A cross-sectional observational study on parents' knowledge and anxiety about their children's treatment during covid- 19 pandemic in Surabaya, Indonesia

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A cross-sectional observational study on parents' knowledge and anxiety about their children's treatment during covid-19 pandemic in Surabaya, Indonesia

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Abstract

Background: The impact of COVID-19 pandemic has made everyone, especially parents, very anxious and afraid of doing activities outside the home. The psychosocial factors faced by parents appear to harm their children's oral health. Parents have a significant role in maintaining early childhood dental health, which is an essential factor for further regulation of dentition in toddlers and preschool children. This study explored the relationship between the levels of parents' knowledge and anxiety about children's dental treatment or examination during the COVID-19 pandemic in Indonesia. Methods: This study was conducted by distributing online Google Form questionnaires to each of research subjects via WhatsApp. It consisted of 24 questions related to the parents' anxiety and knowledge about COVID-19. Reliability was determined by looking at the Cronbach's alpha value. Results: The level knowledge obtained from the Cronbach's Alpha variable test was 0.713 and the level of parental anxiety was 0.926. The results obtained were significant ($p = 0.000$; $p < 0.05$) and had a unidirectional relationship (Sperman correlation coefficient = -0.332). Conclusion: This study indicated that the higher the level of knowledge, the lower the level of anxiety among parents when taking their children to a dentist during the COVID-19 pandemic.

Keywords

anxiety; COVID-19; early childhood education; knowledge; quality education

1. Introduction

In early 2020, the world was hit by an outbreak of COVID-19, caused by the coronavirus (SARS-CoV-2). COVID-19 was originally thought to be an epidemic firstly dis-covered in the city of Wuhan, China. However, within a fraction of days it transformed into a pandemic that affected the whole world. After the virus managed to infect more than 118,000 people in 114 countries and caused 4,291 deaths, the World Health Organization (WHO) finally declared the coronavirus outbreak as a global pandemic on March 11, 2020. In Indonesia, the first case of a COVID-19 infection was announced on March 2, 2020 [1]. As of the date 9th June 2021, the number of cases is still increasing. This could be attributed to the highly contagious property of the virus, which can spread through respiratory droplets from infected people [2-4].

The community is not only stricken with anxiety but suffers from tremendous panic. The Indonesian government has issued various policies, including social distancing, physical distancing, and Large-Scale Social Restrictions (LSSR). Appeals to maintain distance, use masks, and get into the habit of washing hands have also been imposed on the community. These approaches have been taken as an initial precaution with international standards to protect the public from exposure to the coronavirus and aims to break the chain of the spread of COVID-19 [5].

Considering COVID-19, which has been deemed a national disaster on 1 year and 3 months by the Indonesian government, the Indonesian Dental Association has created guidelines for dental services during the pandemic [1]. These guidelines include screening all patients (a body temperature below 37.3 ºC measured by a non-contact thermometer and a normal level of oxygen of 95% or higher measured by an oximeter); using complete, single-use personal protective equipment for each patient; performing hand-washing procedures properly; asking patients to rinse their mouths with 0.5% - 1% hydrogen peroxide for 15-60 seconds before treatment; cleansing dental tools with 5% sodium hypochlorite for 1 minute; and cleansing the work environment, patient waiting rooms, and the dental unit with disinfectants [6].

In addition, the Indonesian Dentists Association or PersatuanDokter Gigi Indonesia (PDGI) has put procedures in place for preventing the transmission of COVID-19 in dental offices, such as implementing early recognition of symptoms and control of general health status, performing additional precautionary measures based on findings for suspected cases of COVID-19

infection, applying good administrative reporting, and always carrying out the WHO's standard 6-step handwashing procedures with hand sanitizer [1]. Dental care is recommended to be initiated under rubber dam isolation to reduce the risk of transmission through salivary droplets. This can happen due to high air pressure when using the handpiece or an ultrasonic scaler. Cleaning the work environment should be performed by disinfecting the patient waiting rooms, door handles, tables, chairs, and dental units. Floors can be cleaned using 2% benzalkonium chloride. Besides, cleaning linen clothing materials and managing waste disposal controls are also important [2,6]. The impact of the COVID-19 pandemic has made people, especially parents, very anxious and afraid of carrying out activities outside the home [3]. The psychosocial factors, including maternal depression, low coherence, indulgent parenting, and stressful parenting, have been shown to negatively impact children's oral health [4]. Parents have an important role in maintaining dental health in early childhood. More-over, parents also play a significant role in preventing the accumulation of plaque and caries in children [5]. Improvement of oral health should be started as early as possible because it is a very important factor for further regulation of dentition in toddlers and preschool children. In addition to that, this also affects the children's ability to master their speech [6].

Due to these factors, parents' knowledge is very important in creating an attitude that supports or does not support children's oral and dental hygiene. This study addressed the knowledge of parents about health protocols that have been established in dental practices. Several studies have stated that low knowledge of oral and dental health in parents is a predisposing factor for behavior that does not support children's oral health [7-9].

As of the date 9th June 2021, there has been no research discussing the relationship between parents' knowledge and anxiety levels about dental and oral examinations during the COVID-19 pandemic; therefore, this study was designed to evaluate the relationship between parents' knowledge and anxiety levels about their children's dental and oral examinations during the COVID-19 pandemic.

2. Materials and Methods

The aims of this study were:

1. To access the knowledge level of parents who have early childhood at Al-Fajar Islamic Kindergarten, Surabaya to their child oral health in this COVID-19 pandemic and dentistry
2. To access the anxiety level of parents who have early childhood at Al

Fajar Islamic Kindergarten, Surabaya to their child oral health in this COVID-19 pan-demic and dentistry.

3. To access the relationship between the knowledge and anxiety level of parents who have early childhood at Al Fajar Islamic Kindergarten, Surabaya related to their child oral health in this COVID-19 pandemic and dentistry. This study was approved by Ethics Committee of Faculty of Dental Medicine, UniversitasAirlangga Surabaya (No: 563/HRECC.FODM/XII/2020 dated 30/12/2020).

2.1. Study design

The analytic observational study was conducted in 2021 in Surabaya, East Java by distributing questionnaires online using Google Forms to the parents of early childhood at Al-Fajar Islamic Kindergarten, Surabaya. The questionnaires consisted of 24 questions were consisted of two sections; the first section focuses on the data of the children such as the name of the name, age, gender of the children, and education level for the parents. The second section asked about the participant's problem of the children's teeth (5 questions), the knowledge level of the parents (6 questions), and the anxiety level of the parents (5 questions). All the questions were collected through one survey, but they differentiated into some sections.

2.2. Participants

The population and sample were parents of children in their early childhood at Al-Fajar Islamic Kindergarten, Surabaya. The sample criteria in this study were: 1) parents with children aged 2-6 years; 2) parents domiciled in Surabaya. A hundred parents obtained from the Lemeshow formula were used for analysis.

2.3 Experimental Procedure

This study used online Google Form questionnaires, distributed to each of the re-search subjects via social media such as WhatsApp. Data collection was carried out as follows. 1) Subjects who met the criteria were selected and asked whether they were willing to become research subjects; 2) according to their opinion, subjects filled out the questionnaires on a link, distributed to each of the subjects or shared through social media platforms such as

WhatsApp groups; 3) subjects' questionnaires were submitted after being filled in; 4) data from the questionnaire were entered into the database and processed. Data analysis was carried out by using the SPSS application (SPSS Inc., Chicago, USA).

2.4 Access the Parents' Knowledge Scale

Knowledge was categorized as follows. It was categorized as "good knowledge" if subjects could correctly answer 76-100% of the questions; "sufficient knowledge" if subjects could correctly answer 56-75% of the questions; "lacking knowledge" if subjects could answer < 56% of the questions [7].

2.5 Access the Parents' Anxiety Scale

Anxiety levels were categorized according to the Modified Dental Anxiety Scale. Every answer to the multiple-choice questions had the following values: "not anxious" for 1 point; "slightly anxious" for 2 points; "fairly anxious" for 3 points; "very anxious" for 4 points; "extremely anxious" for 5 points. The total scores represented the total number of questions, with a range of 5-25. The cutoff score was 19. If a score of 19 or more was obtained, this indicated that the respondent was experiencing anxiety (highly anxious patient).

2.6 Statistical Analysis

Data processing and analyzing were carried out firstly through clearing, meaning the data were corrected since the incoming data (raw data) might have been doubtful or illogical. Editing aimed to remove errors in the raw data. Lack of data or data errors could be complemented or corrected through data recollection or interpolation. Secondly, coding was done by giving code to any data that fell into the same category. Codes are signals made in the form of numbers or letters that provide clues or identities on the information or data to be analyzed. Thirdly, scoring was done to determine the score of the respondent's answers by creating suitable classifications and categories depending on the assumption or opinion of the respondents. Fourthly, tabulation was done by entering the data into tables that were coded according to the required analysis. Lastly, a data analysis was performed using the SPSS application with the Spearman correlation test. The Spearman correlation test is a statistical test that aims to determine the relationship between two or more variables on an ordinal scale. Statistical significance was considered at a P-value of less than 0.05 for all the analyses.

3. Results

In this section, the subject characteristics of the research sample are reported along with the finding for each factor separately: knowledge and anxiety levels of each participant.

3.1. Subject Characteristic

In this test, reliability was determined by looking at the Cronbach's alpha value, which is the benchmark of the consistency between questionnaire items. A questionnaire has good reliability if the Cronbach's alpha value is > 0.7. The parents' knowledge variable obtained the Cronbach's alpha value of 0.713, meaning that the overall variable was reliable. The item is said to be valid if the value of r counts > 0.344 (r-value with n 33 and α 0.05 using the n 33 approach and α 0.05, namely 0.344). The results in the corrected items and total correlation tables showed all items were valid. The parents' anxiety obtained from the Cronbach's alpha value of 0.926, meaning the overall variable was reliable. The item is said to be valid if the value of r counts > 0.344 (r count with n 33 and α 0.05 using the n 33 approach and α 0.05, namely 0.344). The results in the corrected items and total correlation tables showed all items were valid. Secondary data obtained were name, age, education, occupation, name of the child, age of the child, child's oral health, parental knowledge, and parental anxiety levels. The number of respondents was 127 parents of children aged 2-6 years. Out of 127 respondents, 8.7% of the parents who filled out the questionnaires were male and 91.3% were female. Most respondents were at the age of 31-40 years. Regarding demographic characteristics, most of the respondents' education level was undergraduate (59.8%), followed by bachelors' postgraduate (15.7%), then high school level (15%). Following the predetermined subject criteria, children aged 6 years were more dominant (33.9%). Table 1 also shows the gender of the children that 55% were male and 44.9% were female.

There were also data gathered on the various jobs of the parents. As many as 34.5% of respondents were housewives, followed by 20.5% private employees, and 15% teachers. The data showed that out of 127 respondents, 66.9% of the parents had taken their children to a dentist, and 44.1% of the parents had never taken their children to a dentist. Table 1 shows that out of 127 respondents, 40.9% of the parents said that their children had oral health problems during the COVID-19 pandemic, and 55.1% said their children did not have oral health problems during the COVID-19 pandemic as many as 3.9% said they did not know about their children's dental and oral health problems during the COVID-19 pandemic (Table 1).

Table 1 also presents some of the oral dental problems experienced by the children during the COVID-19 pandemic; as many as 56% of the children experienced cavities. Of 127 respondents, 21.3% of the parents had taken their children to a dentist during the COVID-19 pandemic, and the remaining 78.7% had never taken their children to a dentist during the COVID-19 pan-

demic. It showed that 7.1% of the parents let their children experience oral health problems during the COVID-19 pandemic, while 66.1% of the parents took their children to a dentist when they experienced oral health problems during the COVID-19 pandemic; lastly, 37.8% of the parents bought medicine at the pharmacy when their children experienced oral health problems during the COVID-19 pandemic.

Besides, Table 1 shows that of 127 respondents, 18.9% of the parents had good knowledge of their children's dental health, 51.2% had sufficient knowledge, and 29.9% had insufficient knowledge. The table shows that 85.8% of the parents did not experience anxiety when taking their children to a dentist during the COVID-19 pandemic, while 14.2% of them experienced significant anxiety.

Table 1. The result of the experiment

Statements	Option	Total	Percentage
Ever been to a dentist	Yes	71	55.90%
	No	56	44.10%
Experienced oral health problems during the COVID-19 pandemic	Yes	52	40.90%
	No	70	55.10%
	Do Not Know	5	3.90%
Oral dental problems	Cavity	42	56%
	Sprue	10	13.30%
	Teeth Crowding	8	10.70%
	Tooth Loss	5	6.7%
	None	7	9.30%
	Others	3	4%
Has taken a child to the dentist during the pandemic	Yes	27	21.30%
	No	100	78.70%
What parents do when children have oral Teeth problems during the covid-19 pandemic	Go to the Dentist	9	7.10%
	Ignore	70	55.10%
	Buy Medicine at the Pharmacy	48	37.80%

Respondents' knowledge	Good	24	18.90%
	Sufficient	65	51.20%
	Insufficient	38	29.90%
Anxiety	Worried	18	14.20%
	Not Worried	109	85.80%

3.2. Aspect of Parents' Knowledge and Anxiety Level

Of 109 parents who did not experience significant anxiety when taking their children to a dentist during the COVID-19 pandemic, 22% had good knowledge, 54.1% had sufficient knowledge, and 23.9% had insufficient knowledge. Meanwhile, out of 18 parents who experienced significant anxiety when taking their children to a dentist during the COVID-19 pandemic, none (0%) had good knowledge, 33.3% had sufficient knowledge, and 66.7% had insufficient knowledge (Table 2).

Table 2. Cross tabulation analysis between knowledge and anxiety

Cross Tabulation			Anxiety		Total
			Not Worried	Worried	
Knowledge	Good	Total	24%	0%	24%
		Percentage	22%	0%	18.9%
		Total Percentage	18.9%	0%	18.9%
	Sufficient	Total	59%	6%	65%
		Percentage	54.1%	33.3%	51.2%
		Total Percentage	46.5%	4.7%	51.2%
	Insufficient	Total	26%	12%	38%
		Percentage	23.9%	66.7%	29.9%
		Total Percentage	20.5%	9.4%	29.9%

3.3 Correlation Between Knowledge and Anxiety

Table 3 shows the number of N (number of data collected). This study concluded there was a relationship between knowledge and anxiety (p = 0.00). The correlation coefficient was 0.332, meaning that knowledge and depression only had a relationship of -0.332.

Table3. Correlation analysis Sperman's Rho between knowledge and anxiety

	Statistic		Knowledge	Anxiety
Spearman's Rho	Knowledge	Coefficient Correlation	1.000	-0.332
		Sig. (2-tailed)	.	.000
		N	127	127
	Anxiety	Coefficient Correlation	-0.332	1.000
		Sig.(2-tailed)	.000	.
		N	127	127

4. Discussion

This study was conducted to determine the relationship between the level of knowledge and the level of anxiety among parents carrying out children's dental and oral examinations at dentists during the COVID-19 pandemic. Parents have an important role in maintaining children's oral and dental health because this involves interactions between children, parents, and dentists. The level of knowledge possessed by the parents is influenced by several factors. Lack of knowledge can lead to misinterpretation of information, which may cause anxiety. Two factors can cause anxiety: 1) intrinsic factors such as self-concept and role; and 2) extrinsic factors, namely education and socioeconomic levels, as well as access to information.

Based on the cognitive behavioral model theory, misinterpretation of medical information related to COVID-19 and dentistry causes health anxiety. The response to this causes bias in information processing. Parents will seek for safety by avoiding things that cause anxiety, such as not visiting the

dentist's office to have their children's teeth and mouths checked. This anxiety-induced behavior can have an impact on children's oral and dental health [10]. The study showed that factors i.e., education level, socio-economic status, access to information, and self-concept as well as the education role affecting the level of parental knowledge, most influenced parents' anxiety in carrying out children's dental and oral examinations at a dentist during the COVID-19 pandemic. Knowledge has a close relationship with education. A higher level of education will increase the level of knowledge possessed. Parents with low knowledge of oral health can experience anxiety and then cannot support their children's oral health [11]. Eco-nomic status is closely related to various health problems. People with low economic status will concentrate more on meeting their basic needs. On the other hand, people with high economic status will have a greater opportunity to pursue education. The more knowledge they have, the easier they receive and interpret information. This has an impact on their awareness of their children's oral health. This study examined three levels of knowledge regarding dental and oral care during the COVID-19 pandemic. It found 24 people with good knowledge (18.9%), 65 people with sufficient knowledge (51.2%), and 38 people with insufficient knowledge (29.9%). This showed that parents' level of knowledge about dental and oral care during the COVID-19 pandemic at Al Fa-jar Surabaya Islamic Kindergarten was quite good [12].

The relationship between parents' knowledge and parental anxiety levels was tested with a correlation statistical test. This relationship showed significant results ($p = 0.000$; $p < 0.05$) and was unidirectional (Spearman correlation coefficient = -0.332). The results of this study are in line with the theory saying the higher the level of knowledge, the lower the level of anxiety when parents are taking their child to a dentist during the COVID-19 pandemic. This is due to the absence or lack of misinterpretation of information related to dentistry and COVID-19 [13-15].

The statistical analysis results showed that there was a strong relationship between level of knowledge and level of anxiety among the parents (Spearman correlation coefficient = -0.332). Intrinsic factors (age, experience, self-concept, and role) and extrinsic factors (medical conditions, adaptive processes, and socioeconomic status) also play a role in parents' anxiety level [13]. Based on the existing intrinsic and extrinsic factors, it can be concluded that these factors can impact parents' anxiety if parents either have a good or low level of knowledge. The decline in employment during this pandemic has increased dramatically, and many parents lost their jobs

and had increased levels of stress and anxiety. Starting from the economic downturn during the pandemic, the parents have become stressed for a long time and have reduced endurance when symptoms of the disease appear. Health problems arisen have caused parents to feel anxious and afraid of contracting COVID-19. The level of anxiety in parents who have young children is higher than that of parents who have adolescent children [14].
The role of parents is very important in improving and maintaining their children's dental and oral health [16]. Parents also need to understand the importance of dental check for their children. If cavities go untreated, they will hinder the children's development and reduce their intelligence. In the long run, this will have an impact on the community's quality of life [17,18]. Parents also need to know that health services have implemented health protocols during the COVID-19 pandemic, such as implementing patient screening, checking the patient's temperature, directing patients to wash their hands first, using disposable gloves, and wearing a face shield while in the practice room. Officers use complete personal protective equipment and wash their hands according to the WHO's 6 steps. Patients are asked to rinse with 0.5% -1% hydrogen per-oxide for 60 seconds or 1% Povidone-iodine for 15-60 seconds before treatment. Dental tools are cleansed with 5% sodium hypochlorite at a ratio of 1:100 (0.05%) for 1 minute. The work environment, patient waiting room, door handles, tables, chairs, and dental units are cleaned with disinfectants. Patients' clothes used during practice are changed before returning home [19-21]. Parents do not need to worry when they must take their children to a dentist when they understand the importance of children's dental health and know the health protocols that have been applied in health service centers during the COVID-19 pandemic [22,23].

5. Conclusion

This analytic observational study indicated that the higher the level of knowledge, the lower the level of anxiety among parents when taking their children to a dentist during the COVID-19 pandemic

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