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**THE RELATIONSHIP OF PARENTS KNOWLEDGE AND SOCIOECONOMIC STATUS BASED ON *PERFORMANCE TREATMENT INDEX***

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**ABSTRACT**

**Background:** Dental and oral health problems are related to individual motivation to maintain oral and dental health. It is measured by the Performance Treatment Index (PTI). The average percentage of teeth decay, cavities and pain in Kotabaru regency is greater than the average percentage in South Kalimantan, which is 55.19% and the average percentage of filling in Kotabaru Regency is 2.72%. The level of knowledge and socioeconomic status affect individual motivation to maintain dental and oral health.

**Purpose:** To analyze the relationship between knowledge of oral health and the socioeconomic status of parents with the Performance Treatment Index in students of SMPN 1 Kotabaru. **Methods:** This research is an analytic observational with a cross sectional approach. The sampling technique by simple random sampling with total 34 person. **Results:** The level of knowledge of parents on dental and oral health is mostly in the good category as many as 23 person (68%). The level of socioeconomic status of parents is mostly in the middle category with 21 person (62%). The level of Performance Treatment Index for SMPN 1 Kotabaru students is mostly in the category above the national standard with 15 person (44%). Spearman test results showed the relationship between parental knowledge and PTI with  $p$  value = 0.00 and a correlation coefficient of 0.719. The relationship between parents' socioeconomic status and PTI with  $p$  value = 0.00 and a correlation coefficient of 0.630. **Conclusion:** Based on on the research it can be concluded that there is a significant relationship between knowledge and socioeconomic status of parents with the Performance Treatment Index in students of SMPN 1 Kotabaru with a strong positive correlation.

**Keywords:** Knowledge, Performance Treatment Index, Socioeconomic

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**INTRODUCTION**

The level of dental and oral health in South Kalimantan is based on the Basic Health Research (Riskesdas) in 2018 that the criteria for damaged teeth, cavities are 46,90% and the percentage of dental fillings is 7,28%. The district of Kotabaru is in fourth place with 55.19% and the percentage of dental fillings is 2,72%, this is the lowest number compared to other districts. Dental health problems in South Kalimantan based on the status of teeth loss due to teeth extraction with 17,84% and in Kotabaru District with 21,10%.<sup>1</sup>

During adolescence, there are many dental and oral health problems. Puberty in adolescence

has several critical things from growth and development to maturity therefore, adolescence undergoes mental adjustments as well as attitudes, values, and interests.<sup>2</sup> Based on Riskesdas 2018, the age group according to WHO who had dental cavities or pain at the age of 12 years was 48,68% and the age group of 15 years was 48,19%, teeth that were lost due to extraction or self-extraction at the age of 12 years was 15,48% and at the age of 15 years was 10,08%, teeth were filled at the age of 12 years was 5,72% and at the age of 15 years was 7,75%.<sup>1,3</sup>

Dental and oral health status which describes teeth decay due to caries can be measured by DMF-

T index (Decay Missing Filled-Teeth). Based on Riskesdas, DMF-T index in Indonesia in 2007 at the age of 12 years was 0,91 and at the age of 15 years was 1,14. In 2013 at the age of 12 years was 1,4 and at the age of 15 years was 1,5. In 2018 the DMF-T index also increased at the age of 12 years was 1,9 and at the age of 15 years was 2.4.<sup>3,4</sup> The treatment of dental cavities is related to a person's motivation to choose a dental filling treatment. This can be measured by the *Performance Treatment Index* (PTI).<sup>5</sup>

*Performance Treatment Index* (PTI) is the percentage of the number of permanent teeth filled from the DMF-T. Individual motivation to treat cavities with fillings in order to maintain permanent teeth is described in the PTI index. Based on data from Riskesdas in 2013, the average PTI for the Indonesian population was 1,7% and the average PTI in South Kalimantan was only 1,5%. The PTI score indicator with a score of >50% is categorized as good and a score of <50% is categorized as bad.<sup>4,5</sup>

Socioeconomic status and level of knowledge affect a person's motivation to maintain dental and oral health.<sup>6,7,8</sup> Several studies have shown that children or adolescents with lower socioeconomic status have more caries, especially at the age of 5 to 23 years.<sup>9</sup> Socioeconomic status influences a person's behavior to increase the demand for dental care. Society with low socioeconomic status are limited in obtaining dental and oral health services.<sup>6,7</sup>

Knowledge is related to the formation of a behavior. lack of knowledge will create bad behavior and attitudes towards dental and oral health maintenance.<sup>10,11</sup> The high knowledge about dental and oral health will increase a person's motivation to maintain permanent teeth.<sup>8</sup>

Based on this description and recommendations from the Education Office in Kotabaru, a research was conducted at SMPN 1 Kotabaru, located in Semayap Village, North Pulau Laut District. SMPN 1 Kotabaru consists of students with various socioeconomic levels from the lower, middle and higher socioeconomic levels. The purpose of this study was to determine the relationship between knowledge and socioeconomic status of parents with the Performance Treatment Index (PTI) in students of SMPN 1 Kotabaru.

## MATERIAL AND METHODS

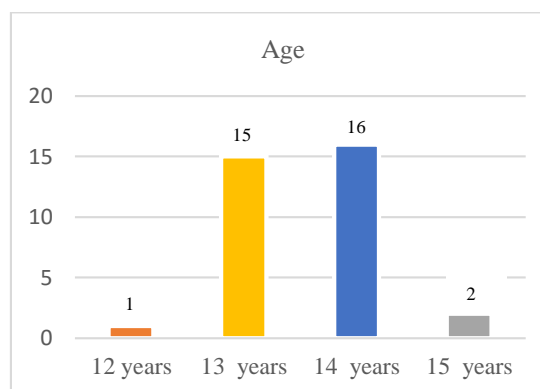
This research has received by Ethics Commission of the Faculty of Dentistry, Lambung Mangkurat University with number 027/KEPKG-FKGULM/EC/IV/2022. This research is an analytic observational research with a cross sectional approach. The population in this study were students of SMP Negeri 1 Kotabaru as many as 775

person. The sample of this research is 34 person. Sampling technique with probability sampling with the type of simple random sampling. The inclusion criteria for this study were: 1) Students of SMP Negeri 1 Kotabaru aged 12-15 years 2) Parents and students agreed to be respondents and signed the informed consent 3) Children living with their biological parents.

The tools used in this study were a questionnaire (online), mobile phone with internet, informed consent, head flashlight, dental and oral examination sheet (DMF-T), disposable diagnostic set, nierbekken and level 3 of personal protective equipment (hazmat, N95 mask, handscoon, reusable goggles, head protection, shoe protection). Materials consist of stationery, pulses, tissue, medical waste plastic, bayclin, alcohol.

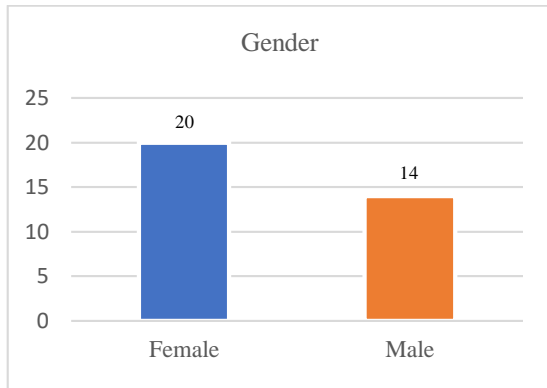
The data in this study were analyzed using univariate and bivariate analysis. Bivariate analysis using *spearman* test. Data were collected through examination of the oral cavity of students and questionnaires on knowledge of oral health and socioeconomic status of parents. The validity and reliability test of the questionnaire was carried out using the *Pearson Product Moment* and *Cronbach Alpha* test.

## RESULT



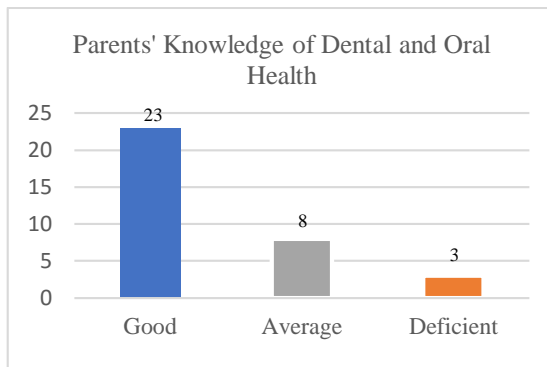
**Figure 1.** Characteristics of Respondents Based on Age of Students at SMPN 1 Kotabaru.

Figure 1. shows that the majority of students at SMPN 1 Kotabaru are 14 years old with total 16 person (47%).



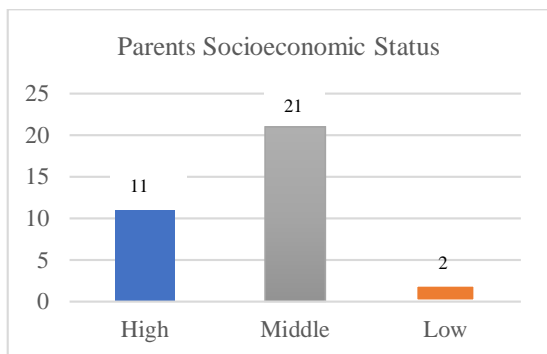
**Figure 2.** Characteristics of Respondents Based on Gender of Students at SMPN 1 Kotabaru

Figure 2. shows that the majority of students at SMPN 1 Kotabaru are female with total 20 person (59%).



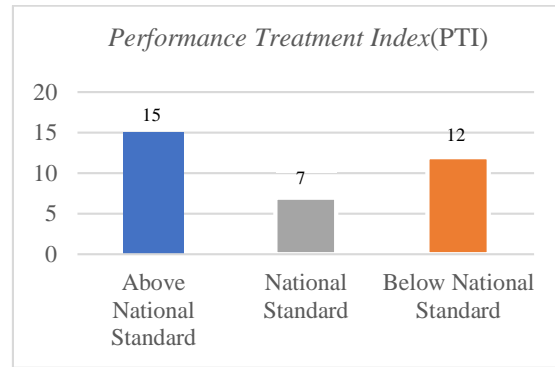
**Figure 3.** Level of Parents Knowledge of Dental and Oral Health at SMPN 1 Kotabaru

Figure 3 shows that the majority of parents' knowledge of oral and dental health is "good" category, which is 23 person (68%).



**Figure 4.** Level of Parents Socio-Economic Status at SMPN 1 Kotabaru

Figure 4 shows that the socio-economic level of parents is more in the "middle" category, with total 21 person (62%).



**Figure 5.** Level of *Performance Treatment Index* (PTI) at SMPN 1 Kotabaru

Figure 5 shows that the *Performance Treatment Index* (PTI) of students is "above national standard" category, which is 15 person (44%).

**Table 1.** The relationship between parents' dental and oral health knowledge with the *Performance Treatment Index* (PTI)

Data analysis	Spearman Test	
	Significance	Correlation coefficient
Parents dental and oral health knowledge with <i>Performance Treatment Index</i> (PTI)	0,000*	0,719
*p < 0,05		

The results of data analysis with the Spearman test are shown in table 1 that the significance value of parental knowledge with the *Performance Treatment Index* (PTI) is 0.000. The significance value is less than 0.05, which means that there is a significant relationship between parents' knowledge with the *Performance Treatment Index* (PTI). The correlation coefficient between parents' knowledge and the *Performance Treatment Index* (PTI) is 0.719 (strong positive correlation).

**Table 2.** The relationship between the socioeconomic status of parents and the *Performance Treatment Index* (PTI)

Data analysis	Spearman Test	
	Significance	Correlation coefficient
Parents Socioeconomic Status with <i>Performance Treatment Index</i> (PTI)	0,000*	0,630
*p < 0,05		

Based on table 2 shows that the significance value of the socioeconomic status of parents with the *Performance Treatment Index* (PTI) is 0.000. The significance value is less than 0.05, which means that there is a significant relationship between the socioeconomic status of parents and the *Performance Treatment Index* (PTI). The correlation coefficient of parents' socioeconomic status with the *Performance Treatment Index* (PTI) is 0.630 (strong positive correlation).

## DISCUSSION

### Parents' Knowledge of Dental and Oral Health

In this study, many parents had knowledge of dental and oral health in the "good" category were 23 person (68%), "average" category were 8 person (23%) and the "deficient" category were 3 person (9%). This is in accordance with a study by Selvyanita (2021) which stated that parents' knowledge of oral health with the criteria of "good" were 28 people 50.9%, category "average" there were 18 people (32.7%) and category "deficient" there were 9 people (16.3%).<sup>12</sup>

The category of "good" knowledge is obtained if the total score is 76%-100% of all statements. Someone who has high knowledge will make it easier to choose and take actions in his life.<sup>13</sup> In the questionnaire, parents with "good" knowledge still chose extraction for treatment when they had cavities or teeth were in pain. This is because many people still believe that teeth extraction is the easiest and best way to relieve pain.<sup>14</sup> This can also be related because knowledge is not applied optimally in encouraging dental and oral hygiene maintenance behavior, in addition not all knowledge is practiced because there are factors that can affect knowledge such as the role of teachers, environment, socioeconomic, health workers and other factors, so that even if the knowledge is good, the actions taken are not necessarily good.<sup>15</sup>

The category of "average" knowledge obtained from a score of 56%-75% of the highest score for all statements. The questionnaire statements that brushing teeth should be done twice a day in the morning after breakfast and at night before going to bed and statements that one toothbrush can be used by many people (father, mother, brother, sister) still many respondents who answered incorrectly. Many parents do not understand the correct time to brush their teeth. The level of education of parents does not guarantee the child's daily behavior to take care of dental and oral hygiene. Appropriate knowledge and the role of parents are needed so that children achieve good oral and dental health.<sup>16</sup> Limited information from health workers can influence parents' mindsets about dental and oral health.<sup>13</sup>

Knowledge in the "deficient" category was obtained from a score <56% of the highest score for all questions. Parents with low knowledge about dental and oral health is a predisposing factor for bad behavior which does not support the dental and oral health of children. In the "deficient" category of knowledge, there are still parents who answer the questionnaire statements correctly. This is because someone with low education does not absolutely have low knowledge. Knowledge can be obtained not only from formal education but can also be obtained from non-formal education, through experience, and from the media.<sup>13</sup>

### Socioeconomic Status

In this study, more respondents had a socioeconomic level with the "middle" category, which is 21 person (62%), the socioeconomic level in the "high" category were 11 person (32%) and respondents with a socioeconomic level in the "low" category were 2 person (6%). Socioeconomic status has a role in child development. Families with good socioeconomic status will prioritize the daily needs and health needs of their children. Parent's socioeconomic status, including parents' education level, parent's occupation, parent's income.<sup>17</sup>

Poor oral and dental health is associated with socioeconomic factors, such as low levels of education, low income, employment status and lack of access to adequate health services. Socioeconomic status in terms of education affects individual knowledge. Good knowledge are supported by higher education, this is related to healthy living behavior. Low socioeconomic level or poverty makes it difficult for someone to pay for health services and is limited to getting good health services.<sup>6</sup> The limited availability and affordability of health services also not only causes disease problems but also increases the cost of treatment so that parents will not be motivated to choose dental fillings for their children.<sup>18</sup>

### Performance Treatment Index (PTI)

*Performance Treatment Index* (PTI) is an assessment indicator that can describe a person's motivation to choose dental fillings in order to maintain permanent teeth.<sup>8</sup> In this study, respondents who had a *Performance Treatment Index* (PTI) above the national standard were 15 person (44%), the criteria below the national standard were 12 person (35%) and the national standard criteria were 7 person (21%). A high *Performance Treatment Index* (PTI) can be concluded that the motivation to maintain permanent teeth is getting higher. Motivation is an activity to provide encouragement to arouse enthusiasm in taking an action to achieve

satisfaction and goals, in this case towards better oral and dental health.<sup>19</sup>

Individual motivation can be raised by providing health promotion about dental health education appropriately and on target. If the patient does not understand or has limited ability to understand the consequences of dental treatment, it will make the patient unable to make decisions in choosing dental treatment. Someone who has the knowledge and motivation will show good behavior in maintaining permanent teeth, so that the quality of public health and the DMF-T index will increase as an indicator of community dental health and teeth decay can be avoided.<sup>19</sup>

#### **Relationship between Knowledge of Dental and Oral Health and Performance Treatment Index (PTI) of students at SMPN 1 Kotabaru**

In this study, the relationship between parental knowledge and the *Performance Treatment Index* (PTI) based on *Spearman* showed that there was a significant relationship with a positive correlation coefficient. This means that the higher the knowledge of parents, the higher *Performance Treatment Index* (PTI). This is in accordance with research by Maulana (2017) which states that there is a relationship between parental knowledge and the *Performance Treatment Index* (PTI) because basically knowledge or cognitive is a very important domain to make a behavior (*overt behaviour*).<sup>8</sup>

In this study, the category of knowledge "good" and category of *Performance Treatment Index* (PTI) above the national standard were 15 person (44%). The category of knowledge "good" and category of *Performance Treatment Index* (PTI) national standard were 6 person (18%). The higher knowledge of oral and dental health, the lower DMF-T index which will affect the *Performance Treatment Index* (PTI), it means that parents will be more motivated to choose dental fillings for dental and oral health care. In this study, the knowledge category "good" and the *Performance Treatment Index* (PTI) category below the national standard were 2 person (6%). Knowledge has a significant contribution in influencing the level of dental and oral health, but knowledge is not enough, this must be followed by the right attitude and behavior. The high prevalence of DMF-T will make the *Performance Treatment Index* (PTI) criteria below the national standard for people who have good knowledge because the knowledge that has been obtained not applied in daily dental health behavior.<sup>20</sup>

The category of knowledge "middle" and category of *Performance Treatment Index* (PTI) national standard were 1 person (3%), the category of knowledge "middle" and category of

*Performance Treatment Index* (PTI) below national standard were 7 person (20%). This is because middle knowledge is not based on good behavior. Behavior that is based on knowledge will last longer than behavior that is not based on knowledge.<sup>8</sup> A person's knowledge can be influenced by his previous knowledge, personal experience or other people and other factors, this can affect a person's motivation for choose dental fillings in dental care to improve dental and oral health status.<sup>16</sup>

The category of knowledge "low" and category of *Performance Treatment Index* (PTI) national standard were 3 person (9%). In this study, the less knowledge, the lower the *Performance Treatment Index* (PTI). Lack of knowledge can occur because information about health is very minimal, especially dental and oral health. This is because the facilities for obtaining information are very limited and health promotion has never been carried out by health workers so that parents are not motivated to choose dental filling for their children's, this makes the *Performance Treatment Index* (PTI) below the national standard.<sup>18</sup> Lack of knowledge leads to negative attitudes and less motivation of parents about dental and oral health so they do not participate in dental and oral health care.<sup>21</sup>

#### **Relationship between Socioeconomic status and Performance Treatment Index (PTI) of students at SMPN 1 Kotabaru**

In this study, it was found that the significance value of the socioeconomic status of parents with the *Performance Treatment Index* (PTI) were 0.000. The significance value is less than 0,05 which means that there is a significant relationship between the socioeconomic status of parents and the *Performance Treatment Index* (PTI). This means that the behavior of healthy living to maintain permanent teeth can be influenced by a person's socioeconomic status. In this study, the higher the socioeconomic level, the higher the *Performance Treatment Index* (PTI). In other words, someone with a high socioeconomic status tends to have the motivation to choose dental filling. In the results of the questionnaire, in the education section, most of the fathers graduated from SMA/SMU/SMK/ MA/MK/equivalent with total 20 person (59%). Likewise, the mother's education most graduated from SMA/SMK/SMU/MA/MAK/equivalent with total 21 person (62%). Education affects a person's health status. When a person has higher level of knowledge, the attention to dental health will be higher so that they will be motivated to choose dental filling in dental treatment. It will affect the *Performance Treatment Index* (PTI).<sup>6,8,22</sup>

In this study, the socio-economic status of job, parents mostly have jobs as civil servants, retirees, TNI/POLRI, BUMN, private employees, with total 24 person (70%). Children whose parents are civil servants have health insurance, which means that health costs are no longer a problem in their family. Health insurance in private companies is also provided for its employees.<sup>22</sup> This means that employment status can influence the choice of dental treatment. Parents with better jobs prefer to take care of their children's teeth because there are no financial difficulties in dental care and it will increase the *Performance Treatment Index* (PTI).

On the income questionnaire, the average parent has a high income. In this study, respondents with high socioeconomic status criteria had most *Performance Treatment Index* (PTI) national standard criteria with total 12 person (35%). Children with parents that have middle income have the opportunity to obtain better health services.<sup>22,23</sup> People with low incomes are 5 times more likely to have poor oral health status than high incomes.<sup>24</sup> In addition, the number of family members will greatly affect the expenses in a family. The larger the size of a family, the greater the financial expenditure needed, if the family income is small, the distribution of expenses for each individual will be smaller.<sup>23,24</sup>

The significant relationship between socioeconomic status and the *Performance Treatment Index* (PTI) can be explained that work is a factor that determines socioeconomic status because of work and income, the necessities of life can be fulfilled. The better the type of work a person does, the more fulfilled the needs of life and family health. The higher a person's level of formal education, the better knowledge and attitudes towards healthy living behaviors, the easier it is to get a job so that the more income you get to meet your health needs, choosing a child's dental filling treatment will not be a problem for parents. This means that the higher the socioeconomic status of parents, the higher the *Performance Treatment Index* (PTI) for their children.<sup>22</sup> Based on the research it can be concluded that there is a significant relationship between knowledge and socioeconomic status of parents based on the *Performance Treatment Index* in students of SMPN 1 Kotabaru with a strong positive correlation which means that the higher knowledge and socioeconomic status of the parents, the higher *Performance Treatment Index* (PTI) value and vice versa.

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