

# Jurnal 38 Scopus Q2 Condition of periodontal tissue status and treatment

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Research Article

# Condition of periodontal tissue status and treatment needs periodontal in students aged 16-17 years at public high school 1 of enrekang

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## ABSTRACT

Periodontal disease is a health problem of the oral cavity initiated by the local accumulation of microorganisms (dental plaque) and products Metabolisnya. The severity of the disease varies in children and adolescents, but tends to increase with the puberty. We conducted this study to determine the health status of periodontal tissue and the need for periodontal care in students aged 16-17 years of public high school I of Enrekang. This study was a descriptive observational cross-sectional approach and involving 115 students (37 men and 118 women) as the subjects, obtained through consecutive sampling method. Examination and assessment of the condition of periodontal tissue is carried out using a mouth glass, WHO Periodontal Examining Probe, and an examination form, which is then evaluated using the Community Periodontal Index of Treatment Needs (CPITN) method. Data analysis in this study used SPSS version 22. The results showed 21 people (13.5%) had healthy periodontal tissue, 3 people (1.9%) experienced bleeding on probing, 127 people (81.9%) with subgingival or supragingival calculus, 4 people (2.6%) with a pocket depth of 4-5 mm, and not found a pocket depth of  $\geq 6$  mm. Based on the results we concluded that the most needed periodontal treatment by students of public high school I of Enrekang based on the CPITN score is education on oral health instruction and scaling.

**Keywords:** Students aged 16-17 years, Periodontal care needs, CPITN.

## INTRODUCTION

Dental and oral health is part of general health which is usually defined as a health standard. Healthy mouth tissue can support a person to eat, talk and socialize without discomfort and embarrassment and can affect one's quality of life.<sup>1,2</sup> Disorders of the oral cavity that are often encountered are dental caries and periodontal disease. Dental caries is one of the most common global health problems and diseases, especially in children and adolescents. Poor oral hygiene is an important predisposing factor for periodontal disease. One of the most effective alternatives that can be done to prevent this is to brush your teeth twice a day using toothpaste containing fluoride.<sup>3,4</sup> In addition, other precautions that can be carried out are flossing, applying fluoride, minimal consumption of foods containing sugar and regular visits to the dentist.<sup>5,6</sup> Based on research that has been done shows that there are several factors such as age, sex, race, diet, oral cleaning habits, socioeconomic level and education are important things related to oral health. An

increased level of knowledge about oral health leads to increased awareness of oral health and better oral hygiene practices. Proper education in dental care can help foster better oral health practices.<sup>7,8</sup>

Based on the results of data from Riskesdas in 2013 concerning the percentage of dental and oral diseases in Indonesia of 25.9%. Tooth and mouth disease that is suffered by many Indonesian people is periodontal disease. Periodontal disease that often occurs is gingivitis and periodontitis.<sup>9,10</sup> The prevalence for healthy periodontal tissue is 4.79% or equal to 34,614 people while the unhealthy tissue is 95.21% or 687,715 people. The World Health Organization (WHO) already has a global oral health data bank using the Community Periodontal Index (CPI). This world oral health data comes from epidemiological studies from various countries collected to show the distribution of periodontal disease in adolescents, adults and the elderly.<sup>11,12</sup>

The prevalence of calculus and bleeding on probing if there is a comparison between

developed and developing countries, is higher in developing countries, especially among adolescents. The percentage of calculus in adolescents ranges from 35% to 70% in developing countries and 4% to 34% in developed countries. Likewise, 14 to 47% of the adult population in developed countries have calculus deposits compared to 36 to 63% of adults in developing countries. However, developed countries have higher individual percentages with 4-5 mm periodontal pockets. Thus, overall periodontal disease affects about 20 to 50% of the population worldwide.<sup>13,14,15</sup>

Periodontal disease is a chronic inflammatory disease of the periodontium tissue characterized by loss of periodontal ligament and damage to the alveolar bone. The main cause is bacteria on dental plaque which if not treated can cause damage to the teeth to tooth loss (Harvey, 2017). In addition, smoking is another factor that can cause disruption in periodontal tissue.<sup>16,17,18</sup> Some results of epidemiological studies that have been carried out show that dental and oral hygiene and gingival status of various severity are generally common in children and adolescents because influenced by the process of growth and development. According to the World Health Organization (WHO) the best target for the promotion of dental and oral health as well as the surrounding tissue is students.<sup>19,20</sup>

Public high school 1 of Enrekang is one of the largest and oldest schools located in Anggeraja District, Enrekang Regency. This school has a very large number of students and has never before received counseling and dental and oral health examination so students have the knowledge of the importance of maintaining oral health is still very minimal. Therefore, the impact of poor health of the teeth and mouth can cause several problems in the oral cavity, one of which is disruption of periodontal tissue. In addition, at that age the level of awareness of the importance of maintaining healthy teeth and mouth is high because it is influenced by circumstances in the surrounding environment, such as experiencing

puberty so that it will be more concerned with yourself.<sup>8</sup> So, from this the researcher is interested in conducting research on the condition of the periodontal tissue status and the need for periodontal tissue maintenance in students aged 16-17 at public high school 1 of Enrekang.

### MATERIAL AND METHOD

This type of research used in this research is descriptive observational research. This research design uses Cross Sectional Study. This research was located at public high school 1 of Enrekang, Poros Makassar-Toraja street. The study was conducted in January 2020. The population of this study were students of public high school 1 of Enrekang aged 16-17 years. This study had a sample of 155 people consisting of 37 men and 118 women, while for 52 people aged 16 years and 103 people aged 17 years. Data analysis in this study used SPSS version 22.

The criteria for inclusion in this study are students of public high school 1 of Enrekang age 16-17, students who are willing to sample research, and the students present on the day of research. The exclusion criterion in this study is that students who have an insisive tooth or molar permanent or have a date or a student who is not willing to be used as a sample of research. The study began by examining samples based on six segments, i.e. 16 (one right upper molar), 11 (top right Central Insisivus), 26 (molar one left upper), 36 (molar one left bottom), 31 (lower left central Insisivus), 46 (molar one right bottom). Then proceed by observing the circumstances that occur on each tooth with a CPITN score, including the score:

- 0: periodontal healthy or normal
- 1: bleeding after probing
- 2: supragingival / subgingival calculus is present
- 3: there are 4-5 mm pockets
- 4: there are pockets of 6 mm or more

### RESULTS

The inspection results are shown in the following table:

**Table 1: Condition of periodontal tissue status in 16-17 year old students at public high school 1 of Enrekang based on CPITN scores.**

Age (years)	N	CPITN SCORE (%)									
		0		1		2		3		4	
		N	%	N	%	N	%	N	%	N	%
16-17	155	21	13,5	3	1,9	127	81,9	4	2,6	0	0

The results of the examination of the status of periodontal tissue in students aged 16-17 using the CPITN index were 155 people. A score of 0 was obtained for 21 people with a percentage of 13.5% (healthy gingival), a score of 1 for 3 people with a percentage of 1.9% (bleeding on probing), a score of 127 for 127 people with a percentage

of 81.9% (there was a subgingival calculus or supragingiva), Score 3 of 4 people with a percentage of 2.6% (there are 4-5 mm poker). The most scores were on score 2 of 127 people (81.9%) which included supra or subgingival calculus.

**Table 2: State of periodontal tissue status in students aged 16-17 years at Public High School 1 of Enrekang result of CPITN value based on gender ratio**

Score	Gender	
	Men	Women
0	2 people (5,4%)	19 people (16,1%)
1	1 people (2,7%)	2 people (1,7%)
2	32 people (86,5%)	95 people (80,5%)
3	2 people (5,4%)	2 people (1,7%)
4	-	-
Total	37 people (100%)	118 people (100%)

Based on the table above, it can be seen that the comparison of periodontal tissue status based on sex, that is, men at a score of 0 is 2 people with a percentage of 5.4% while 19 women with a percentage of 16.1%. On the score of 1 man 1 person with an e percentage of 2.7% and 2

women with a percentage of 1.7%. Score 2 men are 32 people with a percentage of 86.5% and 95 people with a percentage of 80.5%. As for the score of 3 men 2 people 5.4% and women 2 people with a percentage of 1.7%.

**Table 3: Status of periodontal tissue in students aged 16-17 years at public high school 1 of Enrekang result of CPITN value based on age difference**

Score	Age	
	16 years old	17 years old
0	5 people (9,6%)	16 people (15,5%)
1		3 people (1,7%)
2	46 people (88,5%)	81 people (78,6%)
3	1 people (1,9%)	3 people (2,9%)
4	-	-
Total	52 people (100%)	103 people (100%)

The table above gives an overview of the comparison between age and periodontal tissue status. At the age of 16 years a score of 0 can be seen 5 people with a percentage of 9.6%, while the age of 17 years 16 people with a percentage of 15.5%. Score 1 16 years old is not present, while the age of 17 years 3 people with a percentage of 1.7%. Score 2 age 16 years 46 people with a percentage of 88.5%,

while age 17 years 81 people with a percentage of 78.6%. 3 age 16 years 1 person with a percentage of 1.9%, while age 17 years 3 people with a percentage of 2.9%.

The test results that have been done using the CPITN index can be used to see the level of periodontal care needs in students aged 16-17 years at public high school 1 of enrekang in table 4 below.

**Table 4: Periodontal tissue care needs for students aged 16-17 at Public High School 1 of Enrekang based on CPITN scores**

Score	Periodontal Tissue Condition	Frequency & Percentage	Care needs
0	Healthy Gingiva	21 people (13,5%)	No Maintenance required
1	Bleeding when probing	3 people(1,9%)	Oral hygiene Instruction
2	There are Subgingiva and Supragingiva calculus	127 people (81,9%)	Instruksi kebersihan mulut, Scalling dan root planning
3	There is a 4-5 mm pocket	4 people (2,6%)	Oral hygiene instructions, Scalling and root planning
4	There are 6 mm or more pockets	0	"Oral hygiene instructions, scalling, and root planning, complex periodontal therapy, surgical "

Table 4 describes the need for treatment in periodontal tissues based on CPITN values which shows that 21 people (13.5%) in score 0 did not need treatment, 3 people (1.9%) in score 1 needed treatment in the form of oral hygiene instructions (DHE), 127 people (81.9%) in score 2 need treatment in the form of instructions for oral hygiene, scaling and root planning if necessary, and finally 4 people (2.6%) in score 3 need treatment the same as in score 2.

## DISCUSSION

The results of this study can be seen in table 1 which shows that the status of periodontal tissue in students aged 16-17 years at public high school 1 of Enrekang has the highest score of 2 with a sample of 127 people (81.9%), a score of 0 with 21 people (13.5%), score 3 as many as 4 people (2.6%), score 1 as many as 3 people (1.9%), and score 4 did not get the subject. From the table it can be said that the condition of the periodontal tissue status of students aged 16-17 years has the highest score of 2, namely there are sub or supragingival calculus of 81.9% or about 127 people from 155 samples. These results are consistent with research conducted by Tanti Ermawati, Desi Sandra Sari, and Melok Arsi in 2011 at the University Hospital Jember with the highest CPITN score is a score of 2 at the age of 10-19 years with a value of 78.53% or 150 people from 190 people were sampled.<sup>11,21</sup>

Research from RR Siti Subaningsih Sekar Sumarsono Wilis, Putu Lestari Sudirma, and AA Sagung Sawitri which support the results in table 1 with the title periodontal care needs in adolescents aged 15-18 years at Semarang Klungkung High School with the results of problems with periodontal tissue with a percentage of 87, 9% (94 people). The problem in question is the existence of either supra or subgingival calculus with the highest score 2 of 65.4% (70 people).<sup>15,22</sup>

Table 2 shows the comparison of sex with periodontal tissue status. At a score of 0 men have a percentage of 5.4% (2 people) and women 16.1% (19 people), a score of 1 man 2.7% (1 person) and women 1.7% (2 people), a score of 2 men 86.5% (32 people) and women 80.5% (95 people), a score of 3 men 5.4% (2 people) and a woman 1.7% (2 people), and at score 4 has no subject. From these results it can be concluded that men have a high periodontal status compared to women. The highest percentage is in score 2, which is 86.5% (32 people) while in women 80.5% (95 people). These results are in line with research from Dr. Abhishek Gautama and Dr. Samir Jain at Anugrah Narayan Magadh Medical in South Bihar and Jharkhand showed that the periodontal tissue status of men was higher than that of women, the percentage being 57.10% (350 people) and 49.19% (190 people). This happens because men

are not too concerned about the cleanliness of the oral cavity compared to women.<sup>19,23,24,25,26,27,28</sup>

Comparison of periodontal tissue status based on age can be seen in table 3 which shows that the age of 16 years has a severe periodontal tissue status which includes accumulation of both supra or subgingival calculus (score 2) compared to 17 years of age. The results of the CPITN examination on a score of 2 aged 16 years had a percentage of 88.5% (46 people) and age 17 years 78.6% (81 people), score 0 age 16 years has a percentage of 9.6% (5 people) and age 17 years 15.5% (16 people), score 3 age 16 years has a percentage of 1.9% (1 person) and age 17 years 2.9% (3 people) and score 1 year 16 years there were no subjects and age 17 years had a percentage of 1.7% (3 people). These results are supported from Dr. research results. Abhishek Gautama and Dr. Samir Jain at Anugrah Narayan Magadh Medical in South Bihar and Jharkhand who said that at a younger age is the initial stage of disruption in the periodontal tissue.<sup>24,29,30,31,32,33,34,35</sup>

Based on the results of this study which has been supported by several similar studies it can be concluded that the condition of the periodontal tissue status of students aged 16-17 years at public high school 1 of Enrekang includes healthy conditions or healthy gingiva has a percentage of 13.5%, bleeding when probing 1.9%, presence of sub or supragingival calculus 81.9%, pocket 4-5 mm 2.6%, and none of the subjects had a pocket 6 mm or more. From these results can be determined treatment needs, 13.5% do not require treatment, 1.9% require oral hygiene instructions, 81.9% require oral hygiene instructions and scaling, 2.6% require instructions for oral hygiene, scaling, and root planing. This shows that the importance of giving oral hygiene instructions in the form of Dental Health Education (DHE) in adolescents who are still in the process of growth and make regular visits every 6 months to the dentist to check the health of their teeth and mouth.

## CONCLUSION

Status condition of periodontal student of public high school 1 of Enrekang age 16-17 years based on the index CPITN has the highest score 2 which means that there are supra or Subgingiva calculus. Because of this, the necessary treatment needs are the instruction of dental and oral health and scaling at the dentist.

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