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CHAPTER 1 INTRODUCTION

1.1 Background

A person's need for orthodontic treatment may be due to improper tooth relationship, inadequate oral function, and/or psychosocial issues related to self-image. Psychosocial issues and facial aesthetics play an important role in determining the need for orthodontic treatment. Therefore, it is difficult to determine the need for orthodontic treatment based solely on the patient's clinical condition or based solely on the patient's radiographs. Assessment of dental aesthetics is important to help better treatment as expected (Hadi *et al.*, 2021).

Oral health conditions in Indonesia and the world are still a serious problem. The Global Burden of Disease Research estimates that nearly 3.5 billion people worldwide suffer from oral health problems. From 2013 to 2018, oral health problems increased in Indonesian society, from 25.9% to 57.6%. One of the most common oral health problems is malocclusion, which is a deviation from a normal bite. Malocclusion sufferers account for approximately 80% of the Indonesian population (Suala, Wibowo and Setyawardhana, 2021).

The goal of orthodontic treatment according to Graber and Swain is to achieve the best results for each individual. These goals include several aspects, namely improvement of facial aesthetics, dental alignment, static occlusal relationships and proper functioning, psychological benefits and maintenance of supporting tissue health so as to produce stable tooth position after treatment (Kornialia, 2018),

Orthodontic treatment is aimed at removing any influences that may interfere with the normal development of the teeth and jaws, preventing the malocclusion from becoming severe and returning it to a state of occlusion. A person's need for orthodontic treatment can be measured using a malocclusion index, the Index of Orthodontic Treatment Need (IOTN). This index includes an aesthetic component and an oral health component. The aesthetic component measures deviations in the patient's tooth arrangement viewed from the front in occlusion. The score is determined by selecting photos that are considered appropriate for the patient's dental condition. The purpose of this literature research is to analyze the need for orthodontic treatment based on the Index of Orthodontic Treatment Need (IOTN) in adolescents through searching for related literature (Suala, Wibowo and Setyawardhana, 2021). Parents' Knowledge Level to the level of understanding, information, or insight that parents have about various aspects related to childcare, education, health, and child development. This level of knowledge is very important because it directly affects how they educate, care for, and support their children.

Factors Affecting the Level of Parental Knowledge can be seen from the level of formal education of parents is often an indicator of how broad their knowledge.

Index of Orthodontic Treatment Need (IOTN) is an index that describes the need for orthodontic treatment in a population. The assessment of orthodontic treatment needs based on the Index of Orthodontic Treatment Need (IOTN) has been internationally agreed upon because this method has proven to be valid and reliable as a standard for assessing orthodontic treatment needs (*Kolonio, Anindita and Mintjelungan, 2016*)

In early adolescence, individuals will see illness in a simple way and depend on adults such as parents to determine whether they are sick or healthy. Parents play an important role in providing the first health education for their children. Therefore, parents' knowledge of dental health will affect children's dental health. The role of parents is important to motivate children to undergo orthodontic treatment if they experience malocclusion (Empindonta and Yusra, 2023).

Some people understand the importance of orthodontic treatment to prevent malocclusion but only a few understand the causes and signs of malocclusion. Not all levels of society know how to overcome malocclusion cases. According to (Kamal and Yusra, 2020) there are several factors that influence this such as educational background and occupation that affect a person's knowledge of the importance of overcoming malocclusion cases with orthodontic treatment.

Parents' level of education affects children's bad habits that cause malocclusion. Generally, parents with low education levels will have minimal knowledge of their children's dental health so that the majority of them consider it not important to carry out dental treatment when their children have signs of malocclusion. Malocclusion can be overcome by doing orthodontic treatment which if not treated early on, it will get worse in the period of permanent teeth. Contrary to this, parents with high knowledge and obtained through the education process will support their children to do dental care to prevent malocclusion from getting worse (Kamal and Yusra, 2020).

SMA Negeri 1 Pinrang is one of the seventeen high schools in Pinrang Regency that has the largest number of students compared to other high schools. For now there is no statistical data available in Pinrang Regency regarding the need for orthodontic treatment, so this is the basis for determining the location of this research.

Based on observations made on several relatives in Pinrang Regency, it was found that there was a lack of knowledge about orthodontic treatment needs and many conditions that require orthodontic treatment but there was a lack of interest in adolescents to do orthodontic treatment in Pinrang Regency.

Based on the explanation previously described, also encouraged by the information and research that does not yet exist regarding orthodontic treatment needs at SMA Negeri 1 Pinrang, the researcher is interested in conducting research with the title Relationship between Parents' Knowledge Level and Orthodontic Treatment Needs Based on Index Of Orthodontic Treatment Need (IOTN) in Adolescents at SMA Negeri 1 Pinrang.

1.2 Problem Formulation

What is the relationship between parents' knowledge level and the need for orthodontic treatment based on the Index of Orthodontic Treatment Need (IOTN) in adolescents at SMA Negeri 1 Pinrang?

1.3 Research Objectives

To determine the relationship between parents' knowledge level and the need for orthodontic treatment based on the Index of Orthodontic Treatment Need (IOTN) in adolescents at SMA Negeri 1 Pinrang.

1.4 Benefit of the Research

1.4.1 Academic Benefits

- a) Add scientific insight and expand the knowledge of researchers related to Correlation Between Parents Knowledge Level And Orthodontic Treatment Needs Based On The Index Of Orthodontic Treatment Need (IOTN) In Adolescent.
- b) Provide scientific information regarding the analysis of orthodontic treatment needs based on the Index of Orthodontic Treatment Need (IOTN) in adolescents.

1.4.2 Clinical Benefits

- a) As a consideration for clinicians in planning and implementing orthodontic treatment.
- b) Provide information to clinicians regarding the analysis of orthodontic treatment needs based on the Index of Orthodontic Treatment Need (IOTN) in adolescents.

1.4.3 Environmental/community Benefits

The public is expected to gain information and knowledge about the analysis of orthodontic treatment needs based on the Index of Orthodontic Treatment Need (IOTN) in adolescents and the importance of performing orthodontic treatment early to prevent malocclusion from getting worse.

CHAPTER II RESEARCH METHODS

2.1 Type of Research

The type of research used is descriptive research. According to (Arikunto, 2013) Descriptive research is research intended to investigate circumstances, conditions or other things that have been mentioned, the results of which are presented in the form of a research report.

2.2 Research Design

The research design used is a cross-sectional design, which allows data collection at one specific point in time to analyze the relationship between the variables studied. This research will explain the relationship between parents' knowledge level and the need for orthodontic treatment needs based on the Index of Orthodontic Treatment Need (IOTN) in adolescents at SMA N 1 Pinrang.

2.3 Research Location

The research was conducted at SMA Negeri 1 Pinrang which is located at Jl. Jenderal Sudirman No. 56 Pinrang, Kel. Macorawalie, Kec. Watang Sawitto, Kab. Pinrang Prov. South Sulawesi.

2.4 Research Population

The research population was adolescents of SMA Negeri 1 Pinrang

2.5 Research Sample

2.5.1 Sample Size

The sample size in this research amounted to 15% of the sample population and was selected based on the purposive sampling method. The purposive sampling technique is a data source sampling technique with certain considerations.

2.5.2 Research Sample Criteria

Inclusion Criteria

- 1) Adolescents of SMA Negeri 1 Pinrang
- 2) Willing to participate in the research

Exclusion Criteria

- 1) Not willing to participate in the research
- 2) Currently/having had performing orthodontic treatment

2.6 Research Variables

Dependent variable : Index of Orthodontic Treatment Need (IOTN)
 Independent variable : Parents' level of knowledge on orthodontic treatment need

2.7 Variable Operational Definition

a. Parents Knowledge Level

Parents' Knowledge Level to the level of understanding, information, or insight that parents have about various aspects related to childcare, education, health, and child development. This level of knowledge is very important because it directly affects how they educate, care for, and support their children. Factors Affecting the Level of Parental Knowledge can be seen from the level of formal education of parents is often an indicator of how broad their knowledge.

b. Index of Orthodontic Treatment Needs (IOTN)

Index of Orthodontic Treatment Need (IOTN) assessment is a scoring system that describes orthodontic treatment needs in a population.

2.8 Assessment Criteria

By obtaining intraoral photographs of the respondents, the researchers then classified the dental aesthetics according to the IOTN:

- 1) Category 1-4 : does not really need maintenance
- 2) Category 5-7 : requires maintenance
- 3) Category 8-10 : very much in need of care

2.9 Tools and Materials

- a. Stationery
- b. Sheet of 10 aesthetic component IOTN photos, then the photos are used as a reference to categorize the intraoral photos of the respondents
- c. Cheek retractor

- d. Diagnostic set
- e. Laptop (SPSS)

2.10 Data Type

The type of data used in this research is primary data. Primary data is data collected directly from the source (the results of respondents' intraoral photographs).

2.11 Data Analysis Plan

The data obtained is processed and analyzed using a computer system. The application used is the SPSS application.

CHAPTER III RESEARCH RESULTS

3.1 Description of Research Results

This research aims to determine the relationship between parents' knowledge level and the need for orthodontic treatment needs based on the Index of Orthodontic Treatment Need (IOTN) in adolescents at SMAN 1 Pinrang. This research was guided by the results of orthodontic treatment needs based on the Index of Orthodontic Treatment Need (IOTN) through questionnaires distributed to 190 respondents.

3.2 Research Analysis

Data analysis used in this research used the SPSS version 26 program. The data obtained will be analyzed descriptively, univariate, and bivariate. Descriptive analysis to provide a description of the characteristics of respondents while univariate analysis is used to describe each research variable and bivariate analysis to see the relationship between the independent variable and the dependent variable.

3.2.1 Characteristics of Respondents by Gender and Age

Based on the research that has been conducted, information on the characteristics of respondents based on gender and age is obtained as follows:

**Table 3.1 Frequency Distribution of Gender and Age of
Adolescents at SMAN 1 Pinrang**

Variables	n	Frequency
Gender		
- Female	147	77,4%
- Male	43	22,6%
Age		
- 14 years old	1	0,5%
- 15 years old	46	24,2%
- 16 years old	95	50,0%
- 17 years old	44	23,2%
- 18 years old	4	2,1%
Total	190	100%

Based on the table above, it can be seen that the gender of the research subjects at SMAN 1 Pinrang was 190 people, namely 147 female students or 77.4% and 43 male students or 22.6%. The age of the research subjects, namely students aged 14 years as many as 1 student (0.5%), age

15 years as many as 46 students (24.2%), age 16 years as many as 95 students (50.0%), age 17 years as many as 44 students (23.2%), and age 18 years as many as 4 students (2.1%). So it can be concluded that the research subjects at SMAN 1 Pinrang based on gender are dominantly female and aged 16 years.

3.2.2 Characteristics of Respondents Based on Parents' Education and Occupation

Based on the research that has been conducted, information on the characteristics of respondents based on parents' education and occupation is obtained as follows:

Table 3.2 Frequency Distributions of Parents' Education and Occupation of Adolescents at SMAN I Pinrang

Variable	n	Frequency
Parents' Occupation		
- Doctor	2	1,1%
- Regional Legislative Council	2	1,1%
- Teacher	5	2,6%
- Honorer	8	4,2%
- Contractor	1	0,5%
- Trader	34	17,9%
- Bank Employee	3	1,6%
- Lawyer	1	0,5%
- Farmer	19	10%
- Breeders	5	2,6%
- Civil Servant	37	19,5%
- Police	5	2,6%
- Military	1	0,5%
- Entrepreneur	67	35,3%
Parents' Education		
- SMP	10	5,3%
- SMA	108	56,8%
- S1	61	32,1%
- S2	11	5,8%
Total	190	100%

Based on the table above, it can be seen that the parents' occupations of the research subjects are Doctor as many as 2 students (1.1%), DPRD as many as 2 students (1.1%), Teacher as many as 5 students (2.6%), Honorer as many as 8 students (4.2%), Contractor as many as 1 student (0.5%), Trader as many as 34 students (17, 9%), Bank Employee as many as 3 students (1.6%), Lawyer as many

as 1 student (0.5%), Farmer as many as 19 students (10%), Breeder as many as 5 students (2.6%), Civil Servant as many as 37 students (19.5%), Police as many as 5 students (2.6%), TNI as many as 1 student (0.5%), and Entrepreneur as many as 67 students (35.3%). So it can be concluded that the research subjects at SMAN 1 Pinrang based on the occupation of their parents dominantly work as entrepreneurs as many as 67 students (35.3%). Furthermore, the parents' education of the research subjects were junior high school as many as 10 students (5.3%), high school as many as 108 students (56.8%), bachelor degree as many as 61 students (32.1%), and master degree as many as 11 students (5.8%). So it can be concluded that the research subjects at SMAN 1 Pinrang based on the education of their parents are dominant with a high school education background as many as 108 students (56.8%).

3.2.3 Univariate Analysis

1. Level of Orthodontic Treatment Needs of Students of SMAN 1 Pinrang Based on IOTN

Table 3.1 Distribution of Adolescent Orthodontic Treatment Needs Level at SMAN 1 Pinrang

Aesthetic Component	n	Frequency
Less Maintenance Required	159	83,7%
Requires Maintenance	14	7,5%
Highly Maintenance Required	17	8,9%
Total	190	100%

Based on the table above, showing orthodontic treatment in accordance with IOTN at SMAN 1 Pinrang students as many as 190 respondents, most students do not really need dental treatment, namely 159 students (83.7%), students who need treatment are 14 students (7.5%), while there are 17 students (8.9%) who really need orthodontic treatment in accordance with IOTN. So it can be concluded that the research subjects at SMAN 1 Pinrang based on the level of orthodontic treatment needs are most dominant which is not too need treatment as many as 159 students (83.7%). The following is a diagram of orthodontic needs in accordance with IOTN.

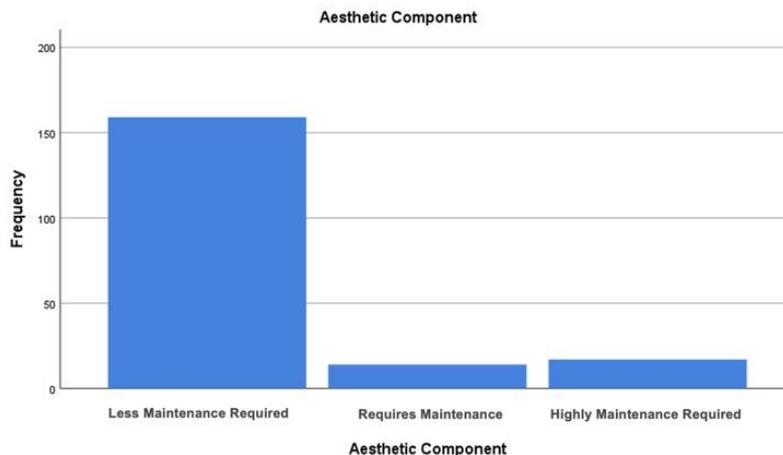


Diagram 3.1 Aesthetic Component

2. Distribution of Orthodontic Treatment Needs by Gender

Table 3.3 Distribution of Adolescent Orthodontic Care Needs Level at SMAN 1 Pinrang Based on Gender

Gender	Aesthetic Component					
	Less Maintenance Required		Requires Maintenance		Highly Maintenance Required	
	n	%	n	%	n	%
Female	124	78,0	11	78,6	12	70,6
Male	35	22,0	3	21,4	5	29,4
Total	159	100,0	14	100,0	17	100,0

Based on the table above, it shows that students who do not really need treatment in the female gender are 124 students (78.0%), men are 35 students (22.0%), while students who need treatment in the female gender are 11 (78.6%), men are 21.4%, while students who really need treatment in the female gender are 12 students (70.6%), and men are 5 students (29.4%). This means that more female students need orthodontic treatment.

3. Distribution of Orthodontic Treatment Needs by Age

Table 3.4 Distribution of Adolescent Orthodontic Care Needs Level at SMAN 1 Pinrang Based on Age

Age	Aesthetic Component					
	Less Maintenance Required		Requires Maintenance		Highly Maintenance Required	
	n	%	n	%	n	%
14 years old	1	0,6	0	0,0	0	0,0
15 years old	35	22,0	2	14,3	9	52,9
16 years old	85	53,5	6	42,9	4	23,5
17 years old	35	22,0	6	42,9	3	17,6
18 years old	3	1,9	0	0,0	1	5,9
Total	159	100,0	14	100,0	17	100,0

Based on the table above, it can be seen that in the group of students who do not really need care at the age of 14 years as many as 1 student (0.6%), age 15 years as many as 35 students (22.0%), age 16 years as many as 85 students (53.5%), age 17 years as many as 35 students (22.0%), and age 18 years as many as 3 students (1.9%). The group of students who needed treatment at the age of 15 years were 2 students (14.3%), age 16 years were 6 students (42.9%), and age 17 years were 6 students (42.9%). While the group of students who really need care at the age of 15 years are 9 students (52.9%), age 16 years are 4 students (23.5%), age 17 years are 3 students (17.6%), and age 18 years are 1 student (5.9%). This means that the group of students who really need orthodontic treatment is from the group of students aged 15 years.

4. Distribution of Orthodontic Treatment Needs Based on Parents' Occupation

Age	Aesthetic Component					
	Less Maintenance Required		Requires Maintenance		Highly Maintenance Required	
	n	%	n	%	n	%
Doctor	2	1,3	0	0	0	0
Regional Legislative Council	2	1,3	0	0	0	0
Teacher	5	3,1	0	0	0	0
Honoror	6	3,8	2	14,3%	0	0
Contractor	1	0,6	0	0	0	0
Trader	27	17	2	14,3	5	29,4
Bank Employee	3	1,9	0	0	0	0
Lawyer	1	0,6	0	0	0	0
Farmers	14	8,8	2	14,3	3	17,6
Breeders	3	1,9	0	0	2	11,8
Civil Servant	36	22,6	1	7,1	0	0
Police	5	3,1	0	0	0	0
Military	1	0,6	0	0	0	0
Entrepreneur	53	33,3	7	50	7	41,2
Total	159	100,0	14	100,0	17	100,0

Table 3.5 Distribution of Adolescent Orthodontic Care Needs Level at SMAN 1 Pinrang Based on Parents' Occupation

Based on the table above, it can be seen that in the group of students who do not really need care for students whose parents work as doctors as many as 2 students (1.3%), work as DPRD as many as 2 students (1.3%), work as teachers as many as 5 students (3.1%), work as honorary as many as 6 students (3.8%), work as contractors as many as 1 student (0.6%), work as traders as many as 27 students (17%), working as a bank employee as many as 3 students (1.9%), working as a lawyer as many as 1 student (0.6%), working as a farmer as many as 14 students (8.8%), working as a breeder as many as 3 students (1.9%), working as a civil servant as many as 36

students (22.6%), working as a police officer as many as 5 students (3.1%), working as a TNI as many as 1 student (0.6%), and working as an entrepreneur as many as 53 students (33.3%).

While the group of students who need care for students whose parents work as honorary as many as 2 students (14.3%), work as traders as many as 2 students (14.3%), work as farmers as many as 2 students (14.3%), work as civil servants as many as 1 student (7.1%), and work as entrepreneurs as many as 7 students (50%). Furthermore, the group of students who really need care for students whose parents work as traders are 5 students (29.4%), work as farmers as many as 3 students (17.6%), work as breeders as many as 2 students (11.8%), and work as entrepreneurs as many as 7 students (41.2%). This means that the group of students who really need orthodontic treatment is from the group of students whose parents work as entrepreneurs.

5. Distribution of Orthodontic Treatment Needs Based on Parents' Education

Table 3.6 Distribution of Adolescent Orthodontic Care Needs Level at SMAN 1 Pinrang Based on Parents' Education

Age	Aesthetic Component					
	Less Maintenance Required		Requires Maintenance		Highly Maintenance Required	
	n	%	n	%	n	%
SMP	6	3,8%	1	7,1%	3	17,6
SMA	84	52,8%	11	78,6%	13	76,5%
S1	58	36,5%	2	14,3%	1	5,9%
S2	11	6,9%	0	0	0	0
Total	159	100,0	14	100,0	17	100,0

Based on the table above, it can be seen that in the group of students who do not really need care for students whose parents have a junior high school education background as many as 6 students (3.8%), high school education background as many as 84 students (52.8%), undergraduate education background as many as 58 students (36.5%), and postgraduate education background as many as 11 students (6.9%). Meanwhile, the group of students who need care for students whose parents have a junior high

school education background is 1 student (7.1%), with a high school education background of 11 students (78.6%), with an undergraduate education background of 2 students (14.3%), and with a postgraduate education background of 11 students (6.9%). Furthermore, the group of students who really need care for students whose parents have a junior high school education background are 3 students (17.6%), 13 students (76.5%) have a high school education background, 1 student (5.9%) has an undergraduate education background, and 0 students (0%) have a postgraduate education background. This means that the group of students who really need orthodontic treatment is from the group of students whose parents have a high school education background.

3.2.4 Bivariate Analysis

Bivariate analysis was conducted to see the relationship between independent variables and dependent variables. The researcher used the Spearman test to determine the relationship between parents' education and occupation with the level of need for orthodontic treatment in adolescents at SMAN 1 Pinrang.

Table 3.7 Bivariate Data Analysis Using the Spearman Correlation Test

Data Analysis	Spearman Correlation Test	
	Significance	Correlation Coefficient
Parents' occupation with the level of orthodontic treatment needs of adolescents at SMAN 1 Pinrang	0,741	0,024
Parents' education with the level of orthodontic treatment needs of adolescents at SMAN 1 Pinrang	0,000	-0,281

Based on Spearman test obtained significance of 0.741 for parents' occupation with the level of orthodontic treatment needs of adolescents at SMAN 1 Pinrang ($p\text{-value} > 0.05$) means there is no relationship between parents' occupation with the level of orthodontic treatment needs of adolescents at SMAN 1 Pinrang.

Furthermore, based on Spearman test obtained significance of 0.000 for parents' education with the level of orthodontic treatment needs of

adolescents at SMAN 1 Pinrang ($p\text{-value} < 0.05$) means there is a relationship between parents' education with the level of orthodontic treatment needs of adolescents at SMAN 1 Pinrang. Based on table 3.7, the correlation coefficient for parents' education on the level of orthodontic treatment needs is negative (-), this indicates that the relationship between these variables is an unidirectional relationship which means that the higher the parents' education, the lower the level of orthodontic treatment needs of adolescents of SMAN 1 Pinrang.

CHAPTER IV DISCUSSION

This research aims to determine the relationship between parents' knowledge level and the level of orthodontic treatment needs based on the Index of Orthodontic Treatment Need (IOTN) in adolescents at SMAN 1 Pinrang. Dental Aesthetic Index (DAI) and Index of Orthodontic Treatment Need (IOTN) have a focus on correcting malocclusion and achieving good occlusion in terms of function and aesthetics. This involves correcting the position of the teeth and jaws, restoring dental function, achieving satisfactory aesthetics, and creating symmetry in facial form (Khairusy, Adhani and Wibowo, 2017).

(Empindonta and Yusra, 2023), The IOTN index consists of two main components, namely the Aesthetic Component (AC) and the Dental Health Component (DHC). IOTN is often used to evaluate the need for orthodontic treatment in both children and adults (Setyowati, Sri Pudyani and Sutantyo, 2014). The index used in this research is the Aesthetic Component (AC). The Aesthetic Component (AC) assesses an individual's perception of the appearance of the dentition by comparing the patient's dental photos with the IOTN photo standard. The IOTN standard has 10 points that reflect the level of aesthetic appearance of teeth, ranging from most attractive to least attractive. Respondents were asked to rate their own teeth in the mirror using color photographs of the Aesthetic Component (AC).

Based on the results of the research of orthodontic treatment needs based on the Index of Orthodontic Treatment Need Aesthetic Component shows that there are 159 students (83.7%) who do not really need orthodontic treatment, 14 students (7.5%) students who need treatment and there are 17 students (8.9%) who really need orthodontic treatment. So it can be concluded that adolescents at SMAN 1 Pinrang dominantly do not really need treatment. This research is in line with research conducted by (Arifin, Herwanda and Tefani, 2018), m stating that most (92.7%) students do not really need orthodontic treatment. The same thing was also found in research (Nofrizal and Maharani, 2023), where almost all students did not need orthodontic treatment (96.6%) based on IOTN-AC. According to (Inayah *et al.*, 2021) implies that adolescents' awareness and concern for aesthetics will make them try to improve the appearance of their teeth. Good oral health maintenance, availability of health facilities, and good socioeconomic conditions can support the prevention and treatment of malocclusion.

Adolescents at SMAN 1 Pinrang predominantly do not really need treatment can be caused by adolescents' unawareness and indifference to dental aesthetics, also some adolescents have an awareness of malocclusion problems that can arise from childhood and visits to the dentist should be made but not done because the

economic level does not support, in this case parents cannot afford the cost of orthodontic treatment because the treatment is relatively high, this is supported by previous research by (Kolonio, Anindita and Mintjelungan, 2016) getting almost the same results with the reason that the socioeconomic level is a factor in the value of not / little need for treatment.

Based on gender, this research shows that the results of the AC examination differ between men and women. This can be seen in the group that needs treatment, the ratio of men and women is 3 students (21.4%) and 11 students (78.6%). While the group that really needs treatment in men is 5 students (29.4%) and women are 12 students (70.6%). While the group that did not really need care in males amounted to 35 students (22.0%) and females amounted to 124 students (78.0). More female subjects were found due to possible aesthetic factors, where the physique is one of the important factors of attractiveness that affect social relationships. Women tend to be the object of facial assessment and are more often blamed if there is a malocclusion that affects facial aesthetics. So the need for orthodontic treatment in girls tends to be higher. This research is in line with research conducted by (Perwira, Riolina and Rochmanita, 2017) in Salatiga found that girls have more desire for orthodontic treatment.

The results of the cross tabulation between AC and the age of the respondents showed that in the group of students who did not really need treatment at the age of 14 years as many as 1 student (0.6%), age 15 years as many as 35 students (22.0%), age 16 years as many as 85 students (53.5%), age 17 years as many as 35 students (22.0%), and age 18 years as many as 3 students (1.9%). The group of students who needed treatment at the age of 15 years were 2 students (14.3%), age 16 years were 6 students (42.9%), and age 17 years were 6 students (42.9%). While the group of students who really needed care at the age of 15 years were 9 students (52.9%), age 16 years were 4 students (23.5%), age 17 years were 3 students (17.6%), and age 18 years were 1 student (5.9%). Researchers assume that this situation can be caused by the level of awareness of parents in providing education to their children not to do bad habits such as sucking fingers.

Based on the results of the research, 159 students did not really need treatment. The researcher assumes that this situation can be caused by the level of awareness of students regarding their dental health. The group that does not really need treatment is the largest group but it does not mean that those included in this group already have an attractive dental arrangement. This can be seen in the research subject at grade 3. At grade 3 there is an anterior open bite and slightly ectopic canines are abnormalities in the oral cavity that occur in the upper or lower jaw. Ectopic teeth can be caused by a mismatch between jaw growth and tooth size. The AC group who needed borderline treatment with grades 5 to 7 were 14 students.

In grades 5 and 6 there was a deep bite where the maxillary teeth almost covered the teeth in the lower jaw, while in grade 7 there was a severe deep bite so that the anterior teeth of the lower jaw were covered by the anterior teeth of the upper jaw. This can be caused by several factors such as the bad habit of biting the lower lip. The AC group is in need of treatment with scores of 8 to 10 as many as 17 students. At a score of 8, it can be seen that the position of the canines is ectopic in the upper jaw and the teeth are crowded in the lower jaw. In this case the location of the canine teeth grows upward, outside the dental arch and protrudes forward.

Based on the results of cross tabulation between AC and parents' occupation, it shows that the group of students who need treatment for students whose parents work as honorary as many as 2 students (14.3%), work as traders as many as 2 students (14.3%), work as farmers as many as 2 students (14.3%), work as civil servants as many as 1 student (7.1%), and work as entrepreneurs as many as 7 students (50%). Furthermore, the group of students who really need care for students whose parents work as traders are 5 students (29.4%), work as farmers as many as 3 students (17.6%), work as breeders as many as 2 students (11.8%), and work as entrepreneurs as many as 7 students (41.2%). This means that the group of students who really need orthodontic treatment is from the group of students whose parents work as entrepreneurs.

Based on Spearman's test, the significance of 0.741 was obtained for parents' occupation with the level of orthodontic care needs of adolescents at SMAN 1 Pinrang (p -value > 0.05) meaning that there is no relationship between parents' occupation with the level of orthodontic care needs of adolescents at SMAN 1 Pinrang. This research is not in line with research conducted by (Haryanti, Wibowo and Wardani, 2020) which stated that there was a relationship between parents' socioeconomic status and the level of orthodontic treatment needs of students of SMPN 1 Marabahan. This is because the researcher only examined the occupation of one of the two parents of adolescents at SMAN 1 Pinrang.

Basically, work is a representation of one's position in society. Work plays a role in obtaining income to ensure the needs of life, a place to live, and obtain the expected health services so that the better the type or level of a person's job, the better or more income is obtained to ensure health needs, especially oral health. Parents with sufficient or adequate income have more opportunities to provide and obtain better health services for children or adolescents. Parents with inadequate socioeconomic status will experience difficulties in meeting basic needs so that health services for the family will be difficult to obtain (Ngantung, Pangemanan and Gunawan, 2015).

Meanwhile, based on the results of the cross tabulation between AC and

parents' education, it shows that the group of students who need care for students whose parents have a junior high school education background is 1 student (7.1%), 11 students (78.6%) have a high school education background, 2 students (14.3%) have a bachelor's degree, and 11 students (6.9%) have a master's degree. Furthermore, the group of students who really need care for students whose parents have a junior high school education background are 3 students (17.6%), 13 students (76.5%) have a high school education background, 1 student (5.9%) has an undergraduate education background, and 0 students (0%) have a postgraduate education background. This means that the group of students who really need orthodontic treatment from the group of students whose parents have a high school education background.

Based on the Spearman test, a significance of 0.000 was obtained for parents' education with the level of need for adolescent orthodontic treatment at SMAN 1 Pinrang (p -value <0.05), meaning that there is a relationship between parents' education and the level of need for adolescent orthodontic treatment at SMAN 1 Pinrang. In addition, the correlation coefficient for parents' education on the level of orthodontic treatment needs is negative (-), this indicates that the relationship between these variables is an unidirectional relationship which means that the higher the parents' education, the lower the level of orthodontic treatment needs of adolescents of SMAN 1 Pinrang. This research is in line with research conducted by (Empindonta and Yusra, 2023) which states that there is a significant relationship between maternal education level and the need for interceptive orthodontic treatment in children aged 8-10 years at SDS Amkur Sambas, West Kalimantan.

Parents' knowledge of oral health and aesthetics indirectly determines children's views on dental health and aesthetics, because parents' education is the first education received by children before further education, all the results of parents' education will be attached to children (Empindonta and Yusra, 2023). A person's level of knowledge can be influenced by a person's level of education. This is because people with a high level of education tend to have easier access to information, especially about oral health. Parents with higher levels of education will also be more aware of health, especially teeth and mouth. This is because parents with higher levels of education will have better parenting. This makes this research in line with Afnandhiya Wandawa's research in Central Jakarta which states that there is a significant relationship between the need for interceptive orthodontic treatment and the level of parents' education (Wandawa and Yusra, 2021).

CHAPTER V CLOSING

5.1 Conclusion

Based on the results of research and discussion of the relationship between parents' knowledge level and the need for orthodontic treatment based on the Index of Orthodontic Treatment Need (IOTN) in adolescents at SMAN 1 Pinrang, it can be concluded that adolescents at SMAN 1 Pinrang who predominantly need and really need orthodontic treatment based on the Index of Orthodontic Treatment Need (IOTN) are students whose parents have a high school education background. The higher the parents' education, the lower the need for orthodontic treatment because of the relationship between parents' education and the level of orthodontic treatment needs of adolescents at SMAN 1 Pinrang.

5.2 Suggestion

Based on the results of the AC index research in the category of students not really needing orthodontic treatment, researchers are expected to have oral health counseling, especially regarding preventing and treating malocclusion at SMAN 1 Pinrang, and further research is expected regarding the index of orthodontic treatment needs based on etiological factors such as environmental and socio-economic. In addition, it is expected that parents pay more attention to children's oral health, especially for children who experience malocclusion so that they need orthodontic treatment early on.

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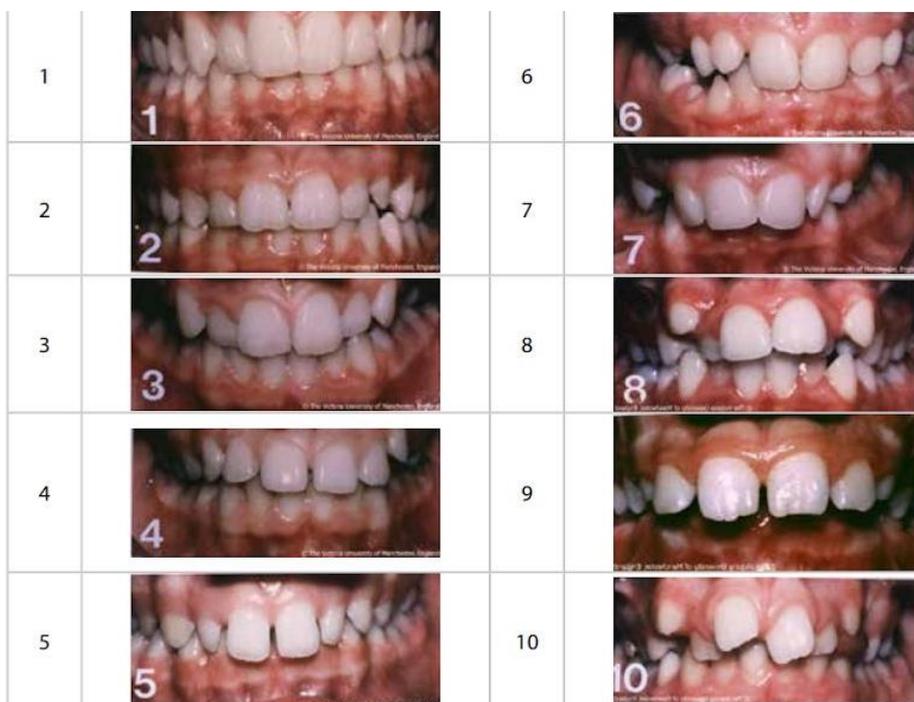
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APPENDIX

Appendix 1 Orthodontic Treatment Needs Questionnaire**Name :****Gender (M/F) :****Age/Birthday Date :****Address/Phone. :**

Appendix 2 Frequency Distribution of Respondent Characteristics

		Gender			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	147	77.4	77.4	77.4
	Male	43	22.6	22.6	100.0
	Total	190	100.0	100.0	

		Age			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	14 years old	1	.5	.5	.5
	15 years old	46	24.2	24.2	24.7
	16 years old	95	50.0	50.0	74.7
	17 years old	44	23.2	23.2	97.9
	18 years old	4	2.1	2.1	100.0
	Total	190	100.0	100.0	

		Parent's Occupation			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	doctor	2	1.1	1.1	1.1
	regional legislative council	2	1.1	1.1	2.1
	teacher	5	2.6	2.6	4.7
	honorer	8	4.2	4.2	8.9
	contractor	1	.5	.5	9.5
	trader	34	17.9	17.9	27.4

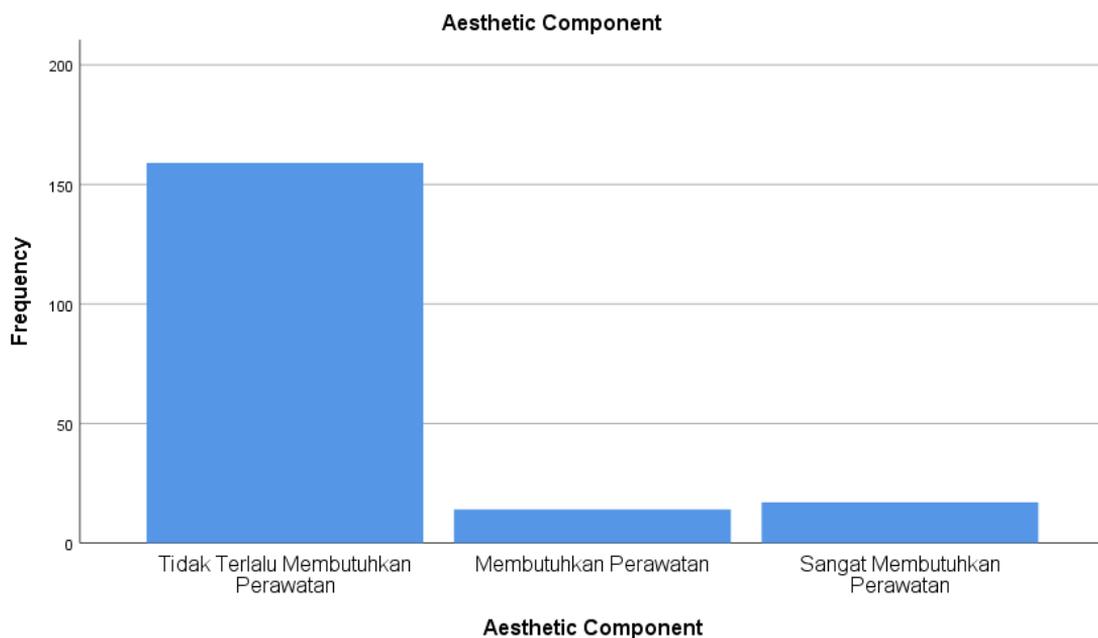
bank employee	3	1.6	1.6	28.9
lawyer	1	.5	.5	29.5
farmers	19	10.0	10.0	39.5
breeders	5	2.6	2.6	42.1
civil servant	37	19.5	19.5	61.6
police	5	2.6	2.6	64.2
military	1	.5	.5	64.7
entrepreneur	67	35.3	35.3	100.0
Total	190	100.0	100.0	

Parents' Education

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SMP	10	5.3	5.3	5.3
	SMA	108	56.8	56.8	62.1
	S1	61	32.1	32.1	94.2
	S2	11	5.8	5.8	100.0
	Total	190	100.0	100.0	

Aesthetic Component

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less Maintenance Required	159	83.7	83.7	83.7
	Requires Maintenance	14	7.4	7.4	91.1
	Highly Maintenance Required	17	8.9	8.9	100.0
	Total	190	100.0	100.0	



Gender * Aesthetic Component Crosstabulation

		Aesthetic Component			Total	
		Less Maintenance Required	Requires Maintenance	Highly Maintenance Required		
Gender	Female	Count	124	11	12	147
		% within Aesthetic Component	78.0%	78.6%	70.6%	77.4%
	Male	Count	35	3	5	43
		% within Aesthetic Component	22.0%	21.4%	29.4%	22.6%
Total		Count	159	14	17	190
		% within Aesthetic Component	100.0%	100.0%	100.0%	100.0%

Age * Aesthetic Component Crosstabulation

		Aesthetic Component			Total	
		Less Maintenance Required	Requires Maintenance	Highly Maintenance Required		
Age	14 years	Count	1	0	0	1
	old	% within Aesthetic Component	0.6%	0.0%	0.0%	0.5%
15 years	old	Count	35	2	9	46
		% within Aesthetic Component	22.0%	14.3%	52.9%	24.2%
16 years	old	Count	85	6	4	95
		% within Aesthetic Component	53.5%	42.9%	23.5%	50.0%
17 years	old	Count	35	6	3	44
		% within Aesthetic Component	22.0%	42.9%	17.6%	23.2%
18 years	old	Count	3	0	1	4
		% within Aesthetic Component	1.9%	0.0%	5.9%	2.1%
Total		Count	159	14	17	190
		% within Aesthetic Component	100.0%	100.0%	100.0%	100.0%

Parents' Occupation * Aesthetic Component Crosstabulation

		Aesthetic Component			Total	
		Less Maintenance Required	Requires Maintenance	Highly Maintenance Required		
Parents' Occupation	doctor	Count	2	0	0	2
		% within Parents' Occupation	100.0%	0.0%	0.0%	100.0%
		% within Aesthetic Component	1.3%	0.0%	0.0%	1.1%
		% of Total	1.1%	0.0%	0.0%	1.1%
	Regional legislative council	Count	2	0	0	2
		% within Parents' Occupation	100.0%	0.0%	0.0%	100.0%
		% within Aesthetic Component	1.3%	0.0%	0.0%	1.1%
		% of Total	1.1%	0.0%	0.0%	1.1%
	teacher	Count	5	0	0	5
		% within Parents' Occupation	100.0%	0.0%	0.0%	100.0%
		% within Aesthetic Component	3.1%	0.0%	0.0%	2.6%
		% of Total	2.6%	0.0%	0.0%	2.6%
honoror	Count	6	2	0	8	

	% within Parents' Occupation	75.0%	25.0%	0.0%	100.0%
	% within Aesthetic Component	3.8%	14.3%	0.0%	4.2%
	% of Total	3.2%	1.1%	0.0%	4.2%
contractor	Count	1	0	0	1
	% within Parents' Occupation	100.0%	0.0%	0.0%	100.0%
	% within Aesthetic Component	0.6%	0.0%	0.0%	0.5%
	% of Total	0.5%	0.0%	0.0%	0.5%
trader	Count	27	2	5	34
	% within Parents' Occupation	79.4%	5.9%	14.7%	100.0%
	% within Aesthetic Component	17.0%	14.3%	29.4%	17.9%
	% of Total	14.2%	1.1%	2.6%	17.9%
bank employee	Count	3	0	0	3
	% within Parents' Occupation	100.0%	0.0%	0.0%	100.0%
	% within Aesthetic Component	1.9%	0.0%	0.0%	1.6%
	% of Total	1.6%	0.0%	0.0%	1.6%
lawyer	Count	1	0	0	1
	% within Parents' Occupation	100.0%	0.0%	0.0%	100.0%
	% within Aesthetic Component	0.6%	0.0%	0.0%	0.5%
	% of Total	0.5%	0.0%	0.0%	0.5%
farmers	Count	14	2	3	19
	% within Parents' Occupation	73.7%	10.5%	15.8%	100.0%

	% within Aesthetic Component	8.8%	14.3%	17.6%	10.0%
	% of Total	7.4%	1.1%	1.6%	10.0%
breeders	Count	3	0	2	5
	% within Parents' Occupation	60.0%	0.0%	40.0%	100.0%
	% within Aesthetic Component	1.9%	0.0%	11.8%	2.6%
	% of Total	1.6%	0.0%	1.1%	2.6%
civil servant	Count	36	1	0	37
	% within Parents' Occupation	97.3%	2.7%	0.0%	100.0%
	% within Aesthetic Component	22.6%	7.1%	0.0%	19.5%
	% of Total	18.9%	0.5%	0.0%	19.5%
police	Count	5	0	0	5
	% within Parents' Occupation	100.0%	0.0%	0.0%	100.0%
	% within Aesthetic Component	3.1%	0.0%	0.0%	2.6%
	% of Total	2.6%	0.0%	0.0%	2.6%
military	Count	1	0	0	1
	% within Parents' Occupation	100.0%	0.0%	0.0%	100.0%
	% within Aesthetic Component	0.6%	0.0%	0.0%	0.5%
	% of Total	0.5%	0.0%	0.0%	0.5%
entrepreneur	Count	53	7	7	67
	% within Parents' Occupation	79.1%	10.4%	10.4%	100.0%
	% within Aesthetic Component	33.3%	50.0%	41.2%	35.3%
	% of Total	27.9%	3.7%	3.7%	35.3%

Total	Count	159	14	17	190
	% within Parents' Occupation	83.7%	7.4%	8.9%	100.0%
	% within Aesthetic Component	100.0%	100.0%	100.0%	100.0%
	% of Total	83.7%	7.4%	8.9%	100.0%

Parents' Education* Aesthetic Component Crosstabulation

			Aesthetic Component			
			tidak terlalu membutuhkan perawatan	membutuhkan perawatan	sangat membutuhkan perawatan	Total
Pendidikan Orang Tua	SMP	Count	6	1	3	10
		% within Pendidikan Orang Tua	60.0%	10.0%	30.0%	100.0%
		% within Aesthetic Component	3.8%	7.1%	17.6%	5.3%
		% of Total	3.2%	0.5%	1.6%	5.3%
	SMA	Count	84	11	13	108
		% within Pendidikan Orang Tua	77.8%	10.2%	12.0%	100.0%
		% within Aesthetic Component	52.8%	78.6%	76.5%	56.8%
		% of Total	44.2%	5.8%	6.8%	56.8%
	S1	Count	58	2	1	61
		% within Pendidikan Orang Tua	95.1%	3.3%	1.6%	100.0%
		% within Aesthetic Component	36.5%	14.3%	5.9%	32.1%
		% of Total	30.5%	1.1%	0.5%	32.1%
	S2	Count	11	0	0	11
		% within Pendidikan Orang Tua	100.0%	0.0%	0.0%	100.0%
		% within Aesthetic Component	6.9%	0.0%	0.0%	5.8%
		% of Total	5.8%	0.0%	0.0%	5.8%
Total		Count	159	14	17	190

	% within Pendidikan Orang Tua	83.7%	7.4%	8.9%	100.0%
	% within Aesthetic Component	100.0%	100.0%	100.0%	100.0%
	% of Total	83.7%	7.4%	8.9%	100.0%

Correlations

			Parents' Occupation	Aesthetic Component
Spearman's rho	Parents' Occupation	Correlation Coefficient	1.000	.024
		Sig. (2-tailed)	.	.741
		N	190	190
	Aesthetic Component	Correlation Coefficient	.024	1.000
		Sig. (2-tailed)	.741	.
		N	190	190

Correlations

			Parents' Education	Aesthetic Component
Spearman's rho	Parents' Education	Correlation Coefficient	1.000	-.281**
		Sig. (2-tailed)	.	.000
		N	190	190
	Aesthetic Component	Correlation Coefficient	-.281**	1.000
		Sig. (2-tailed)	.000	.
		N	190	190

** . Correlation is significant at the 0.01 level (2-tailed).

Appendix 3 Ethical Recommendations



KEMENTERIAN PENDIDIKAN, KEBUDAYAAN,
RISET, DAN TEKNOLOGI
UNIVERSITAS HASANUDDIN
FAKULTAS KEDOKTERAN GIGI

Jalan Perintis Kemerdekaan Km. 10, Makassar 90245

Telepon (0411) 586012, Faximile (0411) 584641

Laman www.unhas.ac.id Email fdhu@unhas.ac.id

Nomor : 00367/UN4.13/TP.02.02/2024

17 Januari 2024

Hal : Permohonan Rekomendasi Etik

Yth. Direktur Rumah Sakit Gigi dan Mulut Pendidikan (RSGMP)

Universitas Hasanuddin

Makassar

Dengan hormat kami sampaikan bahwa mahasiswa Pendidikan Dokter Gigi (S1) Fakultas Kedokteran Gigi Universitas Hasanuddin di bawah ini:

Nama / NIM : Adinda Aulia Larasati / J011211152

Pembimbing : Nasyrah Hidayati, drg., M.K.G., Sp.Ort. Subsp. DDPK (K).

Judul Penelitian : Gambaran Kebutuhan Perawatan Ortodonti berdasarkan *Index of Orthodontic Treatment Need* (IOTN) pada Remaja Di SMAN 1 Pinrang

bermaksud melakukan penelitian di Sekolah Menengah Atas Negeri 1 Pinrang pada bulan Januari s.d. Februari 2024.

Untuk maksud tersebut di atas, mohon kiranya yang bersangkutan dapat diberikan surat rekomendasi Etik dalam rangka pelaksanaan penelitiannya.

Demikian permohonan kami, atas perhatian dan kerjasama yang baik diucapkan terima kasih.

a.n. Dekan,
Wakil Dekan Bidang Akademik dan Kemahasiswaan



Acing Habibie Mude, drg., Ph.D., Sp.Prof., Subsp. OGST (K).

NIP 198102072008121002

Tembusan:

1. Dekan FK G Unhas;
2. Kepala Bagian Tata Usaha FK G Unhas.



KEMENTERIAN PENDIDIKAN, KEBUDAYAAN, RISET, DAN TEKNOLOGI
UNIVERSITAS HASANUDDIN
FAKULTAS KEDOKTERAN GIGI
RUMAH SAKIT GIGI DAN MULUT PENDIDIKAN
KOMISI ETIK PENELITIAN KESEHATAN
Sekretariat : Lantai 1, Ruang Komisi Etik FKG-RSGMP Unhas
JL. Perintis Kemerdekaan KM.10, Makassar
Kontak : Admin KFKP, FKG +6282251958134, e-mail: etik.fkg@unhas.ac.id



No. Reg. Protokol : 277/FGKUIH/S1-107/05.XI/2024

PEMBEBASAN ETIK
ETHICAL EXEMPTION

No: 057/KEPK FKG-RSGMP UIH/EE/XI/2024

Komisi Etik Penelitian Kesehatan Fakultas Kedokteran Gigi Universitas Hasanuddin Makassar, dalam upaya melindungi hak asasi dan kesejahteraan subjek penelitian dan menjamin bahwa penelitian yang menggunakan formulir survei/registrasi/surveilans/Epidemiologi/Humaniora/Sosial Budaya/Bahan Biologi Tersimpan/Sel Punca dan non klinis lainnya berjalan dengan memperhatikan implikasi etik, hukum, sosial dan non klinis lainnya yang berlaku, telah mengkaji dengan teliti proposal penelitian berjudul:

The Health Research Ethics Commission Faculty of Dentistry Hasanuddin University Makassar, in order to protect the rights and welfare of the research subject, and to guaranty that the research using survey questionnaire/registry/surveillance/epidemiology/humaniora/social-cultural/archived biological materials /stem cell/other non-clinical materials, will carried out according to ethical, legal, social implications and other applicable regulations, has been thoroughly reviewed the proposal entitled:

“Hubungan Tingkat Pengetahuan Orang Tua terhadap Kebutuhan Perawatan Ortodonti Berdasarkan Index of Orthodontic Treatment Need (IOTN) pada Remaja di SMAN 1 Pinrang”

Versi Protokol : 1

Versi ICF : 1

Nama Peneliti Utama : Adinda Aulia Larasati
Principal Researcher

Pembimbing/Peneliti Lain : Nasyrah Hidayati, drg., M.KG., Sp.Ort., Subsp.DD'PK (K)
Supervisor/Other Researcher

Lokasi Penelitian : SMAN 1 Pinrang
Research Site

Nama Institusi : Fakultas Kedokteran Gigi Universitas Hasanuddin
Institution

Proposal tersebut dapat dibebaskan pelaksanaannya.
Hereby declare that the proposal is exempted.

Ditetapkan di : Makassar
Issued in

Tanggal : 13 November 2024
Date

Masa Berlaku : 13 November 2024 – 13 November 2025
Validity Period



Ketua,
Chairman
Erni Marlina, drg., Ph.D., Sp.PM., Subsp.Inf (K)
NIP. 197506012009122001

Appendix 4 Research Permission Letter



KEMENTERIAN PENDIDIKAN, KEBUDAYAAN,
RISET, DAN TEKNOLOGI

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Laman www.unhas.ac.id Email fdhu@unhas.ac.id

Nomor : 00365/UN.4.13/PT.01.04/2024

17 Januari 2024

Hal : Izin Penelitian

Yth. Kepala Sekolah SMAN 1 Pinrang

di -

Tempat

Dengan hormat kami sampaikan bahwa sehubungan dengan kewajiban penyelesaian tugas akhir (Skripsi) mahasiswa Program Studi Pendidikan Dokter Gigi (S1) Fakultas Kedokteran Gigi Universitas Hasanuddin, maka mahasiswa kami bermaksud akan melakukan penelitian.

Sehubungan dengan hal tersebut, mohon kiranya dapat diberikan izin penelitian kepada mahasiswa di bawah ini:

Nama / NIM : Adinda Aulia Larasati / J011211152
 Waktu Penelitian : Januari s.d. Februari 2024
 Tempat Penelitian : Sekolah Menengah Atas Negeri 1 Pinrang
 Pembimbing : Nasyrah Hidayati, drg., M.K.G., Sp.Ort. Subsp. DDPK (K).
 Judul Penelitian : Gambaran Kebutuhan Perawatan Ortodonti berdasarkan *Index of Orthodontic Treatment Need* (IOTN) pada Remaja Di SMAN 1 Pinrang

Demikian permohonan kami, atas perhatian dan kerja sama yang baik diucapkan terima kasih.

a.n. Dekan,
Wakil Dekan Bidang Akademik dan Kemahasiswaan



Acing Habibie Mude, drg., Ph.D., Sp.Pro., Subsp. OGST (K).
NIP 198102072008121002

Tembusan:

1. Dekan FK G Unhas;
2. Kepala Bagian Tata Usaha FK G Unhas.

Appendix 5 Invitation Letter

Appendix 6 Thesis supervisor monitoring sheet

Appendix 7examiner and supervisor attendance list

Appendix 8 Research Documentation





Appendix 9 Curriculum Vitae

CURRICULUM VITAE

A. Personal Data

1. Name : Adinda Aulia Larasati
2. Place, Birth date : Pinrang, 24 February 2003
3. Adress : JL. Ir. Juanda, Kab. Pinrang
4. Citizenship : Warga Negara Indonesia/ WNI
(Indonesian)

B. Educational Background

1. TK Kemala Bhayangkari Pinrang 2009 di Pinrang
2. SD Negeri 3 Pinrang 2015 di Pinrang
3. SMP Negeri 1 Pinrang 2018 di Pinrang
4. SMA Negeri 1 Pinrang 2021 di Pinrang

C. Work and Employment history

- Jenis Pekerjaan : University Student
- NIP or Other Identification : 7315046402030002
- Rank/Position : Bachelor degree student of Faculty of
Dentistry Hasanuddin University

D. Published Scientific works

-

E. Papers at National and international Scientific Seminars/Conferences

-

Appendix 10 Detailed Budget Plan

No.	Details	Qty	Amount (Rp)
1.	Mirror dental disposable	200 pcs	Rp. 300.000
2.	Alcohol	1 Liter	Rp. 60.000
3.	Water	4 dos	Rp. 80.000
4.	Cheek Retraktor	200 pcs	Rp. 600.000
5.	Mask	50 pcs	Rp. 15.000
6.	Handscoon	100 pcs	Rp. 60.000
7.	Tissue	2	Rp. 30.000
8.	Tooth Brush	200 pcs	Rp. 800.000
Total			Rp. 1.940,-