Oral Health Overview of Pre-school Children Ages 3–6 During the Covid-19 Pandemic (A Study at SPS Nusa Indah)

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Abstract. Background The pandemic situation was that the lack of oral hygiene care can cause several problems. Children aged 3–6 years found cavities with a proportion of 70%. The high prevalence caused by several factors and children's bad habits, as well as the limitations of children in maintaining hygiene and dental health.

Objective This study was to identify dental and oral health data for preschool aged children aged 3–6 years during the COVID-19 pandemic at SPS Nusa Indah.

Method Analytic observational with cross-sectional design. The population was all students of SPS Nusa Indah. The inclusion criteria were ages 3 to 6 years, male and female, and their parents/guardians gave informed consent. Test validity and reliability with questionnaires about oral health during the COVID-19 pandemic. Analytical method data analysis in the form of frequency distribution. Ethics permit was 321/EC-KEPK FKIK UMY/XII/2021.

Results The results of this study consisted of 40% boys and 60% girls. The sociodemographic of parents' education and occupations that 85% high school, and 50% self-employed. The distribution of dental and oral health was $2.22 + 0.54$. The average dental and oral health score of all subjects was $1.76 + 2.71$. Measuring the overall health of men $3 + 1.08$; women $3.37 + 1.55$. Early childhood caries showed boys with rampant caries $4 + 1.03$ and $3.3 + 1.55$ for girls.

Conclusion Research on the dental and oral health of children aged 3–6 years during the pandemic shown was classified as low with an average of 2.22 ± 0.54.

Keywords: Children 3–6 years old · Oral health

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Table 1. Distribution of Students' Age and Sex

Age	Children (n = 20)	
	Male	Female
3–4 years old	2	7
4–5 years old	5	4
5–6 years old	1	1

1 Introduction

Oral health is an important factor to maintain the overall health of a person's body. Teeth play an important function in digestion, phonetics, and esthetics. If one function does not work properly, then it will affect the individual's quality of life. The results from Basic Health Research (Riset Kesehatan Dasar or RISKESDAS) [1] in 2018 note that the percentage of dental problems experienced by Indonesian citizens was as great as 57,6%.

The health problem that was the main focus of this research was how did the status overview of caries in children ages 3–6 years old was measured using a questionnaire.

The increase in the number of caries found in Indonesian children means an increase in various health problems as well, especially children's oral health. Oral health problems that is most frequently experienced by children ages 3–6 years old is caries and periodontal diseases [2].

Children ages 3–6 years old have limited motoric capabilities, thus they cannot clean their teeth well. The role of parents is very influential towards the status of the child's dental health, especially carries in children ages 3–6 years old [4].

2 Material and Method

This research used the analytic method with cross sectional design. The population in this study were all the children ages 3-6 years old who were still active as students at SPS Nusa Indah. The sample selection used in this research was the all sampling technique and it was conducted at SPS Nusa Indah. Data were obtained from checking the results of the questionnaire that categorized the answers as yes or no, as well as the interval degree related.

3 Results

The results of this research were obtained from examining teeth and mouth, based on age, sex, and sociodemographic factor, specifically the respondents' parents' highest level of education and occupation.

Based on Table 1, the number of male respondents was 8 children (40%) and the number of female respondents was 12 children (60%) from a total sample of 20 children.

Table 2. Sociodemographic Distribution of Parents' Education and Occupation

Variable	Category	Frequency
Parent's Education Level	Middle school	3
	High school	17
Parent's Occupation	Labor worker	3
	Household assistant	7
	Entrepreneur	10

Table 3. Distribution of Oral Health

Age Group (years old)	Mean ± SD
3–4	1,86 ± 0,81
4–5	2,52 ± 0,40
5–6	2,28 ± 0,42
Average	2,22 ± 0,54

Table 4. Habits Regarding Oral Health

Sex	Subject	Average + SD
Male	8	1,66 ± 2,63
Female	12	2 ± 3,10
Total	20	1,76 ± 2,71

It can be seen from Table 2 that the highest level of education that most parents had high school which was 17 people (85%) and the occupation that the parents most had entrepreneurs which was 10 people (50%).

Table 3 shown that the average oral health was 2.22 with a 0.54 standard deviation (Table 4).

The number of male respondents was 8 people have an average oral health score as great as 1.66 $\pm$ 2.63. Meanwhile, the number of female respondents was 12 people have an average oral health score of 2 $\pm$ 3.10. The average oral health score of all subjects is 1.76 $\pm$ 2.71. A larger deviation value will mean that individual data points were far from the average value.

Table 5 show that the average score for overall health of males was 3 ± 1.08, meanwhile, for females it was 3.37 ± 1.55.

Based on Table 6 above, the score of males with rampant caries had an average of 4 ± 1.03, and for females the average was 3.3 ± 1.55.

Table 5. Overall Health

Subject	
Male	3 ± 1,08
Female	3,37 ± 1,55

Table 6. Early Childhood Caries

Subject	
Male	4 ± 1,03
Female	3,3 ± 1,55

4 Discussion

This research was conducted based on measurements using a questionnaire. The research can be perceived from the respondent's socioeconomic factors, namely the parents' occupation and the highest level of education. Most of the parents (10 people) worked as entrepreneurs and this number was followed by laborers. Meanwhile, most parents had a high school degree as their highest level of education. There were 8 people with this education level.

A person's health status can be seen from the distribution of oral health. The average oral health score was 2.22 + 0.54. Habits related to the oral health of all subjects had an average score of 1.76 ± 2.71. The overall health score of males averaged 3 ± 1.08, and the average health score of females average 3.37 ± 1.55. Concerning early childhood caries or rampant caries, males with rampant caries had an average of 4 ± 1.03, meanwhile, for females, the average score was 3.3 ± 1.55. Note that the number of male and female respondents was unequal [5].

The overview of a person's dental health can be seen from their parents' socio-economic status, wherein in this research, it was the parents' occupation and the last level of education [6]. Previous studies state that a parent with a high socioeconomic standing has a 67% chance of their children experiencing caries [7, 8]. In this research, the parents' socioeconomic backgrounds varied and did not indicate there being any upper class or lower class. Statistical test results show there is no meaningful relationship between the occupation of parents with the child's dental health status [9]. Parents with a high level of education have more knowledge of maintaining oral health, thus being able to implement a good oral hygienge [10].

The results of this research perceived that the dental health status of children at SPS Nusa Indah is categorized as low. Many factors influence the status of teeth caries in children, including age, sex, the ability of parents in guiding and caring for the child, and health force [11].

Results from Riskesdas 2018 shown the prevalence of teeth cavities in children at a young age was still very high, approximately 93%. Meaning only 7% of children in Indonesia were free from teeth caries. The FDI World Dental Federation and WHO

have made a target that at least 50% of children ages 5 to 6 should be free from tooth caries in each country. Bad dental hygiene is caused by the presence of debris and plaque that can cause demineralization of the teeth structure, which in turn leads to caries [12]. If left unattended, caries will continue to develop, thus killing the pulp and spreading an infection to the periapical tissue, caused pain that disrupted a person's activities. Oftentimes this pain is also accompanied by swelling, loss of appetite, fatigue, and fever. Bad dental hygiene can also cause plaque and calculus. Plaque and calculus contribute to gum inflammation that can develop to become periodontal diseases [13]. This was indicated by swollen gums, bleeding, festering, bad breath, teeth moving, and even coming off on their own. Dental health research shown that average children brush their teeth once per day and were not accompanied.

As we know, we were currently facing a Coronavirus Disease (COVID-19) pandemic. Dentists were not exempted from the virus as its transmission could come from the release of aerosol (the use of a drill, ultrasonic instruments, water syringe) and saliva droplets or even blood from the patient's mouth. Furthermore, the risk of -cross-infection could also happen inside a dentist's practice room. The government had urged dentists not to practice for the time being. This was followed up by the Indonesian Dentist Union (*Persatuan Dokter Gigi Indonesia* or PDGI) which released a guideline on dental services during the pandemic. Dentists were asked to conduct a screening process on all patients, delay procedures where there were no complaints and were non-emergency, take esthetic action, as well as many avoid procedures that produced aerosol, such as drilling and cleaning plaque. Consequently, preventive measures became very vital to prevent oral health problems, which could be accomplished by maintaining oral hygiene in an effective manner [14]. Research on brushing teeth habits during the pandemic shown a decrease in visits to a dentist.

Maintaining the health of a child's teeth requires interactions between and involving the child, parents, and dentist. The role of parents in dental health was as a motivator, educators, and facilitators. A motivator was defined as a drive for children to actively maintain their oral health. As an educator, the parent must provide health education to plan a healthy lifestyle for there to be changed in behavior that will lead to reaching optimum health. A facilitator was defined as an example for the children to resolve several problems regarding health that one faces on a daily basis [15]. A change in attitude was different from a behavior change. Attitude was a public evaluation, which means the form of reaction called attitude that appears was based on an evaluation process within the individual that given a conclusion toward stimulus in the form of values such as good-bad, positive-negative, pleasant-unpleasant, which then crystalizes as a potential reaction toward the object of the attitude [16]. This research indicated that habits such as suckling and biting fingers were still done by children. Children rarely consume fruit, often ate sweet foods, and had symptoms of rampant caries.

5 Conclusion

Based on the results of this research, it could be concluded that the overall status of dental health for play group children at SPS Nusa Indah was categorized as low with an average as great as $2{,}22 \pm 0{,}54$.

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