

Research Report

## The efforts to maintain dental health during COVID-19 pandemic by mothers of children with autism spectrum disorder

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### ABSTRACT

**Background:** Children with autism spectrum disorder (ASD) have special characteristics and problems, including oral health problems. The COVID-19 pandemic condition requires adjustment in many ways. The information about the efforts of parents, especially mothers in maintaining the oral health of their ASD children is needed so that assistance can be provided efficiently and effectively. **Purpose:** To determine the mother's efforts in maintaining the dental health of children with ASD during the COVID-19 pandemic. **Methods:** A questionnaire was given to 109 mothers who have ASD children from the Mutiara Hati Autism Foundation in Surabaya City and Mojokerto City, then the data were analyzed using descriptive analysis. **Results:** It was found that the majority of mothers did not bring their children to the dentist during pandemic, so the problem of dental caries had not been treated optimally. Mothers' efforts in maintaining the dental health of their ASD children during the COVID-19 pandemic were; always accompanying the child to brush his teeth, and providing painkillers when the child has a toothache. The mothers did not know that there was an online dental consultation so they did not take advantage of it. **Conclusion:** The mother's efforts in maintaining the dental health of ASD children during the COVID-19 pandemic more limited, due to lack of knowledge in the prevention/treatment of dental disease; and concerns about virus transmission during dental treatment; and the lack of socialization of the use of online media for consultation with dentists.

**Keywords:** dental and oral health; medicine; COVID-19; Autism Spectrum Disorder; dentistry

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### INTRODUCTION

The Corona Virus Disease (COVID-19) pandemic has affected many countries. Coronavirus was first discovered in Wuhan in December 2019. Indonesia is one of the countries affected by this pandemic. As a result of the pandemic, many arrangements in daily life have changed as a form of adjustment.<sup>1</sup> Due to pandemic, problems arise for parents regarding maintaining the oral health of children with special needs, including children with Autism Spectrum Disorder (ASD). Based on data from the Central Statistics Agency, Indonesia's population in 2018 was more than 265 million, with a population growth rate of 1.19%. It is estimated that the number of people with ASD in Indonesia is 3.1 million people with 500 new people being added per year. Several studies have stated that there are poor oral conditions, including high rates of dental caries and periodontal disease in children with special needs, especially children with ASD. This happens partly because the level of knowledge about how to maintain dental and oral health they have is still very low. They also

have limitations in being able to carry out daily activities normally, so help from others is needed.<sup>2</sup>

Oral health is an important aspect of general health in children, including children with special needs. Various problems in the oral cavity such as oral hygiene and dental caries, are directly related to discomfort, tooth pain, to affect the quality of life of the child and also his parents or family.<sup>3,4</sup> The role of dentists in handling the incidence of dental caries in children with special needs is very necessary. However, since the pandemic occurred, direct contact and communication between doctors and patients has been limited due to the implementation of various new health protocols, including limiting services to emergency cases only, restrictions on the number of companions and examination time.<sup>5,6</sup>

The role of parents, especially mothers who are the closest people to children, is very important because it has a significant influence on children's attitudes and behavior.<sup>7</sup> With all the limitations of ASD children and with the imposition of various restrictions during the pandemic, parents need to be assisted in assisting and teaching how to maintain daily oral and dental health. The efforts of

parents, especially mothers, in maintaining the oral health of ASD children during the pandemic need to be known so that the assistance provided is efficient and effective. This study aims to determine the efforts to maintain dental health during the COVID-19 pandemic by mothers with children with ASD.

**MATERIALS AND METHODS**

This research is descriptive observational with cross sectional where the research subject is only observed once. The research subjects were 109 mothers of children with ASD at Mutiara Hati Autism Foundation in Surabaya and Mojokerto, East Java, Indonesia. This study uses a questionnaire to evaluate efforts to maintain dental health by mothers of children with ASD during the COVID-19 pandemic.

Questionnaires along with informed consent were distributed to patients and their guardian. The study was approved by the Faculty of Dental Medicine Ethical Clearance Committee (Certificate number: 515/HRECC.FODM/IX/2021). Furthermore, the time limit of 4 weeks for collection for later data analysis. The data studied were primary data, respondents were asked to fill out a questionnaire containing questions in accordance with the research objectives. Respondent’s identity was coded to maintain confidentiality. Data analysis was carried out descriptively, namely data processing by describing and summarizing the data scientifically in the form of tables or graphs.

**RESULTS**

This study involved 69 boys and 40 girls with ASD. The majority of their ages are in the range of 5-20 years, as many as 95 children. With more types of verbal ASD, 55 children. Respondents in this study were dominated by 70 mothers who had jobs. The majority of their jobs are private employees, as many as 35 mothers, 19 respondents are housewives (Figure 1). The education level of the majority of respondents is high school graduates, as many

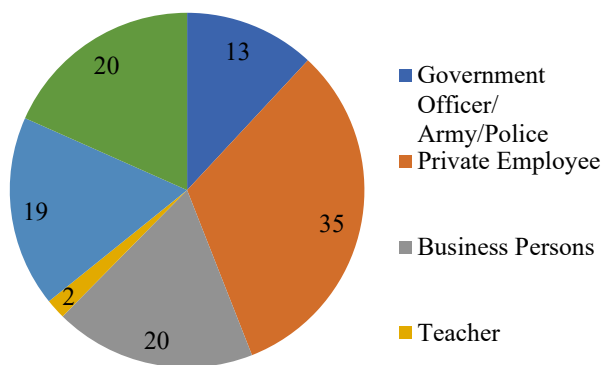


Figure 1. Occupation of mothers.

as 63 people, 37 others graduated from college, 7 people graduated from junior high school, and the remaining 2 people graduated from elementary school.

The results of the questionnaire on toothbrushing habits show that more mothers always accompany their children to brush their teeth, with the habit of brushing their teeth 2 or more times a day. However, when brushing their teeth, 78 children still brush their teeth only when taking a bath. The use of dental floss / dental floss is less familiar because only 10 children are used to it.

The majority of respondents, as many as 80 mothers answered that their children had a habit of eating vegetables or fruit and 95 mothers answered that their children were not accustomed to eating softened foods. The majority (73) children have the habit of eating sweet and sticky foods.

Although there were more children who had swollen gums, namely 61 children and cavities, 65 children, only a few children had broken teeth due to trauma, namely

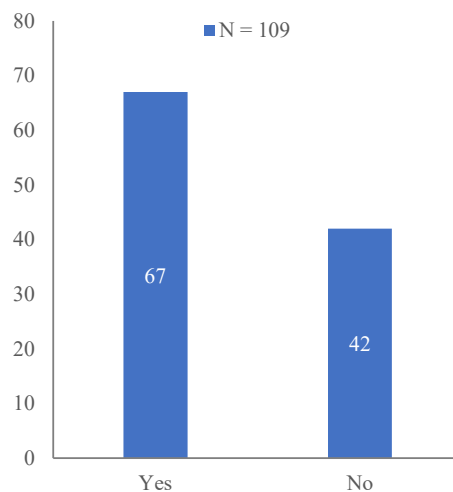


Figure 2. History of Dental Visit before pandemic.

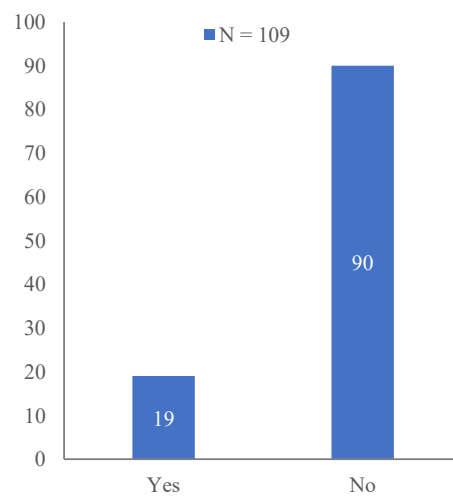
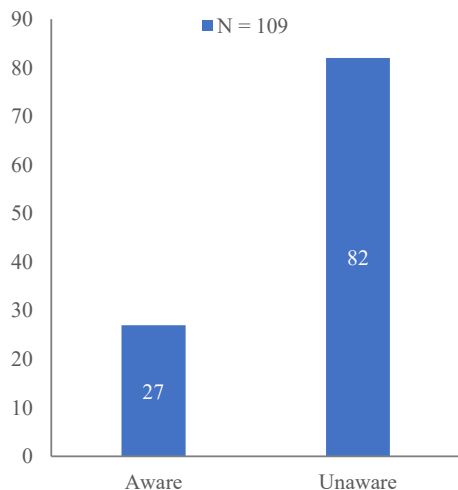
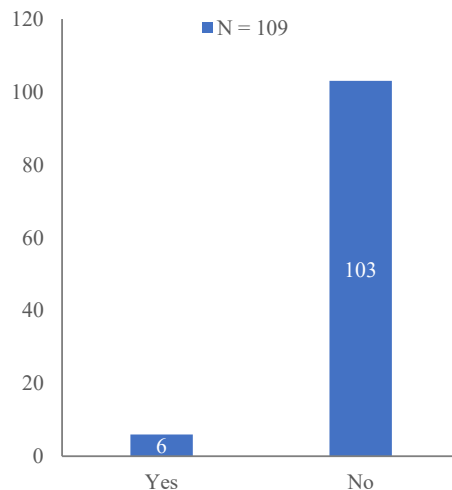


Figure 3. History of Dental Visit during pandemic.



**Figure 4.** Mother’s awareness on tele dentistry (online dental consultation).



**Figure 5.** Mothers who use tele dentistry (online dental consultation) during pandemic.

18 children. Only a few children who have loose teeth problems, namely 33 children. A total of 65 children never had a history of toothache accompanied by stimulation and 66 children never had a history of toothache without any stimulation (spontaneous). Although more children have been taken to the dentist for a check-up, namely 67 children (Figure 2), 93 children have never had their teeth filled, and 87 children have never had caries prevention with fluoride. Almost all children, namely 104 children, had never had caries prevention with fissure sealant, and 76 children had never had a history of tooth extraction. Dental care for children during the Covid-19 pandemic is still not optimal. The majority of mothers answered that they had never taken their child to the dentist during the pandemic (90) (Figure 3), and were not aware of online dental consultations. Almost all respondents have never used online dental consultation services for children (Figure 4 and 5).

**DISCUSSION**

Various factors influence the attention of parents on the health of their children. Some other parental factors may include the mother’s education level, occupation, age, current knowledge, attitudes, and behavior towards health. These factors determine the decisions that mothers make about their children’s health.<sup>8</sup> Many factors affect children’s dental health, but the perspective of parents, especially mothers, on children’s dental health is important to increase parental care for children’s dental health.

The results of the questionnaire related to eating habits, the majority of mothers answered that their children had the habit of eating sweet and sticky foods (candy, chocolate, biscuits). In addition, feeding children with ASD needs to be considered. The recommended carbohydrate sources are those that do not contain gluten, such as rice, cassava, sweet potatoes, taro, corn, rice flour, tapioca, vermicelli, and so on. In addition, protein sources are selected that do

not contain casein, such as soy milk, fresh meat and fish, poultry, eggs, shrimp, shellfish, squid, tofu, green beans, kidney beans, cashews, peas and other nuts. Because of children with ASD if they are not given proper nutrition, they will have an impact on their digestion, such as diarrhea and constipation.<sup>9</sup> Giving sweet foods can be an effort for parents to calm their children, but on the other hand, it increases the risk of developing dental caries if it is not accompanied by good dental cleaning habits.

The results of the questionnaire on brushing habits showed that the majority of mothers had carried out the habit of brushing their teeth twice a day and accompanied their children when brushing their teeth. Brushing teeth in ASD children is not an easy thing to do, because it requires a special approach. Lack of knowledge combined with behaviors and beliefs that lead to poor feeding practices, poor oral hygiene maintenance, and failure to seek professional dental care places children at high risk of developing caries.<sup>8</sup>

History of dental health problems in ASD children include: dental trauma due to falls, collisions, and accidents; cavities (dental caries) with initial severity (pain when exposed to stimulation) to swollen gums; and the remaining roots of the tooth (*gangrene radix*). From these data, it appears that the number of cases of dental health during the pandemic among ASD children is not small. The limitations that occurred during the pandemic made mothers unable to freely take their children to the dentist, as a result, some mothers chose to give painkillers purchased at pharmacies without consulting a dentist first. The common use of analgesics may be related to their availability and low cost. In addition, parents may believe that the drug is harmless.<sup>10</sup> In addition, based on the results of filling out the questionnaire in this study, it was also found that some mothers gave antibiotics to their children without a doctor’s prescription. The use of antibiotics without a doctor’s prescription has the potential to pose various risks, including an increase in the number of cases of infection caused by

resistant pathogenic bacteria, an increased risk of unwanted drug side effects, a decrease in the effectiveness of therapy, and an increase in health costs.<sup>11</sup>

Dental and oral health in children with special needs is generally worse than normal children, this is due to the difficulties experienced by children with special needs, namely low motor and cognitive abilities.<sup>2</sup> The history of dental care for ASD children at this foundation has not been maximized. Although more children have been taken to the dentist for a check-up, the majority of children have never had caries prevention with fluoride, and almost all children have never had caries prevention with fissure sealants.

A study showed that maternal emotional intelligence is positively correlated with child behavior in dental settings and can be a predictor of child behavior. This means that children who have mothers who are emotionally intelligent, have adaptive behavior during treatment.<sup>12</sup> Education on the importance of keeping children's teeth and mouth healthy can be done by increasing socialization about children's health. Socialization efforts to mothers that can be carried out during this pandemic include utilizing social media provided by competent parties, in this case dental health practitioners.

Due to restrictions during the pandemic, mothers never take their children to the dentist for treatment. Perhaps this is because the mother is worried about the transmission of COVID-19, because dentist practice has a high risk of transmission during treatment. Other relevant research reveals that tooth pain can be tolerated so that sufferers feel it is not urgent to consult a dentist during lockdown.<sup>13</sup> In addition, many ASD children have routines and predictability in their daily lives, so they often do not respond well to sudden changes. Children with ASD often have sensory problems, so wearing a mask can be uncomfortable for them. They may not be able to tolerate the taste or smell of the mask.<sup>14</sup> This could be one of the reasons why mothers prefer to treat themselves at home rather than taking their children to the dentist during the COVID-19 pandemic.

The majority of respondents in this study were not aware of online dental consultations and had never used online dental consultation services for children. This is very unfortunate considering that, reported that online consultations can minimize the possibility of transmitting Covid-19.<sup>13</sup> This condition occurs because of the lack of knowledge and attention of mothers and also the lack of socialization of doctors and dental nurses about online dental consultations. Therefore, there is a need for good cooperation between dentists and parents so that new changes that occur in the world of health can be understood and utilized optimally during this COVID-19 pandemic.

The majority of respondents are not aware of any technical changes to the dentist. This is probably because parents are busy at work so they do not follow new information, and they have less time to bring their children to the dentist. This is in line with previous study research showed, that parents aged 30-39 have little time to talk and

pay attention to their children because of their busy lives and work.<sup>15</sup>

Knowledge is a very important factor in shaping one's actions (overt behavior). The knowledge possessed by each individual can shape the attitudes and actions of the individual in his daily life.<sup>16</sup> Where these attitudes and behaviors are part of an effort. The results of this study indicate that there are various oral health problems for children with ASD. Of the various problems that have been described in this study, there is still a lot of lack of knowledge of mothers about how to maintain the dental health of children with ASD, so that it is directly proportional to the efforts made by mothers to maintain the dental health of their children. Coupled with the current COVID-19 pandemic situation which increasingly adds to the limitations of going to the dentist for dental treatment, it is necessary to pay attention to mothers with ASD children to be able to find out the latest information on how to maintain their child's dental health. Which in the end can shape attitudes and behavior, so that mothers have maximum efforts in maintaining the health of their children's teeth during the COVID-19 pandemic.<sup>17</sup>

This study shows that mothers' efforts in maintaining the dental health of ASD children at the Mutiara Hati Autism Foundation during the Covid-19 pandemic were more limited than before the pandemic, due to maternal ignorance in the prevention/treatment of dental disease; concerns about virus transmission during dental treatment; and the lack of socialization of the use of online media for consultation with dentists.

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