Jurnal Mutiara Ners
Vol. 7 No. 1 Januari 2024 (P 30-44)
E.ISSN: 2620-4061

IMPACT OF DEMONSTRATIVE TEETH BRUSHING METHOD ON STUDENT BEHAVIOR AND DENTAL HYGIENE

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ABSTRACT

Introduction: The mastery of proper tooth-brushing techniques plays a pivotal role in upholding oral health standards. This research underscores the impact of demonstrative teeth brushing method on student behavior and dental hygiene among fourth-grade students at SDN 2 Lamcot in Kabupaten Aceh Besar. Methods: Employing a quasi-experimental design with an equivalent control group, the study conducted pre-test and post-test evaluations.The research incorporated a total of 60 children, distributed into an intervention group and a control group. Quantitative data analysis was conducted through paired samples t-test and Independent T-test. Results:The results exhibited statistically significant disparities ($p < 0.05$) in mean values of knowledge, attitudes, behaviors, and Oral Hygiene Index-Simplified (OHI-S) scores immediately post-intervention and one month later between the treatment and control groups. Conclusion: Emphasizing the importance of parental involvement in dental health education programs, the study stresses the need for parental knowledge and resources to reinforce and monitor children's dental health practices at home.

Keywords: Counseling; Demonstration; Dental Hygiene Status

1. INTRODUCTION

Oral health is one part that cannot be separated from overall body health. Overall oral care begins with dental and oral hygiene in each individual. In addition, the teeth are one of the digestive organs that play an important role in the process of chewing food, so maintaining dental health is important.[1]

Tooth decay that generally occurs at an early age (children) is usually due to sweet food / drink factors. This is in accordance with an epidemiological researcher who argues that children tend to prefer sweet foods such as chocolate and candy which can cause caries.[2] Children are very difficult to avoid these foods because of the large number of food ingredients that have added sugar content. They prefer sweet and sticky foods that are usually a daily dish at home and at school. In general, these foods are used as snacks between meals and supported by children's ignorance about dental health which can affect children's dental health status. [3]

One of the causes of oral and dental problems is behavioural factors or attitudes towards ignoring oral hygiene. This is based on a lack of knowledge of the importance of maintaining oral health. The result that occurs if you do not maintain oral hygiene properly and correctly is the emergence of several diseases related to teeth and mouth such as caries, periodontal disease, halitosis and calculus that accumulates.[4] Children's dental and oral diseases will greatly affect the child's growth and development process. Children are prone to malnutrition, pain in the teeth and mouth clearly reduces appetite. Learning ability drops so that it will clearly affect learning achievement. Oral and dental

DOI: https://doi.org/10.51544/jmn.v7i1.4470

Website: http://e-journal.sari-mutiara.ac.id/index.php/NERS/index

problems are not included in the list of deadly diseases. This condition causes people to put aside efforts to prevent and even treat oral and dental diseases.[5]

Based on basic health research in 2018, the prevalence of the Indonesian population with oral and dental problems at the age of 10-12 years was 42.2%. The DMF-T index nationally is 4.85%, meaning that the average Indonesian population has 5 damaged teeth per person. DMF-T in Aceh province was 4.28%.[6] Based on the report of the Banda Aceh City Health Office in 2014, dental and oral diseases (caries) ranked 14th out of the 20 largest diseases with 4779 visits. According to the results of dental and oral examinations of the 6-14 year old age group in Banda Aceh City during UKGS activities, 34% of children suffered from caries.[7] The state of oral health in the Banda Aceh City area shows that the status of oral health is still concerning.

Efforts to maintain oral health should be carried out from an early age. Primary school age is an ideal time to train a child's motor skills, including brushing teeth. The ability to brush teeth properly and correctly is a fairly important factor for maintaining oral health. The success of oral health maintenance is also influenced by factors such as the use of toothbrushes, brushing methods, and the frequency and timing of brushing.[8]

Childhood is the beginning of behaviour formation. During this period, children are most vulnerable to various influences, both from within and outside the child. It is not surprising that children are quite vulnerable to changes in health status, including caries. Children aged between 10-12 years, is the age recommended by WHO for oral health research. In this age group, children's interest in learning is high, supported by children's very strong memory and ability to capture and understand the material provided. In addition, at this level children are easy to educate and enjoy being around people who pay attention to them. Good tooth brushing behaviour and good food consumption behaviour are certainly very appropriate to be taught at this age considering the increase in eating frequency and irregular eating patterns.[9]

Oral health is closely related to behaviour. Good oral health maintenance behaviour will play a major role in determining the degree of dental health. Knowledge about oral health will underlie attitudes that influence actions and form a person's behaviour in maintaining oral health. This is one of the reasons dental health education needs to be applied, especially in everyday life. Dental health education is a learning process aimed at individuals or community groups to achieve the highest degree of dental health.[8] The selection of appropriate methods in the process of delivering extension material is very helpful in achieving efforts to change target behaviour. In extension, tools are needed, especially for children, the use of tools in changing children's behaviour is very important.[10]

The demonstration method is a way of presenting understanding or ideas that are carefully prepared to show how to carry out an action, scene, or use a procedure. Aids are tools used by educators in delivering educational / teaching materials.[11] The use of high-intensity educational aids will facilitate the absorption of knowledge, as well as children's oral health education accompanied by tooth brushing demonstrations.[12]

Counselling with demonstration methods can increase students' understanding of oral health. Counselling using dental phantom tools makes it easier for the audience / target to absorb the material presented because the tools demonstrated are real and can be seen clearly so that the target is not easily bored, considering that the target is an elementary school student so that what

DOI : https://doi.org/10.51544/jmn.v7i1.4470

is conveyed and displayed can be absorbed and as a motivation for students in terms of maintaining dental and oral hygiene.[5]

Based on dental examinations conducted on 15 fourth grade students of SDN 2 Lamcot, researchers found 70% of children had poor oral hygiene status criteria (OHIS status) with an average score of 3.8 and the results of interviews with these students, obtained 80% did not understand how, frequency and time to brush their teeth. This study will be conducted in class IV because the average age of children is between 10-12 years old, in general, children are more cooperative so that data collection is easier, more accurate and it is hoped that the results obtained will be more optimal.

This study aims to determine the effectiveness of tooth brushing demonstration method on the behaviour and oral health status of fourth grade students of SDN 2 Lamcot.

2. RESEARCH METHODS

This research is a *quasi experimental*. The research design used is equivalent *control group design with pre test and post test*.[16] The design of this study was to determine students' knowledge, attitudes and actions using a questionnaire, as well as OHIS status using a diagnostic tool set and status card in class IV students of SDN 2 Lamcot. The intervention provided in the form of counselling on tooth brushing using the demonstration method in the treatment group. Meanwhile, the control group was only counselled using the lecture method. *Pre test* was conducted before counselling, then immediately after counselling, *post test I* was conducted. After 1 month (it is expected that the sample has been able to carry out individually trained brushing methods), the researcher returned to the research location to collect data on student knowledge and check OHIS status in both groups (*post test II*). The sample in this study used the total population, namely all Class IV students of SDN 2 Lamcot totalling 60 children, then divided into two groups, the intervention group consisting of 30 children given intervention (tooth brushing counselling using the demonstration method) and the control group consisting of 30 children given intervention (tooth brushing counselling using the lecture method). Analysis of data results (quantitative) in this study using; 1). *Paired Samples T-tes, end* 2). *Independent T-test*.

3. RESULTS

This research was conducted on fifth grade students of SDN 2 Lamcot, Aceh Besar Regency, from June to August 2023.

a. Difference Analysis (*paired samples t-test*) Knowledge, Attitude, Action and Dental and Oral Hygiene Status of Students

1) student knowledge

The mean differences from *pre-test* to *post-test I*, *post-test I* to *post-test II*, and *pre-test* to *post-test II* of students' knowledge in the intervention group and control group are presented in the following table:

Table 1. Mean difference and standard deviation of students' knowledge in intervention and control groups

Group	Data	Average Difference ± SD	t	P
Intervention	*Pre-test ke Post-test I*	-34,2 ± 28,9	-6,46	0,001*

DOI : https://doi.org/10.51544/jmn.v7i1.4470

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	Post-test I ke Post-test II	-6,23 ± 16,3	-2,09	0,045*
	Pre-test ke Post-test II	-40,4 ± 27,9	-7,91	0,033*
Control	*Pre-test ke Post-test I*	-1,27 ± 28,32	0,25	0,808
	Post-test I ke Post-test II	-0,43 ± 26,5	9,48	0,929
	Pre-test ke Post-test II	-1,7 ±5,6	-0,38	0,106

Description * = significant

Table 1 illustrates a significant enhancement in the knowledge levels of mothers who actively participated as respondents in the intervention group. The discernible improvement was noted from the pre-test to post-test I, from post-test I to post-test II, and from pre-test to post-test II, indicating a statistically significant difference in the mean knowledge values ($p < 0.05$). In contrast, within the control group, there was no statistically significant difference in the mean knowledge values from pre-test to post-test I, from post-test I to post-test II, and from pre-test to post-test II ($p > 0.05$)..

2) Student Behaviour

The mean differences from *pre-test* to *post-test I*, *post-test I* to *post-test II*, and *pre-test* to *post-test II* of students' attitudes in the intervention group and control group are presented in the following table:

Table 2. Mean difference and standard deviation of students' attitudes in the intervention and control groups

Group	Data	Average Difference ± SD	t	P
Intervention	*Pre-test ke Post-test I*	-47,1 ± 118,9	-2,205	0,035
	Post-test I ke Post-test II	-20 ± 51,38	-2,167	0,038
	Pre-test ke Post-test II	-67,1 ± 163,3	-2,287	0,029
Control	*Pre-test ke Post-test I*	-5,2 ± 14,58	-1,971	0,080
	Post-test I ke Post-test II	-4,5 ± 22,34	-1,126	0,269
	Pre-test ke Post-test II	-9,7± 27,26	-1,976	0,074

Description * = significant

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Table 2 showcases a considerable improvement in the attitudes of mothers belonging to the intervention group, evident from the pre-test to post-test I, post-test I to post-test II, and pre-test to post-test II phases. A statistically significant difference in mean knowledge values ($p < 0.05$) was observed during these periods. Conversely, the control group displayed no statistically significant difference in mean knowledge values from pre-test to post-test I, post-test I to post-test II, and pre-test to post-test II ($p > 0.05$).

3) Student Action

The mean differences from *pre-test* to *post-test I*, *post-test I* to *post-test II*, and *pre-test* to *post-test II* of student actions in the intervention group and control group are presented in the following table:

Table 3. Mean difference and standard deviation of student actions in the intervention and control groups

Group	Data	Average Difference ± SD	t	P
Intervention	*Pre-test ke Post-test I*	-40,7 ± 22,58	-9,86	0,001*
	Post-test I ke Post-test II	-7,33 ± 18,56	-2,16	0,039
	Pre-test ke Post-test II	-48,00 ± 21,4	-12,29	0,000*
Control	*Pre-test ke Post-test I*	-1,33 ± 7,30	-1,00	0,326
	Post-test I ke Post-test II	-0,67 ± 8,2	-0,441	0,622
	Pre-test ke Post-test II	-2,00± 6,1	-1,795	0,083

Description * = significant

Table 3 presents a significant enhancement in the actions of participants in the intervention group, evident from pre-test to post-test I, post-test I to post-test II, and pre-test to post-test II. A statistically significant difference in mean knowledge values ($p < 0.05$) was observed during these intervals. In contrast, the control group showed no statistically significant difference in mean knowledge values from pre-test to post-test I, post-test I to post-test II, and pre-test to post-test II ($p > 0.05$).

4) Dental and Oral Hygiene Status (OHIS Status)

The mean differences from *pre-test* to *post-test I*, *post-test I* to *post-test II*, and *pre-test* to *post-test II* of OHIS status in the intervention group and control group are presented in the following table:

Table 4. Mean difference and standard deviation of OHIS status in intervention and control groups

Group	Data	Average Difference ± SD	t	P
Intervention	*Pre-test ke Post-test I*	2,32± 1,15	11,038	0,001*

	Post-test I ke Post-test II	0,41 ± 0,88	2,580	0,015
	Pre-test ke Post-test II	2,75 ± 1,19	12,603	0,000*
Control	*Pre-test ke Post-test I*	0,14 ± 0,55	1,419	0,166
	Post-test I ke Post-test II	0,06 ± 0,31	1,000	0,326
	Pre-test ke Post-test II	0,20 ± 0,62	1,764	0,088

Description * = significant

Table 4 reveals a reduction in the PHP-M scores of children in the treatment group from pre-test to post-test I, post-test I to post-test II, and pre-test to post-test II. This signifies a statistically significant improvement in the average oral hygiene status of children ($p < 0.05$). Conversely, in the control group, there was no statistically significant difference in the mean dental hygiene status of children from pre-test to post-test I, post-test I to post-test II, and pre-test to post-test II ($p > 0.05$).

b. Analysis of Differences Between Groups (*Independent t-test*) Knowledge, Attitude, Action and Dental and Oral Hygiene Status (OHIS Status)

1) Student Knowledge

The results of the analysis of student knowledge between the intervention group and the control group are as follows:

Table 5. Mean and standard deviation of students' knowledge between intervention and control groups

Knowledge	Group	Average ± SD	t	p	Description
Pre-test	Treatment	46,27 ± 16,88	-0,858	0,395	Not Significant
	Control	50,20 ± 18,594			
Post-test I	Treatment	80,43± 24,483	5,210	0,001*	Significant
	Control	51,47 ± 18,106			
Post-test II	Treatment	86,67 ± 22,489	6,953	0,001*	Significant
	Control	51,90 ± 51,90			

Table 5 indicates that there is no significant difference in students' knowledge before the intervention (pre-test) between the treatment group and the control group; this is statistically supported with a p-value > 0.05. However, there is

DOI : https://doi.org/10.51544/jmn.v7i1.4470

a significant difference in students' knowledge immediately after the treatment (post-test I) between the treatment group and the control group, as indicated by a statistically significant p-value of < 0.05. Additionally, there is a significant difference in students' knowledge two weeks after treatment (post-test II) between the treatment group and the control group, supported by a statistically significant p-value of < 0.05.

2) Student Attitude

The results of the analysis of student attitudes between the intervention group and the control group are as follows:

Table 6. Mean and standard deviation of students' attitudes between intervention and control groups

Attitude	Group	Average ± SD	t	p	Description
Pre-test	Treatment	52,67 ± 12,299	-1,203	0,234	Not Significant
	Control	48,28 ± 15,600			
Post-test I	Treatment	78,67 ± 16,554	6,282	0,001*	Significant
	Control	52,41 ± 15,505			
Post-test II	Treatment	90,67 ± 20,833	0,92	0,001*	Significant
	Control	55,17 ± 12,711			

Table 6 outlines that there is no noteworthy difference in the attitudes of mothers, acting as respondents before the intervention (pre-test), between the treatment group and the control group, as suggested by a statistically non-significant p-value > 0.05. Nevertheless, a significant difference in maternal attitudes emerges immediately after treatment (post-test I) between the treatment group and the control group, supported by a statistically significant p-value of < 0.05. Additionally, there is a substantial difference in maternal attitudes two weeks after treatment (post-test II) between the treatment group and the control group, highlighted by a statistically significant p-value of < 0.05.

3) Student Action

The results of student actions between the treatment group and the control group are as follows:

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Table 7. Mean and standard deviation of student actions between intervention and control groups

Action	Group	Average ± SD	t	p	Description
Pre-test	Treatment	43,3 ± 20,4	-0,423	0,674	Not Significant
	Control	45,5 ± 19,2			
Post-test I	Treatment	84,0 ± 15,2	8,364	0,006*	Significant
	Control	46,9 ± 18,7			
Post-test II	Treatment	91,3 ± 15,5	9,330	0,001*	Significant
	Control	47,6 ± 20,3			

Table 7 denotes that there is no notable difference in student actions before the intervention (pre-test) between the treatment group and the control group, evident from a statistically non-significant p-value > 0.05. Nonetheless, there is a substantial difference in students' actions immediately after the treatment (post-test I) between the treatment group and the control group, supported by a statistically significant p-value < 0.05. Additionally, there is a significant difference in student actions two weeks after treatment (post-test II) between the treatment group and the control group, as indicated by a statistically significant p-value < 0.05.

4) Dental and Oral Hygiene Status (OHIS Status)

The results of the analysis of children's OHIS status between the treatment group and the control group are as follows:

Table 8. Mean and standard deviation of OHIS status between treatment and control groups

OHIS Status	Group	Average ± SD	t	p	Description
Pre-test	Treatment	4,02 ± 0,99	-1,721	0,091	Not Significant
	Control	4,48 ± 1,09			
Post-test I	Treatment	1,69 ± 0,75	-10,278	0,000*	Significant
	Control	4,34 ± 1,20			

DOI : https://doi.org/10.51544/jmn.v7i1.4470

Website: http://e-journal.sari-mutiara.ac.id/index.php/NERS/index

	Treatment	1,28 ± 0,50			
Post-test II	*Control*	4,28 ± 1,24	-12,346	0,000*	Significant

Table 8 shows that there is no significant difference in the oral hygiene status of students before the intervention (pre-test) between the treatment group and the control group, this is shown statistically p>0.05. There is a significant difference in students' oral hygiene status after treatment (post-test I) between the treatment group and the control group, this is shown statistically p<0.05. There is a significant difference in the oral hygiene status of students 2 (two) weeks after treatment (post-test II) between the treatment group and the control group, this is shown statistically p<0.05).

4. DISCUSSION

1. Knowledge on Dental Health Maintenance

Based on the statistical examination utilizing an independent t-test among fifth-grade students at SDN 2 Lamcot, Aceh Besar, the research reveals an absence of a substantial variance in student knowledge prior to the intervention (pre-test) between the treatment group and the control group, as indicated by a statistically non-significant p-value > 0.05. However, a notable difference in students' knowledge immediately after the intervention (post-test I) was discerned between the treatment group and the control group, supported by a statistically significant p-value < 0.05. Additionally, a significant difference in students' knowledge two weeks after the intervention (post-test II) was identified between the treatment group and the control group, with a statistically significant p-value < 0.05 (Table 5).

Furthermore, the paired sample t-test analysis conducted on fifth-grade students from the control group (Class VB) at SDN 2 Lamcot displayed no statistically significant difference in the mean knowledge scores of students from pre-test to post-test I, from post-test I to post-test II, and from pre-test to post-test II (p>0.05). Conversely, within the treatment group (Class VA), a statistically significant difference in the mean value of student knowledge was evident from pre-test to post-test I, from post-test I to post-test II, and from pre-test to post-test II (p<0.05). This suggests that the demonstration method of brushing teeth effectively enhances students' understanding through visual experience and hands-on practice. The visual demonstration aids in providing a direct and practical display of the proper teeth-brushing

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techniques, catering to the learning preferences of grade IV students at SDN 2 Lamcot.

The demonstration method encourages active learning, where students do not just passively receive information, but are also involved in observing and understanding the content. This activity can improve knowledge retention. Extension with demonstration methods may involve direct interaction between extension workers and students.[13] The questions asked by the students and the responses given by the counsellor can reinforce understanding and ensure that the concepts taught are truly understood. The demonstration method also provides students with a real-life experience of how to brush their teeth properly. This experience can help relate knowledge to relevant situations in their daily lives. Students may feel more engaged and excited in learning when they see a hands-on demonstration.[14] This may increase their interest in understanding the concepts and applying the practices taught. Demonstrations involving correct tooth brushing practices can be repeated periodically, giving students a reminder of the correct way to care for their teeth. After gaining new knowledge, students may share this information with their peers, creating a social circle that promotes correct practice.[15]

The results of this study are also supported by the results of research conducted by Ilyas in 2012 showing that one week after counselling with the demonstration method, the plaque value decreased by 2.269 in the treatment group. Meanwhile, the control group experienced an increase in plaque value of 0.485. This data shows that there is an effect of the demonstration method of oral health education on sixth grade elementary school students.[16] The results of this study prove that the extension of the tooth brushing demonstration method can improve students' knowledge in maintaining oral health.

2. **Students' Attitude towards Dental Health Maintenance**

Based on the analysis using an independent t-test on fourth-grade students of SDN 2 Lamcot, Aceh Besar, it was revealed that there was no significant difference in student attitudes before the intervention (pre-test) between the treatment group and the control group, as evidenced by a non-significant p-value > 0.05. However, a significant difference in student attitudes immediately after treatment (post-test I) was noted between the treatment group and the control group, with a statistically significant p-value < 0.05. Additionally, a significant difference in students' attitudes two weeks after treatment (post-test II) was observed between the treatment group and the control group, supported by a statistically significant p-value < 0.05 (refer to Table 6).

Moreover, the paired sample t-test conducted on fourth-grade students of SDN 2 Lamcot in the control group (Class IVB) showed no statistically significant difference in mean student attitude scores from pre-test to post-test I, from post-test I to post-test II, and from pre-test to post-test II (p > 0.05). In contrast, the attitude scores of students in the

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treatment group (Class IVA) exhibited a statistically significant difference in the mean value from pre-test to post-test I, from post-test I to post-test II, and from pre-test to post-test II ($p < 0.05$). This suggests that the intervention, incorporating the demonstration method of brushing teeth, effectively induced positive changes in students' attitudes toward oral health.

This shows that by giving counselling on the tooth brushing demonstration method, students' knowledge can be improved, meaning that counselling on the tooth brushing demonstration method provides new knowledge to students about the importance of maintaining dental health. When they understand the benefits, positive attitudes towards dental care practices will increase. A live demonstration of the correct way to brush teeth provides a practical example of how to do it. Seeing this in action can make students feel more confident to adopt the practice. Through demonstrations, students can better understand how plaque and related dental problems can affect their dental health. A better understanding of these risks can encourage a more positive attitude towards maintaining dental hygiene. The demonstration method involves students' active involvement in observing and following the practice being taught. This involvement can help stimulate interest and positive attitudes towards good dental care. After understanding the benefits of proper brushing practices, students may feel motivated to adopt better attitudes towards their dental care. Hands-on practice with guidance during counselling allows students to experience the correct way to brush their teeth. This experience can help shape positive attitudes towards proper dental care. Through demonstrations, counsellors or teachers can be good role models in maintaining dental hygiene. This may influence students to emulate this positive behaviour. After being provided with information and correct practices, students may feel motivated to maintain a positive attitude towards dental care as they can discuss it with their peers or even parents.[17]

The results of this study are also supported by the results of research conducted by Ali in 2016 showing a significant difference between dental health education without demonstration of 70.48% and dental health education using tooth brushing demonstration of 86.95%. The Wilcoxon test shows a value of $p = 0.036$ ($p <0.05$), which concludes that there is a significant difference between dental health education that uses tooth brushing demonstrations and those that do not use tooth brushing demonstrations.[18] The results of this study prove that the extension of the tooth brushing demonstration method can improve students' attitudes in maintaining oral health.

3. **Student's Action in Maintaining Dental Health**

In the analysis between groups (independent t-test) conducted on fourth-grade students of SDN 2 Lamcot, Aceh Besar, it was

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observed that there was no significant difference in student actions before the intervention (pre-test) between the treatment group and the control group, as indicated by a non-significant p-value > 0.05. However, a noteworthy finding was the significant difference in student actions immediately after the treatment (post-test I) between the treatment group and the control group, supported by a statistically significant p-value < 0.05. Similarly, a significant difference in student actions two weeks after treatment (post-test II) was identified between the treatment group and the control group, demonstrating statistical significance with a p-value < 0.05 (refer to Table 7).

Furthermore, the paired sample t-test, conducted on grade IV students of SDN 2 Lamcot Aceh Besar in the control group (Class IVB), revealed no statistically significant difference in the mean value of students' actions from pre-test to post-test I, from post-test I to post-test II, and from pre-test to post-test II (p > 0.05). This suggests that, in the control group, the intervention did not elicit a significant change in students' actions.

While the value of student actions in the treatment group (Class IVA) from *pre-test* to *post-test I*, from *post-test I* to *post-test II* and from *pre-test* to *post-test II*, there was a statistically significant difference in the average value of student actions (p<0.05). This shows that by giving counselling on the demonstration method of tooth brushing, students' actions can be improved, meaning that through the demonstration method, students can see firsthand how to properly brush their teeth. By having this practical example, students become more confident in carrying out the correct action. The tooth brushing demonstration provides a deeper understanding of the correct technique and the steps to follow. This helps students in applying the right action. The demonstration process actively involves the student in observing and possibly participating in the tooth brushing practice. This involvement can stimulate students' interest and willingness to continue the action in the future. Through consistent demonstrations, students can be trained to carry out the correct action every day. This helps form positive habits that can continue in the long run. Demonstrations can also trigger discussions and interactions between students about the practices they learnt. This kind of interaction can reinforce understanding and encouragement to carry out the action. An understanding of the importance of maintaining dental health and the positive effects that can result from correct actions can encourage students to commit to the practice.[9]

The results of this study are also supported by the results of research conducted by Nahak in 2021 which showed significant differences in the level of oral hygiene after counselling using the demonstration method. After counselling, the level of oral hygiene increased to 100%, compared to the condition before counselling. This shows that the demonstration method is effective in improving the

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dental and oral hygiene of respondents.[19] The results of this study prove that the extension of the tooth brushing demonstration method can improve student actions in maintaining oral health.

4. **Dental and Oral Hygiene Status (OHIS Status)**

The comparison of data from class IV students at SDN 2 Lamcot Aceh Besar was subjected to rigorous statistical analysis. Initially, no substantial distinction in the oral hygiene status was detected between the treatment and control groups before the intervention, as evidenced by the pre-test results ($p>0.05$). However, a noteworthy shift became apparent after the treatment, with a statistically significant difference observed in the oral hygiene status of students between the treatment and control groups post-intervention ($p<0.05$). This distinction persisted even two weeks later, indicating a sustained impact on the oral hygiene status of students in the treatment group compared to the control group ($p<0.05$) (refer to table 8).

Further scrutiny was applied through a paired sample t-test within the control group (class IVB), specifically examining the OHIS Status scores during various phases: from pre-test to post-test I, from post-test I to post-test II, and collectively from pre-test to post-test II. The meticulous analysis revealed no statistically significant discrepancy in the mean score of students' OHIS status across these phases ($p>0.05$). This emphasizes the importance of statistical rigor in elucidating the impact of the intervention on oral hygiene status among grade IV students.Meanwhile, the OHIS status scores of students in the treatment group (Class IVA) from *pre-test* to *post-test I*, from *post-test I* to *post-test II* and from *pre-test* to *post-test II*. There is a statistically significant difference in the mean score of OHIS Status ($p<0.05$). This is because the tooth brushing demonstration extension method provides students with better knowledge on the correct way to brush their teeth. With a deeper understanding, they may be better able to identify areas in the mouth that need extra care. The tooth brushing demonstration provides a practical example of how to brush the teeth properly. By following the correct technique, students can effectively reduce plaque and calculus build-up. Through the demonstration, students can see the positive impact of correct practice. These results may motivate them to put more effort in maintaining oral hygiene. The demonstration method may involve students directly in the practice of brushing their teeth. This active involvement can help them experience first-hand how the action has an impact. Demonstrations can produce a strong visual effect, with students directly seeing the changes before and after brushing their teeth properly.[20]

These results are in line with research conducted by Nurmalasari (2021) which shows that the results of the Wilcoxon Signed Rank Test are significant ($p <0.05$). The results of the study can be

DOI : https://doi.org/10.51544/jmn.v7i1.4470

Website: http://e-journal.sari-mutiara.ac.id/index.php/NERS/index

concluded that counseling using dental phantom media can affect student behaviour regarding how to brush teeth.[21] Based on the results of this study, it can be concluded that the hypothesis that there is an effect of counselling on the demonstration method of tooth brushing on the status of dental and oral hygiene in students can be accepted.

5. CONCLUSION

Based on the outcomes derived from the research and subsequent discussion, the following conclusions can be drawn:

1. There exists a statistically significant difference in the mean scores encompassing knowledge, attitude, action, and OHIS status of students immediately post-intervention and one month post-intervention, discernible between the treatment group and the control group ($p < 0.05$).
2. Substantial changes were observed in the mean scores of knowledge, attitudes, actions, and OHIS status of students within the treatment group after the implementation of tooth brushing demonstration method counseling, exhibiting statistical significance ($p < 0.05$).

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