

## Plaque index of 7-year-old children at Cobleng Public Elementary School (SDN) 1, 2, 3, 6 and Salman Al-Farisi Elementary School

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### ABSTRACT

**Introduction:** Caries is the main oral cavity problem in children. One of the factors causing caries is dental plaque. The purpose of this research is to know the plaque index of 7-year-old children at Public Elementary School Cobleng 1, 2, 3, 6 and *Salman Al-Farisi* Elementary School Bandung City in the year 2011. **Method:** The type of research is descriptive research with survey method. A total of 143 samples at Public Elementary School Cobleng 1, 2, 3, 6 and 112 samples at *Salman Al-Farisi* Elementary School were obtained based on total sampling technique. **Result:** This research shows that the average plaque index of children age 7 years at Public Elementary School Cobleng 1, 2, 3, 6 Bandung City in the year 2011 amounted to 1.37 and children age 7 years at *Salman Al-Farisi* Elementary School Bandung City in the year 2011 amounted to 0.74. **Conclusions:** Children aged 7 years in Public Elementary School Cobleng 1, 2, 3, 6 and *Salman Al-Farisi* Elementary School Bandung City in 2011 has fair criteria of plaque index.

Keywords: 7-year-old children, plaque index

### INTRODUCTION

Maintenance of teeth and mouth cleanness is one of the efforts to improve health.<sup>1</sup> Mouth is not just the entry door of food and drinks but its function is more than that and not many people realize the magnitude of the role of the mouth to health and well-being of a person. Therefore teeth and mouth health are very important in supporting the health of a person.<sup>1</sup>

The condition of oral hygiene is said to be good when it is free of plaque.<sup>2</sup> Plaque is a bacterial containing layer that formed on the teeth surface and it can cause damage to teeth. If the

layer of plaque was left for long time, deposition of calcium phosphate will occur and form tartar or so called calculus and it can cause caries.<sup>2</sup>

Dental health problem in the community is an interesting problem. This is due to most of the community still assume that dental health is not too important to be noted compare to general health. Oral cavity is the organ that very important to be kept clean because in oral cavity there is a lot of microorganism living.<sup>2</sup>

According to Household Health Survey (Survei Kesehatan Rumah Tangga, 2004), caries prevalence of Indonesia reached 90.05% and it relatively much higher than other developing

countries.<sup>3,4</sup> Ministry of Health (MOH) in Research Health Basic (Riskedas) in year 2008 revealed there were approximately 72.1% of Indonesia population has the experience of dental cavities (caries) and 46.5% of them caries have not be treated.<sup>5,6</sup>

Children are the age of group that often experiencing dental health problem which one of it is caries. Total amount of children experiencing dental caries in year 2009 are as much as 31.04% of the number of students of Elementary School (SD) in West Java. It shows the involvement of microorganisms that formed plaques with caries.<sup>5</sup>

Plaque is the causes of caries. According to WHO caries is one of the diseases that spread widely in children with high prevalence. The oral hygiene condition is said to be good when it is free of plaque. Plaque is a bacterial containing layer that formed on the teeth surface and it can cause damage to teeth and can causes gingival diseases. If the layer of plaque was left over time, deposition of calcium phosphate will occur and form tartar or so called calculus.<sup>2</sup>

The socio-economic is factor that very affecting health status. Low socio-economic environment in general does not support the program of maintaining oral health, so that it can result in low individual health status including the status of dental and oral health.<sup>7</sup>

Public Elementary School Coblong 1, 2, 3, 6 is public elementary school while Salman Al-Farisi Elementary School is a private elementary school, which both of them located at Coblong district. Two of them have different socio-economic status. This related to the high level of caries risk in elementary school-age children which due to plaque buildup. Both of these schools have never been studied about the plaque index so that this research can be used as input for planning in improving dental and oral health in SDN Coblong 1,2,3,6 and Salman Al-Farisi Elementary School in Bandung. Therefore, purpose of this research is to finding out the plaque index of 7-year-old children in Public Elementary School Coblong 1, 2, 3, 6 and *Salman Al-Farisi* Elementary School Bandung City in year 2011.

**METHODS**

The type of research is descriptive research with survey technique, which is one of

**Table 1. Plaque index frequency distribution of 7-year-old children from public elementary school of coblong 1, 2, 3, 6 Bandung city in Year 2011**

Average plaque index	Criteria	Frequency	%
0,44	Good	12	8,39
1,23	Fair	100	69,93
2,19	Bad	31	21,68
1,37		143	100

**Table 2. plaque index frequency distribution of 7-year-old children from salman al-farisi elementary school Bandung city in year 2011**

Average plaque index	Criteria	Frequency	%
0,24	Baik	26	23,21
0,89	Sedang	86	76,79
0	Buruk	0	0
0,74		112	100

the descriptive research method that used on object with specific period and purpose to make assessment of a condition and the implementation of a program in the present, the results are then used to improve the program.<sup>8</sup> Population of this research is students of Public Elementary School of Coblong 1, 2, 3, 6 and Salman Al-Farisi Elementary School of Bandung City. The research samples are collected through total sampling technique, with total amount of 143 samples from Public Elementary School of Coblong 1, 2, 3, 6 and 112 samples from Salman Al-Farisi Elementary School.

**RESULTS**

This research conducted on 7-year-old children from Public Elementary School of Coblong 1, 2, 3, 6 which consisted of 143 respondent and Salman Al-Farisi Elementary School Bandung City consisted of 112 respondent from April until May 2011. The plaque index of respondent was obtained by using plaque index method in OHI-S from Green and Vermillion. The plaque index frequency distribution was show in the table below:

**DISCUSSION**

Based on the research results, a plaque index overview of students from Public Elementary School of Coblong 1, 2, 3, 6 and Salman Al-Farisi

Elementary School was obtained. Table 1 shows the plaque index frequency distribution of Public Elementary School of Coblong with most of the criterial is fair with total amount of 100 children (69.93%) but still have 31 children (21.68%) were in bad criterial, while the plaque index of Salman Al-Farisi Elementary School with fair criterial were 86 children (76.79%) and there is no respondent in bad criterial.

Children's oral hygiene are greatly influenced by their parent's education level. One's education level can affect the pattern of thinking about the oral cavity health. Likewise, a person's socio-economic background is closely related to one's income level and attitude to improve health. The higher the education level of a person, the higher the knowledge gained about the importance of maintaining oral health, and the higher the socio-economic level of a person, the higher the utilization of his health services.<sup>8</sup> The most recent education level of parents at Public Elementary School of Coblong 1,2,3,6 was senior high school (SMA) which is 66.43%, while in Salman Al-Farisi Elementary School was 87.5% for undergraduate level. Based on the research, the percentage of parents' knowledge about children's oral hygiene in Public Elementary School of Coblong 1,2,3,6 is still lacking, which is 48.95%, while in Salman Al-Farisi Elementary School, parents' knowledge about oral hygiene is enough, which is 61.61%.

Family monthly income of students' parents at Public Elementary School of Coblong 1,2,3,6 majority earn around Rp. 500,000 to Rp. 1,000,000, as much as 49.65% while the family monthly income of students' parents at Salman Al-Farisi Elementary School, the majority earn more than Rp. 5,000,000 as much as 80.36%.

This difference in income level will affect a lot of efforts to maintain oral health of children. Children from high-income parent environments will get more health facilities, because in general they provide a budget for family health costs. Children from low income parents' environment affect the ability to maintain oral health because with low socioeconomic conditions. The main problem is the fulfillment of family needs for daily food and drink with poor nutrition and is not possible to set aside their income in the interests of the health consequence is that his health condition is

low. Earnings of someone mediocre will prioritize income that can be used to meet daily needs rather than to check the teeth every 6 months.<sup>9</sup>

Brushing teeth is one of the mechanical actions to control plaque formation. Respondents at Public Elementary School of Coblong 1,2,3,6 had mostly brushed their teeth twice a day as much as 81.82% while at Salman Al-Farisi Elementary School were 84.82%. Almost all of the respondents brushed their teeth in the morning after breakfast and at night before going to sleep at Public Elementary School of Coblong 1,2,3,6 as much as 86.01% while at Salman Al-Farisi Elementary School as much as 90.18%. The actions of parents to protect the oral and dental hygiene of children in Public Elementary School of Coblong 1,2,3,6 are still lacking in 53.15% while in Salman Al-Farisi Elementary School the actions of parents in maintaining oral and dental hygiene are good at 66.07%.

Parents who limit the amount of eating sweet and sticky foods in children in Public Elementary School of Coblong 1,2,3,6 are 42% while in Salman Al-Farisi Elementary School are 72.32%. Besides, the age of the child at that age is estimated to consume high enough sugar. Another way to control plaque is to control food and chemical action. Controlling food is done by avoiding soft and sticky foods that contain sucrose, and multiply eating fibrous foods such as fruits and vegetables. In the above research results support the results of research on the actions of respondents' parents who showed the majority of 139 (97%) parents of Public Elementary School of Coblong 1,2,3,6 respondents let their children eat snacks at school while the majority of 102 (91.07%) parents of Salman Al-Farisi Elementary School respondents gives provisions to children.

The attitude of parents to maintain the oral and dental hygiene of children of Public Elementary School of Coblong 1,2,3,6 is enough as much as 72.73% while at Salman Al-Farisi Elementary School the attitude of parents to maintain oral and dental hygiene is good as much as 94.65%. The role of parents who are completely limited (both from action and knowledge) can worsen an already unfavorable situation, thus further worsening the child's oral hygiene problem. Therefore the role of the dentist needs to help guide and maintain the dental and oral hygiene of children and parents.

Based on the characteristics of the most recent education respondents the majority of mothers in Public Elementary School of Coblong 1,2,3,6 were 39.86% graduated from elementary school while Salman Al-Farisi Elementary School was 66.07% undergraduate. Based on research on mothers' work in Public Elementary School of Coblong 1,2,3,6, most mothers did not work as many as 117 children (81.82%) while in Salman Al-Farisi Elementary School there are 98 children (87.5%) with working mothers. The role of a mother is very important in improving the child's cooperative attitude in maintaining oral health. The higher the education level of the mother, the more knowledge about oral health. The time a mother gives to her child is one of the factors of a mother's closeness with her child.

One's oral hygiene is closely related to debris. According to Green and Vermillion (1960), the level of oral hygiene is determined by the number of debris indexes and calculus index.<sup>10</sup> Based on the level of maternal education on differences in the level of oral hygiene of children, Masrif, 1984, reported that a social environment that does not support dental health care programs at home (dental home care affects the low status of individual hygiene, one of which is the level of maternal education, because the mother has a great influence on preventive actions in a family.<sup>11</sup>

Therefore the role of the mother in maintaining the dental and oral hygiene of children is needed. Mothers must have good knowledge in maintaining the dental and oral hygiene of children, where mothers provide examples and teach their children in maintaining oral and dental hygiene independently so that oral and child hygiene will be better. Suggestions from this research is needed to do counseling about a good method of brushing teeth for children ages 7 years to decrease the plaque index.

## CONCLUSION

The results of the research that has been done on the plaque index children age 7 years in Public Elementary School of Coblong 1,2,3,6 and Salman Al-Farisi Elementary School Bandung City in year 2011 can be obtained conclusion that

children age 7 years in Public Elementary School of Coblong 1,2,3,6 and Salman Al-Farisi Elementary School Bandung City has an index of plaque in the fair criteria.

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