

THE EFFECTIVENESS OF TOOTH BRUSHING WITH BASS AND ROLL METHOD ON DECREASIN PLAQUE INDEX IN DEAF STUDENTS

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ABSTRACT. The cause of plaque is caused by an unclean mouth and teeth. For example, the case experienced by deaf students at SDLB-B Karya Mulia Surabaya has a poor category plaque index of 3.55. This case tends to be experienced by children with special needs because they do not understand well the correct tooth brushing methods so that the condition of the mouth and teeth can remain clean. The objective of the research is to ascertain the effectiveness of different tooth brushing methods for reducing the plaque index in deaf students at SDLB-B Karya Mulia Surabaya. The sample data implemented in the research is deaf students at SDLB-B Karya Mulia Surabaya aged 9-12 years with a total of 50 students. Then the students will be divided into two groups, where each group will be tested quasi-experimentally through the application of pre-test and post-test. Furthermore, the measurement of plaque index both after and before brushing teeth by implementing the Podshadley and Haley method. The results of this study showed a reduction in plaque index within both groups before and after brushing using both methods. The observed results, with a significance value of 0.344 (2-tailed), suggest that there is no significant difference between the two groups in terms of the effectiveness of brushing teeth in reducing the plaque index. Brushing teeth with bass and roll methods shows the same effectiveness in decreasing the plaque index.

Keywords: Bass method, roll method, deaf students, plaque index

1 INTRODUCTION

Cases of oral and dental health problems are most susceptible to children with special needs, so it requires the involvement of other individuals to pay attention to their health, especially the oral and dental organs (Alse, A. S et al.,2015). Oral health is strongly influenced by age (especially in children), disease severity and environmental conditions, and children are highly dependent on parents, siblings or caregivers for oral care.(Octiara et al., 2018) (Park, D. Y. et al., 2015).

Deafness is a physical disability. Deafness can also mean that a child cannot hear. Hearing loss can be either a lack of hearing or total hearing loss (Sriram, S.,2019). . Deaf children are physically no different from other children. You can tell that a person is deaf by the way they speak (Tugeman, H et al., 2018) (Prem Kumar, P, 2019). Usually, the child speaks with a small voice or does not speak at all and only uses sign language. (Nofus & Damastuti, 2021) In 2018, according to Basic Health research data, the number of children who experienced deafness or disability from the age of 2 years to 4 years 11 months was 0.11%. (Kementerian Kesehatan RI, 2018). An initial examination conducted by researchers by examining the PHP index of 10

students of SDLB-B Karya Mulia Surabaya, found that 70% of students had an average plaque index PHP of 3.55 with poor criteria.

Dental plaque causes pathological conditions in the oral cavity (Subhashini, M, 2017). For example, the occurrence of gingivitis with a triggering factor is the accumulation of tartar for days or even weeks, where this tartar is never removed or cleaned (Nair, D. J et al., 2021). Acid can cause plaque demineralization and cause dental caries (Kasuma, 2016). One effective approach to maintaining oral health and preventing potential health issues in both soft and hard tissues is through mechanical methods, specifically the frequent practice of tooth brushing (Mounica, C, 2019). This method ensures the removal of leftover food particles and drink remains, maintaining hygiene within the oral cavity and on the teeth (Putri et al., 2018). The tool that can be used to clean the surface of the teeth from the remnants of drinks and food is a toothbrush (Hadi, S et al., 2022). Brushing should be done before breakfast to minimize the occurrence of demineralization due to mechanical erosion on the tooth surface (Blanco Lopez, M. A., et al., 2023). Further oral hygiene can be done at night, before bedtime. During sleep, saliva production is reduced and buffering is reduced, so there is no need to brush away all dental plaque (Tarigan, 2014)(Li, H., & Jing, L, 2023).. Good and proper oral hygiene can help prevent tooth decay, gingivitis, periodontitis, and bad breath. Good and proper brushing can minimize damage to the gums and teeth. Some methods of brushing teeth are Horizontal, Vertical, Roll, Charters, Stillman, Bass, and Fones (Putri et al., 2018) (Huang, H., & Lin, S, 2016).

The researcher will compare the two types of methods between roll and bass which have the effectiveness in reducing the plaque index to keep the mouth and teeth clean, where the experimental subjects are deaf students.

2 RESEARCH METHODS

This research implements a quasi-experimental method using post-test and pre-test with the research population being 58 students of SDLB-B Karya Mulia Surabaya. Then the 58 students were divided into two groups, namely the bass and roll method groups. Furthermore, the data that has been collected enters the stage of statistical testing of paried T-Test and normality testing with the Shapiro-Wilk technique to analyze the mean value and the value of plaque index reduction both before and after brushing teeth. Ethical approval for this study was obtained from Health Polytechnic of Surabaya Ethics Committee, with approval number: No.EA/1553/KEPK-Poltekkes_Sby/V/2023

3 RESULTS

Table 1. Respondent Overview Based on Age

Age	N	%
9 years	17	34
10 years	11	22

11 years	9	18
12 years	13	26
Total	50	100

According to the data presentation, it is known that the age of SDLB-B Karya Mulia Surabaya students who are respondents are students aged 9-12 years, where students aged 12 years, 11 years, 10 years, and 9 years are 13, 9, 11, and 17 students respectively.

Table 2. Average Plaque Index Before and After Brushing with the Bass and Roll Method in SDLB-B Karya Mulia Surabaya Students in 2023

Method	N	Average Plaque Index	
		Before	After
Bass	25	3,569	0,676
Roll	25	4,116	0,580

Based on table 2, both groups of tooth brushing methods obtained a decrease in plaque index after brushing teeth.

Table 3. Independent T-Test Results of Plaque Index for Brushing Teeth with the Bass and Roll Method in SDLB-B Karya Mulia Surabaya Students in 2023

Variable	N	Mean±Std. Deviation	Sig.(2 tailed)
Brushing teeth with bass method	25	0,676±0,3503	0,344
Brushing teeth with roll method		0,580±0,3606	

Based on table 3, the significance value (α) exceeds 0.05, namely 0.344, meaning that there is no significant difference between the reduction in plaque index in the two groups of tooth brushing methods.

4 DISCUSSION

The pre-intervention average plaque index in the bass and roll method group exceeded 3.6, indicating a categorization of "poor." The high plaque index value is due to the absence of behavior to brush teeth. A behavior will arise if there is proper knowledge in an individual. In a research stated that an individual will tend to do the right behavior for a long duration if he has optimal insight and vice versa, including the behavior of maintaining oral and dental hygiene (Veriza et al., 2020) (Khan, A. J et al., 2023).

The average plaque index showed a reduction after intervention in both the bass and roll method groups less than 0,7, indicating a categorization of "good." This is because students already know how to brush their teeth using both the roll and bass

methods. This statement is in line with the S-O-R theory by Skinner (in Notoatmodjo, 2018) that environmental conditions can be used as a stimulus or stimulus from outside so that the organism will respond and make behavior a habit so that it changes the behavior (Wongchachom, W., & Kapol, N, 2019)

Based on the results of statistical test, it is known that the sig.(2-tailed) value is $0,344 > \alpha 0.05$, which means H1 is rejected and H0 is accepted. Thereby, it can be concluded that there is no significant distinction between the two methods, showing that both methods are equally effective in reducing the plaque index among deaf children.

4.1 Bass Method

Based on the review of research conducted by Setyawati (2018) which shows that the application of the bass method in brushing teeth can reduce the mean value of the plaque index compared to before implementing the method. The bass method can reduce the plaque index due to its technique that places the tip of the bristles at the gumline which causes coral or remnants of drinks and food attached to the sulcus to be lifted (Mohan, R, 2018). This statement is in line with the results of research by Laut et al., (2021) namely the condition of the mouth and teeth of the respondents in a clean state after being given a simulation of how to brush their teeth by applying the bass method. The bass method has a good level of efficiency when compared to other methods of brushing teeth. A similar statement was also conveyed by Pindobilowo et al., (2020), namely the application of the bass method in brushing teeth has a better level of effectiveness to reduce plaque in children if done correctly so that the gingival sulcus can be cleaned. Linking with research conducted by Rajwani et al., (2020) the advantage of brushing with the bass method is that it can reach into the gum crevice and clean and control plaque without causing gingivitis.

4.2 Roll Method

According to data from research conducted by Kharisma & Yahya (2021), it shows that the roll method can reduce the plaque index on teeth compared to before applying the method. In line with research conducted by Habibah & Danan (2019), namely the method of brushing teeth with a roll has better effectiveness and this is what makes the roll method preferable because it can reach all parts of the teeth and the method is relatively easy, so it is effective for reducing plaque scores to the proximal area. According to research conducted by Fadillah (2019), to reduce plaque accumulation the roll method is more effective than other methods, because in the roll method what is done is to place the bristles of the toothbrush on the gingiva leading to the root and with the direction of movement upwards towards the occlusal surface. Similar to research conducted by Sihombing & Sinaga (2022), the roll method is more effective in reducing plaque scores compared to other methods, so as to reduce and prevent supragingival tartar formation. The method is simple and can reach all parts of the teeth with optimal results

5 CONCLUSION AND RECCOMENDATION

The results of this study showed a reduction in plaque index within both groups before and after brushing using both methods. The observed results, with a significance value

of 0.344 (2-tailed), suggest that there is no significant difference between the two groups in terms of the effectiveness of brushing teeth in reducing the plaque index. Suggestions that can be given by researchers are students expected to improve dental and oral hygiene by brushing their teeth with the right methods at the right time so that plaque can be controlled so as not to cause other dental and oral diseases. It is hoped that teachers will also motivate students in maintaining oral hygiene by brushing their teeth twice a day appropriately in the morning after breakfast and at night before bed.

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