

# RELATIONSHIP BETWEEN DENTAL HYGIENE PERCEPTION AND OHI-S STATUS IN MALOCCLUSION STUDENTS AT POLTEKKES KEMENKES ACEH

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## Article Info

Article History:

Received: 21 July 2025

Accepted: 07 August 2025

Published: 07 August 2025

**Keywords:** Persepsi, Status OHI-S, Maloklusi

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## Abstrak

**Background:** The prevalence of individuals with dental and oral problems in Aceh is 55.34%. One of the reasons someone neglects their dental and oral health issues is the poor perception of dental and oral hygiene maintenance. Malocclusion problems can exacerbate dental and oral hygiene conditions (OHI-S), hence the need for educational intervention for the community, especially students. **Objective:** To determine the relationship between the perception of dental and oral hygiene maintenance and OHI-S status in students with malocclusion in the Department of Nutrition at Poltekkes Kemenkes Aceh.

**Method:** This study is analytical with a cross-sectional design conducted on 69 students from the Department of Nutrition at Poltekkes Kemenkes Aceh. Students were examined for their OHI-S dental status and given a questionnaire about the perception of dental and oral hygiene; the sample selection criteria involved students with dental malocclusion. Instruments used: diagnostic tools set, KSP OHI-S, and questionnaires.

**Results:** The research shows that students with a good perception of oral hygiene maintenance dominate with a good OHI-S status, amounting to 22 (51.2%). Based on statistical test results, there is a relationship between the perception of oral hygiene maintenance and OHI-S status  $p=0.001$  ( $p<0.05$ ).

**Conclusion:** It can be concluded that the perception of oral hygiene influences the OHI-S status in patients with dental malocclusion.

Jurnal Online Keperawatan Indonesia

e-ISSN: 2621-2161

Vol. 8 No. 1 June, 2025 (P 54-59)

Homepage: <https://e-journal.sari-mutiara.ac.id/index.php/Keperawatan>

DOI: <https://doi.org/10.51544/keperawatan.v8i1.6221>

**How To Cite:** Mauliana, and Reca. 2025. "Relationship Between Dental Hygiene Perception And OHI-S Status In Malocclusion Students At Poltekkes Kemenkes Aceh." *Jurnal Online Keperawatan Indonesia* 8 (1): 54–59. <https://doi.org/https://doi.org/10.51544/keperawatan.v8i1.6221>



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## 1. Introduction

Dental and oral health is one important part of general health and is an important factor that affects a person's quality of life<sup>1</sup>. Teeth are a unity with other parts of our body. Damage to teeth can affect the health of other body parts, thus disrupting daily activities<sup>2</sup>. Efforts that can be made to improve dental and oral health are by maintaining oral cavity hygiene. Awareness and individual maintenance behavior are very important in maintaining dental and oral hygiene. A healthy oral cavity condition can be seen from a person's teeth and mouth that are free from dirt such as debris, plaque, and calculus<sup>3</sup>. Preventive actions for dental and oral health problems that can be taken include regularly cleaning the mouth by brushing teeth, flossing, and having dental check-ups every six months regularly to the dentist<sup>4</sup>.

The results of Riskesdas in 2018 in Aceh Province recorded the percentage of the population with dental and oral problems at 55.34% with daily tooth brushing behavior at 93.59%. However, the proportion of brushing teeth correctly is still low at 2.76%. In Aceh Besar Regency, the dental and oral health problem is 52.9% with daily tooth brushing behavior at 94.5%, but only 2.6% brush their teeth at the right time<sup>5</sup>.

Perception is a human perspective in choosing opinions and beliefs about something<sup>6</sup>. In health, perception becomes a matter of whether or not a certain action will be taken for health in the effort of treatment and care. This can be influenced by several factors, such as knowledge, environment, culture, and individual beliefs<sup>7</sup>. Perception of dental and oral hygiene maintenance will affect the health condition of a person's oral cavity. The perception of dental and oral health is related to how a patient receives information and adjusts it to their environment, the interpretation in understanding information that can enhance health knowledge received, or the selection of various stimuli captured by the senses. Understanding dental and oral health influences the behavior of each patient receiving that information.

Malocclusion of teeth is one of the factors that can cause the OHI S status to become poor in the oral cavity. Teeth that experience malocclusion can be difficult to clean by brushing because irregular teeth make it difficult for the toothbrush to reach them; this condition can lead to plaque accumulation, which is also a risk factor for calculus formation. The causes of malocclusion include genetic factors, developmental failures, trauma to the teeth and mouth area, bad habits such as thumb sucking during childhood, incorrect tooth brushing methods, and lack of knowledge, especially during the tooth eruption period.

Several studies have linked dental health maintenance with OHI S status. The research by Larasati Dewi (2014) shows a statistically significant relationship using Pearson correlation test between knowledge of dental and oral health maintenance and OHI S ( $r = 0.367$ ;  $p = 0.002$ )<sup>8</sup>. The results of this study are also in line with the research by Yusuf (2011), the analysis shows 3 Relationships that are meaningful between Dental and Oral Health Knowledge and Caries Experience (DMF T) and Oral Hygiene (OHI S) in Students of SMP Nurul Hasanah ( $p < 0.05$ )<sup>9</sup>.

Most malocclusions occur in adolescence, which is around 12 to 24 years old. This age is when the average permanent teeth have grown perfectly<sup>10</sup>. Teenagers will pay great attention to their appearance. Dental and oral problems also experience an increase that can be influenced by the level of knowledge about dental and oral health and will also affect the perception of maintaining their dental and oral hygiene<sup>11</sup>. The increasing interest in maintaining dental and oral health is in line with the abundance of knowledge about teeth and mouth that is known, whether obtained from the surrounding environment, experience, or from the knowledge learned<sup>12</sup>. Malocclusion of teeth can result in parts of the teeth being difficult to reach for cleaning, leading to plaque accumulation, and if not addressed promptly, it will become calculus.



## 2. Method

The type of research is analytical with a cross-sectional study approach conducted in the Dental Department, Poltekkes Kemenkes Aceh. The population in this study is students of the D3 Nutrition program at Poltekkes Kemenkes Aceh, totaling 223 people. The sampling in this study used the Slovin formula with purposive sampling technique and was determined by inclusion and exclusion criteria with a sample size of 69 people. The instrument used to support this research is a questionnaire containing 10 questions related to the perception of dental and oral health maintenance, adopted from the research of Milenda E. K. Asri et al. (2021)<sup>13</sup> and Gaudensia Des Hartini (2024)<sup>14</sup>, using diagnostic tools and KSP OHI S. Data analysis used univariate analysis, namely the OHI S status in students with malocclusion, and bivariate analysis, namely the relationship between the perception of dental and oral hygiene maintenance with OHI S status in students with malocclusion tested with the chi-square statistical test.

## 3. Results

Tabel 1. Distribution of Respondents Based on Gender

No.	Gender	Frequency	Percentage
1.	Male	2	2,9%
2.	Female	67	97,1%
Total		69	100%

Source: primary data

Based on table 1 above, it can be seen that the number of female respondents is 67 (97.1%) and male respondents is 2 (2.9%).

Tabel 2. Distribution of Respondents Based on Age

No.	Age	Frequency	Percentage
1.	19 years	56	81,2%
2.	20 years	13	18,8%
Total		69	100%

Source: primary data

Based on table 2 above, it can be seen that the age of students in the D3 Nutrition program at Poltekkes Kemenkes Aceh with malocclusion is 19 years old with 56 respondents (81.2%), and 20 years old with 13 respondents (18.8%).

Tabel 3. Distribution of Respondents Based on Perception of Oral and Dental Hygiene

No.	Category	Frequency	Percentage
1.	Good	43	62,3%
2.	Not good	26	37,7%
Total		60	100%

Source: primary data

Based on table 3 above, it can be seen that the perception of oral and dental hygiene among students in the D3 Nutrition program at Poltekkes Kemenkes Aceh with malocclusion in the good category is 43 respondents (62.3%) and in the poor category is 26 respondents (37.7%).



Tabel 4. Distribution of Respondents Based on OHI-S Status Among Students with Malocclusion

No.	Category	Frequency	Percentage
1.	Good	22	31,9%
2.	Neutral	20	29%
3.	Bad	27	39,1%
Total		69	100%

Source: primary data

Based on table 4 above, it can be seen that the OHI-S status among students in the program study D3 Nutrition Poltekkes Kemenkes Aceh, patients with malocclusion in the good category amounted to 22 respondents (31.9%), in the moderate category amounted to 20 respondents (29%), and in the poor category amounted to 27 respondents (39.1%).

Tabel 5. Relationship Between Perception of Dental and Oral Hygiene Maintenance and OHI-S Status

No.	Perception of Oral and Dental Hygiene Maintenance	OHI-S Status						Total	%	Statistical test
		Good		Neutral		Bad				
		F	%	F	%	F	%			
1.	Good	22	51,2	15	34,9	6	14	43	100	$\alpha= 0,05$ df=2 p=0,001
2.	Not good	0	0	5	19,2	21	80,8	26	100	
Total		22	39,1	20	29	27	39,1	69	100	

Source: primary data

Based on Table 5 above, it can be seen that out of 69 respondents who stated they had poor OHI S status and a perception of dental and oral hygiene maintenance that was not good (80.8%), the results of the chi-square test showed that there is a relationship between the perception of dental and oral hygiene maintenance and OHI S status with a value of  $p=0.001$ .

#### 4. Discussion

Perception is the process that involves the entry of messages or information into the human brain. Perception is the integrated state of the individual towards the stimuli received. Thoughts, feelings, and individual experiences will actively influence the process of perception.<sup>15</sup>

Bivariate data analysis in table 5 shows that respondents who have a perception of dental and oral hygiene maintenance in the poor category with an OHI-S status in the poor category are 21 respondents (80.8%), and those who have a perception of dental and oral hygiene maintenance in the good category with an OHI-S status in the good category are 22 respondents (51.2%). Based on the results of statistical tests, it was found that there is a relationship between the perception of maintaining oral hygiene and the OHI-S status  $p=0.001$  ( $p<0.05$ ). Poor OHI-S status can occur due to behavioral factors neglecting dental and oral hygiene. This may happen due to a poor perception of maintaining good dental and oral hygiene, especially if there is malocclusion, which will make it increasingly difficult to clean the teeth.

The perception formed from knowledge is very important in underpinning the development



of dental and oral health maintenance<sup>16</sup>. This knowledge can be acquired naturally or systematically through the educational process. The knowledge of dental and oral health maintenance in this study can be seen from the ways to maintain dental and oral health, observing the frequency of brushing teeth and visiting the dentist, and understanding the importance of maintaining dental and oral health for overall body health.

The perception of good dental and oral hygiene maintenance on average will lead to a good OHI-S status as well. OHI-S status is an index to measure dental and oral cleanliness in an individual. The better a person's perception, the better their OHI-S status will be.

Research by Larasati Dewi (2014) shows a statistically significant relationship using Pearson correlation test between knowledge of dental and oral health maintenance and OHI-S ( $r = -0.367$ ;  $p = 0.002$ )<sup>8</sup>. The results of this study are also in line with the research by Yusuf (2011), which analysis shows a significant relationship between knowledge of dental and oral health and experience of cavities (DMF-T) and oral hygiene (OHI-S) among students of SMP Nurul Hasanah ( $p < 0.05$ )<sup>9</sup>.

Table 5 shows that there are 34.9% of respondents who have a good perception but have a moderate OHI-S status. Based on the results of interviews and examinations, this can occur due to the failure to apply the knowledge and perceptions held by students as they should, such as not brushing their teeth at night but doing so in the evening while showering, not brushing their teeth properly and thoroughly, so that plaque or food residue remains stuck between the teeth, especially in teeth that are maloccluded.

In this study, 80% of students have mild malocclusion or Class I malocclusion (normal molar relationship, but with other issues such as crowding, rotation, or crossbite). Malocclusion is a condition of occlusion that deviates from the normal state, characterized by a mismatch in the relationship between the upper and lower jaw teeth.<sup>17</sup>. Students who suffer from dental malocclusion will require more effort and precision when brushing their teeth compared to students who do not have dental malocclusion. Another impact of dental malocclusion is the increased risk of dental and oral diseases because malocclusion creates gaps or spaces that are difficult to reach while brushing, leading to the accumulation of plaque and tartar, gum disease, and cavities.

The perception generated by knowledge of oral and dental health will underlie attitudes that influence actions and shape a person's behavior in maintaining their dental and oral health. When done correctly and routinely, it will result in good behavior patterns and habits that can improve dental health rates and reduce the OHI-S status, thus becoming better.

## 5. Conclusion

Based on the results and discussion, it is stated that there is a relationship between the perception of oral hygiene maintenance and the OHI-S status  $p = 0.001$  ( $p < 0.05$ ).

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