for identifying and treating dental caries and applying protective treatments such as fluoride sealants and varnishes. Regular dental consultations educate parents and children about good dental hygiene. Sixty percent of parents in the survey have taken steps to receive preventive dental care for their children since the pandemic began.

While most patients received appointments within the usual time frame, 24% experienced delays in dental treatment and 7% were not given an appointment. One in three parents (30%) felt that during the COVID-19 pandemic they were having difficulty obtaining preventive dental care for their children. Around 40% of these parents did not want to risk being exposed to COVID, while 23% indicated that the dentist's office was closed or only saw emergency patients. However, 67% of parents felt it was safe for their child to receive dental treatment during the pandemic, while 14% felt insecure about having contact with other patients. There needs to be an increase in awareness of the importance of regular dental check-ups for children (Clark, 2021).

The nutrition requirements of pregnant women need to be highlighted in order to support the healthy development of the children's teeth. Expectant mothers must maintain their oral hygiene so that there are no ill-effects present at birth. During the COVID-19 pandemic all activities, especially those related to health, declined due to health protocols put in place by the government at the time in trying to control the pandemic. However, the Indonesian government has prepared health facilities to cope with the new normal through moving to online health facilities in the community, namely *puskesmas*. This knowledge needs to be disseminated amongst mothers, especially those in poorer areas.

Because of public awareness that COVID-19 is an exceptionally easily transmitted disease, the impact of community activities has decreased. This can be seen in the decline in public health services and the decline in awareness of mothers and their families regarding the dangers of neglecting oral hygiene. From the respondent's data in this study, it is obviously necessary to promote preventive efforts with regard to dental hygiene.

#### *Obstacles Faced during the COVID-19 Pandemic*

Community health awareness, especially targeted toward mothers and children, has been implemented directly by health cadres through counseling and by health workers in health centers. However, during the COVID-19 pandemic socialization decreased so much that this necessary provision stopped completely. Health cadres can be aided by platforms such as *WhatsApp*, *Facebook*, and email. This greatly facilitates communication with mothers, although mothers who are economically deprived may not have access to these communication tools. Materials about dental health also need to be improved so the health cadres can do their work more efficiently, especially during the COVID period.

A cadre of health *puskesmas* are responsible for organizing counseling on health issues within local communities. However, the COVID-19 pandemic has greatly decreased these activities. Counseling is generally performed through the texting application *Whats App* on cellular phones or door-to-door. *Puskesmas* are restricted to drug administration and revocation; more serious cases are referred to the hospital. Sometimes mothers are simply not aware of the dangers or how to adhere to health protocols. The dental and oral health of the mother has a huge influence on the immune system of the baby, especially during early fetal development. Services in health centers are expected to greatly improve in quality in the wake of the pandemic. However, there is a need for husbands to do more to actively support their wives both during pregnancy and after.

#### **Conclusion**

Generally, most women had at least a superficial knowledge of dental health. Problems arose when a number of health facilities closed during the pandemic. The health of pregnant women and mothers with babies was dependent on health workers/health cadres and neighborhood networks. The role of health cadres is very important among poor communities in providing assistance to these women. It may be helpful for dental care providers to be more proactive in informing parents about the importance of regular dental check-ups for children via reminder notices through various social platforms.

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