

Knowledge Relationship With The Status Of Dental And Oral Hygiene Of Orthodontic Users In Students Integrated Campus Of Poltekkes Aceh Ministry Of Health

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ABSTRACT

Orthodontic treatment is a treatment to correct malocclusion and restore structural and esthetic function. The purpose of this study was to analyze the relationship between knowledge of maintaining oral and dental hygiene of orthodontic users with dental hygiene status in Poltekkes Kemenkes Aceh students. The research method is analysis with a cross sectional research design with purposive sampling technique, carried out April 1 to April 22, 2021 with 40 respondents using orthodontic students from the Health Polytechnic of Aceh. The results of the study were statistically significant with the Spearman correlation test between knowledge and OHI-S ($p=0.039$). The results of the study were based on the knowledge of 23 people (57.5%) with good knowledge, and 17 people (42.5%) with less knowledge. The results of the OHI-S study were 6 people (15.0%) good, 15 people (37.5%) moderate OHI-S and 19 people (47.5%) bad OHI-S. The conclusion is that there is a relationship between knowledge of maintaining oral and dental hygiene by orthodontic users with dental hygiene status in Poltekkes Kemenkes Aceh students.

INTRODUCTION

Health Development aims to increase everyone's awareness, willingness, and ability to live a healthy life. In order to realize the highest degree of public health. Health is one of the priorities in human life, including dental and oral health. Dental and oral health is part of body health that cannot be separated from one another because it will affect the health of the body. Teeth are one part of the body that functions to chew, speak and maintain the shape of the face, so it is important to maintain dental health as early as possible.⁽¹⁾

The use of fixed orthodontic appliances can cause food impaction which results in further plaque retention. Research conducted by Al-Anezi and Harradine in America showed that the use of fixed orthodontic appliances is one of the risk factors for plaque formation. The results of research conducted by Attasi in Saudi Arabia showed that 60% of patients using fixed

orthodontic appliances had poor dental and oral hygiene levels caused by the lack of maintaining oral hygiene, especially in users of fixed orthodontic appliances.⁽¹⁾

Efforts to increase knowledge related to dental and oral hygiene, and for the prevention and control of dental diseases, the World Health Organization (WHO) recommends providing information to the general public. Students who are in the health environment must have optimal knowledge of dental and oral hygiene. Thus, maintaining dental and oral hygiene needs to be addressed with the combined efforts of various cross-health professions by creating comprehensive health improvement strategies and practices.⁽²⁾

Oral hygiene is an important component in oral health. One of the things that affect dental and oral hygiene procedures is the use of fixed orthodontic appliances. High standards of dental and

oral hygiene are essential for all patients undergoing orthodontic treatment. According to Essamet et al in their research in Saudi Arabia, the level of patient knowledge of oral health during orthodontic treatment is the most important to note. The Oral Health Survey (OHS) 2011 said that the behavior of maintaining good dental hygiene by a person is influenced by the correct understanding or knowledge of the person about oral diseases.).⁽²⁾⁽³⁾⁽⁴⁾

Data from Basic Health Research (Riskesmas) in 2013 showed the national prevalence for dental and oral problems in Indonesia was 25.9%, this prevalence increased compared to 2007 which was 23.4%. The prevalence of dental and oral problems is 22.2%. The prevalence of people who get treatment for dental and oral problems is 42.73%.⁽²⁾ Several researchers in the field of orthodontics say that the prevalence of malocclusion in Indonesian adolescents is very high. The prevalence of malocclusion in Indonesian adolescents in 2006 was 89% and based on the incidence of malocclusion in Indonesiareached 80%.⁽⁵⁾⁽⁶⁾

Based on the Basic Health Research there was an increase in the proportion of dental and oral health problems in Indonesia by 56.7 percent and getting services from dental medical personnel by 10.2 percent and 56 percent in Aceh the proportion of dental and oral health problems with services from health workers. dentistry by 16 percent.⁽⁷⁾⁽⁸⁾

Based on the results of the study showed a high level of orthodontic knowledge as many as 26 respondents with a percentage of 86.7%, respondents obeying control as many as 24 respondents with a percentage of 80%. High levels of orthodontic knowledge had control compliance as many as 23 respondents with a percentage of 76.7%.⁽¹⁾⁽⁹⁾⁽¹⁰⁾

Based on the results of the study in his research as many as 96 people, the subjects were taken using a purposive sampling technique. The results showed that 25 subjects (26%) had knowledge in the high category, 68 subjects (70.9%) had knowledge in the medium category, and 3 subjects (3.1%) had knowledge in the low category. The conclusion in this study is that the knowledge of students at SMAN 4 Banda Aceh about the use of fixed orthodontic appliances is in the medium category.

Based on the results of an initial survey conducted on 10 students of the Health Polytechnic of the Ministry of Health of Aceh who used orthodontics, it was seen that between the teeth of students who used orthodontics there was debris and calculus. The results of the initial examination obtained data on three students who had good knowledge about maintaining oral hygiene with good OHS criteria, three students

who had poor knowledge about maintaining dental and oral hygiene with moderate OHS criteria, and 4 students with poor knowledge about maintaining hygiene. teeth and mouth with poor ohis criteria.⁽¹¹⁾⁽¹²⁾

Based on the above background, students of the Health Ministry of Health Polytechnic of Aceh have gained a lot of knowledge about maintaining dental and oral hygiene. However, from the initial survey, it was found that the students of the Health Polytechnic of the Ministry of Health in Aceh still lacked good dental and oral hygiene status, namely the Ohis index, because there was still a lot of debris wrapped around the surface of the teeth of orthodontic users.⁽¹³⁾⁽¹⁴⁾

Therefore, the authors are interested in conducting a study entitled "The Relationship of Knowledge with Orthodontic Orthodontic Users' Dental and Oral Hygiene Status on Students at the Integrated Campus of Health Polytechnic of the Ministry of Health of Aceh". Researchers want to review how knowledge of maintaining dental and oral hygiene with dental and oral hygiene status in orthodontic use.⁽¹⁵⁾⁽¹⁶⁾⁽¹⁷⁾

MATERIAL AND METHOD

1. Research Type and Design

The type of research conducted is an analytic study to see whether or not there is a relationship between maintaining dental and oral hygiene of orthodontic users with the dental and oral hygiene status of students at the Health Polytechnic of the Ministry of Health in Aceh in 2021. The research design used was cross sectional, where the independent and dependent variables were measured. at the same time and each subject is only observed once.

The population is students of Poltekkes, Ministry of Health, Aceh, orthodontic users as many as 69 people. The sample is part of the affordable population that can be used as research subjects through purposive sampling using the slovin formula. Held in April at Poltekkes, Ministry of Health, Aceh.

Research procedure

- a. Taking care of a permit at the DIV dental nursing study program at the Aceh Health Polytechnic to collect initial data.
- b. Meet the respondents one by one and provide an explanation of the benefits of research, research objectives, and the success of the information that will be obtained from respondents and ask for cooperation of respondents to be willing to be interviewed on the spot to conduct research.
- c. Giving informed consent that is willing to be a respondent
- d. Conducting interviews, giving questionnaires and checking OHIS one by one, the respondents are assisted by students of DIV dental nursing study program level IV who are able to carry out OHIS examinations
- e. data processing.

Data analysis

The data obtained from the results of examinations and interviews were analyzed analytically using the sperm test. The sperm correlation test is a test aimed at knowing the relationship between two or more ordinal-scale variables. Data Analysis Aims To Know The Independent Variables And The Bound Variables.

a. Univariate Analysis

This analysis aims to describe each research variable, both the independent variable, namely knowledge of maintaining dental and oral hygiene in orthodontic users and the dependent variable, namely dental hygiene status.

b. Bivariate Analysis

This analysis was carried out to determine the relationship between the independent variable, namely knowledge of maintaining dental and oral hygiene in orthodontic users and the dependent variable, namely dental hygiene status using the Spearman correlation test.

RESULTS

Data collection was carried out from April 1 to April 22 2021 to 40 person respondent user orthodontics on student health polytechnic Ministry of Health aceh, where results collection system which in earn based on Interview and To do inspection OHI-S to respondents. Characteristics of respondents obtained from the results of this study are age and gender. Knowledge of maintaining dental and oral hygiene Orthodontic users were measured based on the simplified oral hygiene index (OHI-S). The results of data processing obtained at the time of conducting research can be seen as following.

1. Analyst univariate

1). Characteristics respondent based on age

Table 1: frequency distribution of orthodontic users by age

No	Age	frequency	%
1	18 years	8	20.0
2	19 years	4	10.0
3	20 years	9	22.5
4	21 years	6	15.0
5	22 years	7	17.5
6	23 years	6	15.0
Total		40	100

Source: data primary, 2021

Based on the frequency distribution table in Table 1, it can be seen that the age of orthodontic users is highest to the lowest at the age of 20 years, which is 9 people (22.5%), age 18 years is 8 people (20.0%), age 22 is 7 people (17.5%), age 21 years, namely 6 people (15.0%), age 23 years, namely 6 people (15.0%).

2) Characteristics respondent based on type sex

Table 2 Distribution of the frequency of orthodontic users by sex

no	Gende	frequency	%
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1	Male	10	25.0%
2	Female	30	75.0%
Total		40	100.0 %

Based on the frequency distribution table in Table 2, it can be seen that 10 male students (25.0%) were less likely to use orthodontics than female students, namely 30 (75.0%) more in the integrated campus of Poltekkes, Ministry of Health, Aceh.

3) Knowledge of maintaining dental and oral hygiene

Table 3 Distribution of the frequency of orthodontic use based on knowledge of maintaining dental and oral hygiene

No	Knowle dge	frequency	%	Mean
1	Good	23	57.5%	57,00
2	Nod Good	17	42.5%	
Total		40	100.0 %	

Source: primary data, 2021

Based on the frequency distribution table above, it can be seen that knowledge of maintaining oral and dental hygiene in orthodontic users was in good category as many as 23 people (57.5%), poor category as many as 17 people (42.5%).

4) Status kebersihan gigi dan mulut

Table 4. Distribution of the frequency of orthodontic use based on examination of dental and oral hygiene status

No	OHI-S	Frequ ency	%	Mean
1	Good	6	15.0%	2,810
2	Mode rate	15	37.5%	
3	Bad	19	47.5%	
Total		40	100.0 %	

Based on the frequency distribution table above, it can be seen that the oral hygiene status of orthodontic users was in good category as many as 6 people (15.0%), moderate category as many as 15 people (37.5%), and bad category as many as 19 people (47.5%).

2. Analisis bivariat

The relationship between knowledge and oral hygiene of orthodontic users with dental hygiene status.

Table 5. The relationship between knowledge of maintaining oral and dental hygiene of orthodontic users with dental hygiene status in students

Kno wled ge	OHI-S						Total		P-Val ue
	good		Mode rata		bad		N	%	
	N	%	N	%	N	%			
Good	7	21.7 %	1	47.8 %	1	30.4 %	23	100 .0%	0.039
Not good	5.9 %		4	23.5 %	2	70.6 %	17	100 .0%	
Total	15.0 %		15	37.5 %	9	47.5 %	40	100 .0%	

Based on Table.5. above from 40 respondents using orthodontics who have good knowledge with good OHI-S criteria as many as 5 people (21.7%), and respondents who have good knowledge with moderate OHI-S criteria as many as 11 people (47.8%), and respondents who have good knowledge good with poor OHI-S criteria as many as 7 people (30.4%). In respondents who have poor knowledge with good OHI-S criteria as many as 1 person (5.9%), and respondents who have poor knowledge with moderate OHI-S criteria as many as 4 people (23.5%), and on respondents who have poor knowledge with poor OHI-S criteria as many as 12 people (70.6%).

Sperm correlation test is a test aimed at knowing the relationship between two or more ordinal scale variables. The results of the sperm correlation test obtained a value of $p = 0.039$ ($p < 0.05$) where there is a significant relationship between knowledge of maintaining oral and dental hygiene with the dental hygiene status of orthodontic users in students of the integrated campus of Poltekkes, Ministry of Health, Aceh.

DISCUSSION

1. The relationship between knowledge of maintaining oral and dental hygiene in orthodontic users with OHI-S dental hygiene status. Based on the age frequency distribution of orthodontic using students at the Integrated Campus of the Health Polytechnic of the Ministry of Health in Aceh, those aged 18 to 20 years were the most frequent users of orthodontics and those aged 21 to 23 years were the least frequently using orthodontics.

Based on the gender distribution of the frequency of orthodontic users in the Integrated Health Polytechnic campus, 10 male students used orthodontics with a percentage (25.0%) and 30 female students used orthodontics with a percentage (75.0%).

The simplified oral hygiene index (OHI-S) is a number that shows a person's level of dental hygiene obtained by adding up the debris index (DI) and calculus index (CI). Based on table 5.3 shows that of the 40 respondents using orthodontics, it is known that 17 people (42.5%) of respondents have knowledge of maintaining dental and oral hygiene in the category of Less.

Based on table .5 shows that of the 40 respondents using orthodontics who have knowledge of maintaining oral and dental hygiene in the poor category with poor dental hygiene status, 12 people (70.6%) have researched the relationship between knowledge and ohis in orthodontic users with the results of the Spearman correlation test. The obtained value of $p = 0.000$ ($P < 0.039$) indicates that it is accepted that there is a significant relationship between the knowledge of maintaining oral and dental hygiene of orthodontic users and the dental hygiene status of students on the integrated campus of Poltekkes Kemenkes Aceh.

Based on the results of interviews between researchers and respondents, as many as 55.0% of respondents did not visit the dental clinic once a month for orthodontic treatment control. Some respondents also admitted that they did not install orthodontics at a dentist or specialist where they have the authority to install orthodontics, there were even some respondents who bought their own brackets or orthodontic devices and then installed them on dental experts. This can affect the respondent's knowledge of how to maintain good and correct oral and dental hygiene during orthodontic treatment which should be obtained from a dentist or orthodontic specialist.

In addition, as many as 65.0% of respondents were still wrong in choosing a toothbrush during orthodontic treatment, respondents tended to prefer a conventional toothbrush. when doing orthodontic treatment, you must use a special be-level toothbrush and an interdental toothbrush where this special toothbrush is used because it is able to clean the dirt stuck between the teeth and braces, which cannot be reached by the brush.

In addition to ordinary teeth, an interdental toothbrush is also used. This special toothbrush can enter to clean teeth from food debris through the gaps between the wires and the teeth. the average knowledge of all respondents is included in the poor category, which is equal to (45.5%)

The author assumes that the respondent's lack of knowledge about maintaining oral and dental hygiene when using orthodontics is that the respondent considers maintaining the oral hygiene of orthodontic users the same as maintaining dental and oral hygiene in general. When the author conducted a clinical examination, it was seen that there were several loose brackets on the respondent's teeth.

This is because the respondent's lack of attention and concern for orthodontic treatment is also influenced by the role of treatment operators carried out by dentists or orthodontic specialist dentists who can motivate and give instructions during orthodontic treatment so that patients can care more about their oral health. However, many respondents rarely go to the dental clinic to control their orthodontic treatment so they do not receive motivation from the dentist so they cannot be instructed by the operator. Some of the respondents replaced the rubber bracket themselves independently.

Knowledge or cognitive is a very important domain for the formation of a person's behavior; knowledge can form certain beliefs so that a person behaves in accordance with these beliefs.

Knowledge is the basis for the formation of a behavior. A person can be said to lack knowledge if he is not able to recognize and explain and analyze a situation.

if the level of knowledge is higher, the attention to dental health will be high and vice versa, if the level of knowledge is lower then the dental health will be lower as well.¹²

Brushing teeth that are not in accordance with the technique, frequency, and time of fixed orthodontic appliance users can cause excessive bad breath, cavities, and other periodontal diseases. Generally, the brushing technique for fixed orthodontic appliance users or not is the same, you just have to be more careful and thorough and have to hit the teeth one by one.¹⁴

There are several things that must be done by braces users, namely, diligently cleaning their teeth after each meal, always provide a toothpick and bring an interdental toothbrush to clean the remaining food residue stuck to the bracket. Dental control according to the schedule determined by the doctor so that dental and oral hygiene and the use of braces can run optimally.¹⁷

The results of this study are in accordance with research¹⁷ which states that there is a significant relationship between knowledge and ohis where the greater the value of knowledge, the smaller the value of OHI-S. This shows that good knowledge about maintaining dental and oral hygiene can result in good dental and oral hygiene as well. This matter.

Supported by research⁶ which states that respondents who have high knowledge of dental and oral hygiene show positive dental care behavior, on the other hand keep their teeth and mouth clean show negative dental care behaviour.¹

Dental and oral hygiene can be maintained mechanically or chemically. especially when using orthodontic treatment where users find it difficult to clean food debris due to the following that stick to the surface so that it requires more treatment than without using orthodontic appliances.

CONCLUSION

1. There is a significant relationship between the knowledge of maintaining oral and dental hygiene of orthodontic users with dental hygiene status in the students of the Integrated Health Polytechnic campus of the Ministry of Health of Aceh with the Spearman correlation test value p value = $0.000 < 0.039$

2. The level of knowledge of maintaining dental and oral hygiene in orthodontic users at the Integrated Campus of the Health Polytechnic of the Ministry of Health in Aceh, the results obtained are 23 students (57.5%) who use orthodontics have knowledge in the good category and 17 students (42.5%) who use orthodontics. orthodontics have knowledge with poor category.

3. Dental and oral hygiene status of orthodontic users at the Integrated Campus of Poltekkes, Ministry of Health Aceh, the results were 6 students (15.0%) who used orthodontics had OHIS status in the Good category, 15 students (37.5%) who used orthodontics had an OHIS status in the Medium category, and 19 students (47.5%) who used orthodontics had an OHIS status in the Poor category.

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