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Original Research Article

The Role of Parents on Oral Hygiene Status of Preschool Children in the Agricultural Area of Jember, Indonesia: A Cross-sectional Study

Ari Tri Wanodyo Handayani[1], Elyda Akhya Afida Misrohmasari[2*], Mira Wahyuningtiara[3], Melok Aris Wahyukundari[4], Niken Probosari[5]

[1,2,3]Department of Dental Public Health, Faculty of Dentistry, Universitas Jember, Jember, Indonesia
[4]Department of Periodontics, Faculty of Dentistry, Universitas Jember, Jember, Indonesia
[5]Department of Pediatric Dentistry, Faculty of Dentistry, Universitas Jember, Jember, Indonesia

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Abstract: ***Background:*** The preschool age is an important period for oral health because all deciduous teeth have erupted. They are vulnerable to dental and oral diseases as they still require assistance and guidance from parents in maintaining oral hygiene. ***Objectives:*** To analyze the relationship between the role of parents and the oral hygiene status of preschool children in the agricultural area of Jember, Indonesia. ***Methods****:* This is a cross-sectional study among preschool children and their parents in the Jelbuk subdistrict, Jember regency, East Java province, Indonesia. A total of 260 mothers and their children were involved in this study. The sampling method employed was cluster sampling. The parents' role is assessed by filling out a questionnaire sheet and examining oral hygiene status in children using the Debris Index (DI). A Spearman test was performed to find the association of parent roles in the oral hygiene status of preschool children. ***Results****:* The role of parents showed that 66.2% of parents were highly involved. The mean of DI was 0.79, which was categorized as moderate. There is a significant correlation between the role of parents and the oral hygiene status of preschool children (p = 0.00). ***Conclusions****:* Parents have an important role in maintaining the oral health of preschool children.

Keywords: Oral health, Oral Hygiene, Parents, Preschool children.

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INTRODUCTION

The World Health Organization (WHO) estimates that globally, in 2022, nearly 3.5 billion people (around 50% of the population) experienced oral health problems [1]. The Basic Health Research Data in Indonesia in 2018 shows that 57.6% of the Indonesian population has dental and oral health problems. Dental and oral health problems among children 3-4 years are at 41.1%, and for children aged 5-9 years, the percentage is 67.3%. In Jember regency with a percentage 64.88% [2].

Oral hygiene is one of the actions needed to keep the mouth from infection, clean and freshen the mouth. Awareness of maintaining oral hygiene is essential and is a medicine to prevent dental and oral health problems [3]. Poor oral hygiene is associated with dental caries, gingivitis, periodontal diseases, bad breath, respiratory diseases, and cardiovascular diseases [4,5].

Preschool children are those aged 3-6 years who are currently undergoing development and growth phases [6]. The preschool age is the golden age, particularly in the first three years of life. It is crucial to initiate early stimulation as soon as possible to encourage maximum growth and development [7]. Preschool children require parental assistance in maintaining dental and oral hygiene because they cannot independently ensure the cleanliness of their teeth and mouth [8,9].

Jember Regency is an agroindustry area in East Java's southern region. Most of Jember Regency residents are farmers and agricultural industrial workers, Jelbuk is a sub-district in Jember Regency where the majority of the population works in agriculture [10]. Jelbuk subdistrict is one of the subdistricts with a comparatively high degree of caries concerns. In 2020, the Jelbuk subdistrict ranked third in the Jember district for the number of caries cases.[11] This study aims to analyze the relationship between the role of parents in the oral hygiene status of preschool children in the agro-industrial area of Jember, Indonesia.

***Corresponding Author:** Elyda A.A. Misrohmasari
Department of Dental Public Health, Faculty of Dentistry, Universitas Jember, Jember, Indonesia

METHODS

This is an analytic observational study with a cross-sectional approach. The population of this study is preschool children and their parents in Jelbuk, Jember, Indonesia. This study was conducted in November - December 2023. There were 38 preschools in Jelbuk, with a total of 736 students. The sample size was calculated with a 95% confidence interval and was 260 preschool children. The cluster sampling technique was used in this study, and seven schools were involved.

The inclusion criteria for this study were parent's consent for involvement. The exclusion criterion was uncooperative children for clinical examination.

The independent variable was the role of parents, and the dependent variable was the oral hygiene status of preschool children. The assessment of parents' roles is carried out by the parents filling out a questionnaire sheet. The score for every answer was calculated and categorized into four levels of the parent role. Examining oral hygiene status in children using the Debris Index (DI) and categorized into three categories [12].

The research also conducted a pilot study with 20 pairs of children and parents involved to ensure the instrument's validity and reliability.

Data analysis was performed using SPSS version 26. A Spearman test was used to determine the parent roles in the oral hygiene status of preschool children in the agro-industrial area of Jember. The level of significance for the test was < 0.05.

RESULTS

A total of 260 pairs of children and parents participated in this study, consisting of 124 male and 136 female children, as shown in Table 1. The children in this study were mostly 4-5 years old (46.2%). All parent respondents are female, specifically biological mothers, with the majority aged 26-35 (59.2%). Most children had mothers with a senior high school level of education (37.3%). In this study, mothers were mostly housewives (75.8%).

Table 1: Characteristics of Respondents (N=260)

No	Characteristics	N	%
1	**Gender**		
	Male	124	47.7
	Female	136	52.3
2	**Age**		
	< 4 years	32	12.3
	4 - 5 years	120	46.2
	> 5 years	108	41.5
3	**Parent's Gender**		
	Male	0	0
	Female	260	100.0
4	**Parent's Age (years)**		
	17-25	56	21.5
	26-35	154	59.2
	36-45	43	16.5
	46-50	7	2.7
5	**Parent's Education**		
	< primary	7	2.7
	Elementary school	68	26.2
	Junior high school	75	28.8
	Senior high school	97	37.3
	College	9	3.5
6	**Parent's Occupation**		
	Housewives	197	75.8
	Farmer	13	5.0
	Self employee	35	13.5
	Employee	7	2.7
	Government employee	8	3.1
Total		**260**	**100,0**

The information in Table 2 describes parents' responses to the questions related to the oral habits of their children. As seen in Table 2, as educators, most parents always teach their children to brush their teeth

before bedtime (60.4%), and none ever teach their children to brush their teeth before bedtime. It can be observed that few parents rarely let their children brush their teeth as they wish (40.4%), and rarely do parents not teach their children to gargle after meals, amounting to 38.5%.

Regarding the facilitator role, parents always provide vegetables and fruits for their children (65.8%) and always provide a toothbrush for their children (84.6%). This study showed that parents always replace their children's toothbrushes when damaged (78.5%), and only 0.4% of mothers never replace the toothbrushes when they are damaged. Additionally, most parents rarely fail to take their children for a dental check-up every six months (53.5%).

In the supervisor role, the majority of parents always accompany their children when brushing their teeth (70.8%), and most parents often supervise their children when consuming sticky foods (chocolates, candies) (57.7%). It is evident that parents constantly monitor the cleanliness of their children's teeth from the early stages of tooth growth 45.4%, and only one person (0.4%) never monitors the cleanliness of their children's teeth from the early stages of tooth growth. Few parents rarely allow their children to consume all kinds of food daily (56.2%) and rarely allow their children to skip eating fruits and vegetables (43.5%).

Table 2: Frequency distribution of parents' responses on the role of maintaining oral health

No	Question	Always		Often		Rarely		Never	
		n	%	n	%	n	%	n	%
Educator									
1	I teach my child to brush their teeth before bedtime.	157	60.4	69	26.5	34	13.1	0	0
2	I inform my child about the consequences if they don't brush their teeth.	122	46.9	122	46.9	15	5.8	1	0.4
3	I teach my child to reduce the consumption of candies.	122	46.9	111	42.7	20	7.7	7	2.7
4	I let my child brush their teeth as they wish.	16	6.2	51	19.6	105	40.4	88	33.8
5	I don't teach my child to gargle after meals.	13	5.0	61	23.5	100	38.5	86	33.1
Facilitator									
6	I provide vegetables and fruits for the child.	171	65.8	67	25.8	20	7.7	2	0.8
7	I provide a toothbrush for the child.	220	84.6	33	12.7	4	1.5	3	1.2
8	I replace the child's toothbrush when it is damaged.	204	78.5	46	17.7	9	3.5	1	0.4
9	I don't provide toothpaste for the child.	15	5.8	14	5.4	105	40.4	126	48.5
10	I don't take the child to the dentist every six months.	6	2.3	16	6.2	139	53.5	99	38.1
Supervisor									
11	I accompany the child while they brush their teeth.	184	70.8	56	21.5	18	6.9	2	0.8
12	I supervise the child when consuming sticky foods (chocolates, candies).	88	33.8	150	57.7	17	6.5	5	1.9
13	I monitor the cleanliness of the child's teeth from the early stages of tooth growth.	118	45.4	124	47.7	17	6.5	1	0.4
14	I allow the child to consume all kinds of food every day.	11	4.2	50	19.2	146	56.2	53	20.4
15	I allow it when the child forgets to eat fruits and vegetables.	8	3.1	64	24.6	113	43.5	75	28.8
Motivator									
16	I praise the child when they diligently brush their teeth.	170	65.4	71	27.3	17	6.5	2	0.8
17	I reward the child when they willingly go for a dental check-up.	116	44.6	81	31.2	36	13.8	27	10.4
18	I accompany the child to the dentist for a dental check-up.	89	34.2	105	40.4	29	11.2	37	14.2
19	I punish the child if they don't brush their teeth before bedtime.	15	5.8	17	6.5	65	25.0	163	62.7
20	I allow the child when they eat too many candies.	8	3.1	39	15.0	128	49.2	85	32.7

As a motivator role, most parents always praise their children when they diligently brush their teeth (65.4%) and always reward their children when they willingly go for a dental check-up (44.6%). Parents always take their children for a dental check-up (34.2%). The majority of parents never punish their children if they fail to brush their teeth before bedtime (62.7%), and few parents rarely allow their children to eat too many candies (49.2%).

Most of the oral hygiene status in this study was 49.6%, and the mean score was 0.79, including the moderate category. According to Table 3, the role of parents mainly falls into the category of being highly involved (66.2%).

Table 3: Frequency distribution of oral hygiene status of the children and role of parents

No.	Category	N	%
1	**Oral Hygiene Status**		
	Good	8	3.1
	Moderate	129	49.6
	Poor	123	47.3
2	**Role of parent**		
	Very Uninvolved	0	0
	Less Involved	10	3.8
	Involved Moderately	78	30.0
	Highly Involved	172	66.2
Total		**260**	**100,0**

The Spearman test showed a correlation coefficient = 0.364 and Sig= 0.000 ($p < 0.05$), indicating that there was a significant relationship between the role of parents and the oral hygiene status of preschool children.

DISCUSSION

Additionally, the results of the present study revealed moderate oral hygiene status of the children studied. This result was consistent with a study conducted in South Sulawesi by Rahina *et al.,* (2021) reported that the studied children had a moderate category of oral hygiene status [13].

Based on the four roles, it is found that the facilitator role plays a significant role. Research by Poirier *et al.,* (2022) supported that parental awareness in facilitating children to maintain the cleanliness of their teeth and mouth is a responsibility for parents and a major component of their role as parents [14].

The role of parents is highly involved. Many factors influence the role of parents in children's oral health. Some other parental factors might include the mother's level of education, occupation, age [15].

Based on the research, it was found that all parents are female and the biological mothers of the children. The research findings indicate that the majority of parents are aged between 25 and 35 and have a high school education. The result was in accordance with the study conducted in Pikine by Dieng *et al.,* (2020), who reported that the majority of parents are under 35 years old with the highest educational attainment of high school [16]. Most mothers in this study are housewives. This is similar to a study conducted by Zarabadipour *et al.,* (2023) in Iran reported that parents' occupations are housewives [17].

All respondents are housewives, so they can play a lot in improving family health, and most respondents are of productive age. Not working parents have many time and tend to pay attention for children's health [18]. Most of the respondents have their last education in senior high school. People with higher education will have better knowledge. Individuals with a higher level of education tend to know about oral health, so a higher level of education can lead to a higher level of dental and oral health knowledge [19]. A highly educated person will easily obtain, read, and understand information on health services and improve their health [20]. This result can occur because information about oral hygiene is easy to obtain through print or electronic media [21].

The overall correlation coefficient figure is positive, indicating that the relationship between the two variables is unidirectional, which means that the better the role of parents, the better the level of oral hygiene status of preschool children. Abdat *et al.,* (2020) reported that children at an early age depend on their parents, especially their mother, as role models in the development of their behavior [22]. Children's dental and oral health status depends on parents because early childhood is not able to take care of themselves, so the habits that parents apply will affect the hygiene and oral health status of children [23].

Preschool children cannot maintain good oral hygiene, so parents must brush their habits on children to reflect parental behavior that positively affects children [24]. Given the early age of children, parental support is needed to maintain children's dental health. Children's dental health mainly depends on their parents' awareness because early oral health habits are formed during infancy and maintained throughout early childhood [25].

Motivation is required as a driving force to perform proper dental and oral hygiene because getting used to changing dental and oral hygiene behavior requires strong motivation from parents, who must set a good example by teaching and supervising daily routine behavior [26]. Children with supportive and highly motivated parents will have a higher level of motivation for maintaining oral hygiene [27].

Conflict of Interests: There are no conflict of interests to declare

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