

## DMF-T index and DMF-S score in 12-year-old children

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### ABSTRACT

**Introduction:** Oral health status can be seen from caries index. Children are the most vulnerable population against dental caries. The age of 12 years old is one of the caries monitoring indicators (global monitoring age). The purpose of this study was to determine the DMF-T Index and DMF-S score of 12-year-old children at SDN Sayang and SDN Cibeusi, Jatinangor District. **Methods:** This research was a descriptive type. The technique used in taking the samples was total sampling method. The total samples in SDN Sayang were 52 samples and in SDN Cibeusi were 28 samples. **Result:** The results shows that the DMF-T Index of 12-year-old children in SDN Sayang is 2.75 and in SDN Cibeusi is 2.85. The DMF-S score in SDN Sayang are 262 cases, meanwhile the DMF-S score in SDN Cibeusi are 142 cases. **Conclusion:** Based on this research, it can be concluded that the DMF-T Index of 12-year-old children in SDN Sayang and SDN Cibeusi are moderate based on WHO criteria. The DMF-S score shows that the most affected surface of teeth is occlusal surface.

**Keywords:** Caries, DMF-T Index, DMF-S score, 12 years old

### INTRODUCTION

Tooth and mouth disease is the 6th highest disease complained by Indonesian society according to the Household Health Survey in 2001, and ranked the 4th most expensive disease in treatment according to The World Oral Health Report 2003.<sup>1</sup>

Tooth and mouth disease in Indonesia tends to increase from year to year. This disease is widespread, both in urban and rural areas, young and old, especially in children.<sup>2</sup>

one of the most common oral and dental diseases is dental caries. Dental caries is a chronic disease that can cause damage to enamel, dentin, and cementum. Early treatment is a must, because tooth decay will continue until the affected tooth is destroyed.

The number of tooth decay in Indonesia according to a health survey conducted by the Indonesian Ministry of Health in 2001 found that around 70 percent of Indonesia's population aged 10 years and over had experienced tooth decay and at the age of 12 years the number of tooth fractures reached 43.9 percent.<sup>3</sup>

The DMF-T index for 12-year-old children is 0.91 with D (T) 0.57, M (T) 0.24 and F (T) 0.07. <sup>4</sup> DMF-T index in West Java in general 6.88. This means the average tooth decay in the West Java population is 7 teeth per person, with a prevalence of tooth decay of 39 percent.

The largest component is extracted teeth at 3.75, meaning the average resident of West Java has four teeth that have been indicated for extraction and have been extracted.

The DMF-T index in children aged 12 years is 2.67 with D-T 0.67 M-T 0.52 and F-T 0.01.<sup>5</sup>

Children are the most vulnerable population against dental caries. One of the factors that influence tooth decay in children is the lack of awareness in maintaining oral health. Children need to be educated about how to maintain oral health. This also must be supported by parental supervision when cleaning their teeth and in choosing food to consume.

Dental and oral health at the age of 12 years is the object of epidemiological studies that are often carried out throughout the world. According to WHO 1997, the age of 12 years is important because at this age children leave primary school. In some countries, the age of 12 years is the last age where data can be easily obtained through the school. At this age all permanent teeth have erupted except the wisdom teeth. Therefore the age of 12 years is determined as the caries monitoring indicator, for comparison and monitoring of a disease.<sup>6</sup>

Public Elementary School of Sayang (SDN Sayang) and Public Elementary School of Cibeusi (SDN Cibeusi) are elementary schools under the Faculty of Dentistry of Padjajaran University. Activities that have been carried out are, counseling how to maintain healthy teeth and mouth and brush teeth together. One of the long-term goals of holding such counseling is to create good dental and oral health status. Evaluation is needed in order to be able to assess the success of the counseling conducted.

Based on these things, the authors are interested in conducting research on the Dental Caries Index using the DMF-T Index method and the DMF-S score in 12-year-old children, who study at SDN Sayang and SDN Cibeusi in Jatinangor District. The purpose of this study was to determine the number of teeth and tooth surfaces affected by caries in 12-year-old children in SDN Sayang and SDN Cibeusi in Jatinangor District.

## METHODS

The type of research used is descriptive, which is a research method with the main objective of making a picture about a situation objectively. The study population was the students from SDN Sayang and SDN Cibeusi in Jatinangor District, in

February 2012 with criteria for boys and girls, 12-year-old children, attending school in SDN Sayang and SDN Cibeusi with patient's consent (Informed consent) obtained.

The sample in this study was taken as a total number in which the whole population was taken as sample.<sup>7</sup> The number of samples obtained was 52 people at SDN Sayang and 28 people at SDN Cibeusi.

## RESULTS

To obtain data on the DMF-T and DMF-S indices in 12-year-old children, the authors conducted research at SDN Sayang and SDN Cibeusi in Jatinangor District. The data obtained in the form of primary data is done by inspection. The data is then processed and presented in the form of a frequency distribution table. Data on the total number of samples is in the following table:

Table 1. Number of samples in SDN Sayang and SDN Cibeusi

	SDN Sayang	SDN Cibeusi	Total
Sample	52	28	80

Based on table 1 it can be seen that the total number of 12-year-old children sampled in this study are 52 people in SDN Sayang and 28 people in SDN Cibeusi, Jatinangor.

Table 2. D-T, M-T and F-T components of 12-year-old children in SDN Sayang and SDN Cibeusi

DMF-T	SDN	
	Sayang	Cibeusi
D	124	77
M	1	0
F	143	79
Total	143	79

Based on table 2 it can be seen that the number of decay (D) in children of SDN Sayang is 124 teeth, while there are 77 teeth in SDN Cibeusi children.

The number of missing teeth (M) in SDN Sayang children was 18 teeth, while in SDN Cibeusi children were 2 teeth. The number of teeth filled/ filling (F) in SDN Sayang was 1 tooth, while in Cibeusi SDN there were no cases of restored teeth.

The total number of DMF-T cases in SDN Sayang children was 143 teeth and in SDN Cibeusi was 79 teeth.

Table 3. D-T, M-T, and F-T Components and DMF-T Index for 12 year olds in SDN Sayang and SDN Cibeusi

SDN	D-T	M-T	F-T	DMFT Index
Sayang	2.38	0.35	0.02	2.75
Cibeusi	2.75	0.07	0	2.82

Table 4. Components D, M and F on the surface of the teeth of 12-year-old children in SDN Sayang and SDN Cibeusi

DMF-S		SDN		
		Sayang	Cibeusi	Total
D	Mesial	13	16	29
	Distal	43	8	51
	Occlusal	75	63	138
	Buccal	21	21	42
	Lingual / palatal	19	24	43
M	Mesial	18	2	20
	Distal	18	2	20
	Occlusal	18	2	20
	Buccal	18	2	20
	Lingual / palatal	18	2	20
F	Mesial	1	0	1
	Distal	0	0	0
	Occlusal	0	0	0
	Buccal	0	0	0
	Lingual / palatal	0	0	0
Total		262	142	404

Based on table 4 it can be seen that the number of decayed (D) surfaces in children of SDN Sayang is 13 cases in the mesial surface, 43 cases in the distal surface, 75 cases in the occlusal surface, 21 cases in the buccal surface and 19 cases in the lingual/palatal surface .

The number of missing tooth surfaces (M) in children of SDN Sayang is 18 cases in the mesial, distal, occlusal, buccal and lingual/palatal surfaces. As for the tooth surface of the teeth filled / filling (F) only 1 case in mesial surface. The total number of all surfaces of teeth affected by caries was 262 form 52 children.

In children of SDN Cibeusi can be seen in table 4.4 that the total number of decayed teeth surfaces (D) are 16 cases in the mesial surface, 8 cases in the distal surface, 63 cases in the occlusal surface, 21 cases in the buccal surface and 24 cases in the buccal/palatal surfaces.

The number of missing tooth surface (M) is 2 cases in mesial, distal, occlusal, buccal, and buccal /palatal surfaces. As for the dental surface filled / filling (F) was not found. The total number

of all surfaces of teeth affected by caries was 142 out of 28 children. The prevalence of caries in SDN Sayang and SDN Cibeusi is 87. 5 %. These results were obtained from 52 children from SDN Sayang and 28 children from SDN Cibeusi, only 10 were caries-free. This can be seen from the following diagram:



Diagram 1. Caries prevalence of 12 year olds in SDN Sayang and SDN Cibeusi in Jatinangor District

## DISCUSSION

Tables 2, 3, and 4 present the D, M, and F components of teeth and tooth surfaces in SDN Sayang and SDN Cibeusi from Jatinangor District. The DMF-T index as an indicator of dental health is a sum of D-T, M-T, and F-T indices shows that how much tooth decay a person has experienced in the form of Decay (caries or cavities), Missing (teeth extracted due to caries), and Filling (teeth restored due to caries) 5 ( Riskesdas, 2007 ).

Based on table 1 it can be seen that the number of samples obtained was 52 people from SDN Sayang and 28 people from SDN Cibeusi. The total sample is 80 people. Table 2 presents the number of teeth affected by decay (D), missing (M) and filling (F). The number of decay (D) in the children of SDN Sayang was 124 teeth, missing (M) was 18 teeth, and filling (F) 1 tooth. The total number of affected teeth is 143 teeth. In children from SDN Cibeusi, the number of decayed teeth (D) was 77 teeth, missing (M) was 2 teeth, and there were no dental filling. The total number of DMF-T cases in SDN Cibeusi was 79 teeth.

The results shown in Table 3 show that the average value of D-T in 12-year-old children in SDN Sayang is 2.38, which means that on average there are 2 teeth that have caries in each mouth. This value is higher than the results of the National Riskesdas (D-T = 0.57) and Riskesdas West Java (D-T = 0.67). M-T value in SDN Sayang was 0.35, which means

that on average there was 1 tooth that was lost or removed due to caries in each mouth. This result is lower than the results of Indonesian Basic Health (Riskesmas) of West Java (M-T = 0.52) and almost the same as the results of the National Riskesdas (M-T = 0.24). The F-T value for SDN Sayang children is 0.02, which means that on average there are no teeth filled due to caries in each mouth. The FT component shows lower results than National Riskesdas (FT = 0, 07) and is almost the same as Riskesdas West Java (FT = 0.01).<sup>5</sup>

The DMF-T Index value for 52 children aged 12 years in SDN Sayang in Jatinangor was 2.75 (Table 3). Based on WHO (World Health Organization) criteria, the Index value for these SDN Sayang children is moderate. Number 2.75 has the meaning that, on average in each student's mouth there are 3 teeth that have caries, extracted because of caries and filled because of caries. This result is almost the same as the 2007 West Java Riskesdas result which is 2.67, but it is higher than the National Riskesdas 2007 result, which shows the number 0.91, with an average in each period there is 1 dental caries.<sup>4</sup>

Research conducted at Cibeusi SDN (Table 3) shows that the D-T value in children aged 12 years at SDN Cibeusi is 2.75 which means that, on average, there are 3 teeth that have caries in each mouth. This result is higher than the National Riskesdas (D-T = 0.57) and West Java (D-T = 0.67), which shows that on average there is 1 tooth that has caries. For M-T value in children from SDN Cibeusi is 0.07 which means that on average there are no teeth lost due to caries in each child. Lower value than the results of National and West Java Riskesdas namely M-T = 0.24 and MT 0.52. The F-T value obtained was 0, which means no teeth were filled because of caries in children from SDN Cibeusi.

Research on 28 students aged 12 years at SDN Cibeusi in Jatinangor, obtained the value of the DMF-T index of 2.82. According to WHO criteria, the index value in children of SDN Cibeusi is moderate. The number 2.82 means that on average there are 3 teeth in each mouth of a child affected by caries, extracted because of caries and filled because of caries. This value is higher than the results of the DMF-T Index by the National Riskesdas (0.91) which means, on average there is only 1 tooth decay per child aged 12 years.<sup>4</sup>

The DMF-S results obtained at SDN Sayang (Table 4) show that the most damaged surface of the tooth surface was the occlusal surface, which is 75 occlusal surfaces.

For the tooth surface filled / filling found only 1 case in the mesial surface of the tooth. In SDN Cibeusi, the DMF-S results obtained showed that the surface of the tooth most frequently damaged was occlusal (63 occlusal surfaces). Research conducted at SDN Cibeusi found no children who had restored teeth. The total number of surfaces of teeth affected by caries, lost due to caries and restored because of caries is 404 tooth surfaces.

The results above are in line with studies reported in the National Basic Health Research in which in the age group of 10-14 years, as many as 30.5% of respondents received addiction treatment or extraction. Percentage of counseling care and lower dental hygiene which is 11.5 %. For the results of tooth brushing behavior it was reported that only 6.2 % of respondents brushed teeth at the correct time (after breakfast and before going to bed). In West Java, correct tooth brushing behavior was 6.1 %.<sup>5</sup>

## CONCLUSION

Based on the results of the research that has been carried out it can be concluded that, the DMF-T index for 12-year-old children in SDN Sayang 2.75 and SDN Cibeusi 2.82, which fall into the medium criteria according to WHO criteria. The DMF-S score in SDN Sayang was 262 cases, while the DMF-S score in SDN Cibeusi was 142 cases, with the highest number of cases being caries in the occlusal surface of the tooth.

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