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Enhancing Toothbrushing Skills of Slow Learner Students: A Comparative Study of the Effectiveness of Pop Up Books and Hand Puppets Media

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ABSTRACT Slow learner children are a group of children with an IQ of 70-90 who experience difficulties in adapting, responding to stimuli, and thinking. The impact of these barriers is the inability to perform self-care such as taking care of yourself and brushing your teeth properly. There are 14% of slow learner children in Indonesia and 80.64% of them have poor oral hygiene caused by improper brushing. One effort that can be done is to conduct counseling about brushing teeth using appropriate media, namely pop-up book media and hand puppets. The problem in this research is that the slow learner students' brushing skills are still in the bad category. This study aims to determine the effectiveness of pop-up book media and hand puppets on the teeth-brushing skills of slow-learner students. This type of research is a Quasy Experiment with a pretest-posttest design, with a population of 20 slow-learner students. The data collection instrument used was an observation sheet. The data analysis technique uses the Wilcoxon test and the Mann-Whitney test. The results in this research showed that there were differences in the effectiveness of pop-up book and hand puppets media on the teeth brushing skills of slow learners. The results of the Wilcoxon test showed that counseling using hand puppet media is more effective in improving the teeth brushing skills of slow learner students in grades 3-5 in the inclusion class of SDN Mojo III and SDN Airlangga I Surabaya City after 21 days of observation.

KEYWORDS Pop Up Book Media; Hand Puppets Media; Toothbrushing Skills of Slow Learner

I. INTRODUCTION

The results of Riskesdas (2018) stated that 94.7% of people already have the habit of brushing their teeth every day. However, from this percentage, only 2.8% brush their teeth at the right time, namely at least twice a day, after breakfast, and before going to bed at night [1]. This shows that people's knowledge about tooth brushing is still lacking. Improper and ineffective tooth brushing can lead to plaque accumulation. Accumulation of dental plaque that is not cleaned can cause various dental and oral health problems [2]. By the results of Riskesdas (2018), as many as 57.6% of Indonesian people have dental and oral problems [1]. Providing information or knowledge about how to brush your teeth properly and correctly is needed to reduce plaque and avoid dental and oral

health problems that occur in the community, especially in children so that they can carry out self-care independently [3].

As many as 14% of children in Indonesia are slow learners, of this percentage 80.64% of them have poor dental and oral hygiene caused by improper tooth brushing habits [4]. This is in line with the results of an initial survey conducted by researchers at SDN Mojo III that the slow learner students' tooth brushing skills were still in the bad category, because of the 10 students observed, only 1 student had good brushing skills.

Slow learner children are a group of children with an IQ of 70-90 (slightly below average) without mental retardation who require special education services so that they can understand lessons well. Children who experience slow learning problems

require special attention from teachers and other school educators [5].

All types of student characteristics have the same right to acquire knowledge in the formal education system. Inclusive education is an education system that provides opportunities for all students who have disabilities or potential intelligence and special talents to participate in learning in an educational environment using the curriculum that applies to the school concerned. In inclusive education students with special needs become more respected and accepted because they can study in regular schools together with other students and interact naturally with each other, which is by what normal children should experience in general. Inclusive education in Indonesia is growing rapidly, and the number of inclusive schools is increasing from year to year, according to the National Socio-economic Survey (Susenas), in 2008 the number of inclusive schools nationally from elementary to high school was only 254 schools. However, in 2014 the number increased significantly to 2,430 formal schools participating in the implementation of inclusive education. Based on the information obtained, SDN Mojo III and SDN Airlangga I are regular schools that accept children with special needs to study together with their peers in regular classes by government policy in Regulation of the Minister of National Education Number 70 of 2009 concerning Inclusive Education for Students who have disabilities and have intelligence potential or special talents [6].

This slow learner child experiences obstacles or delays in mental development, difficulty thinking, responding to stimuli, and adapting. Slow learner children are very backward in basic subjects, so they need a longer learning time compared to other students who have normal intelligence [7]. The impact of these obstacles is their inability to perform self-care such as taking care of themselves, helping themselves, and brushing their teeth in the right way. If this problem continues, their quality of life will continue to decline. Lack of knowledge can affect children's skills in maintaining healthy teeth and mouth. Providing information or knowledge is needed to improve the teeth brushing skills of slow learner children. Slow learner children are children who cannot receive information in the abstract, so they need concrete or real media. The use of media aids can make it easier for slow learner children to receive and understand the information provided, one of which is by using three-dimensional media [8].

Pop-up book media is a type of three-dimensional media that is capable of providing interesting effects, because pop-up books contain elements of entertainment through illustration images that can be shaped, moved, and each page opened will reveal a beautiful and extraordinary embossed illustration image [9]. The material contained in the pop-up book can be adapted to the teaching material to be conveyed while still paying attention to the learning steps so that the role of the media is appropriate to be applied to students during learning, because it can attract students to study well [10].

According to Haryani & Siregar's research, the use of pop up book media helps students to be more active and have an interest in learning and can increase children's knowledge and learning motivation to start brushing their teeth, set the frequency of brushing their teeth, namely twice a day, know how to maintain a toothbrush, and brush their teeth properly [11]. This is in line with research conducted by Pudentia et al. that attractive pop-up books can affect respondents' assessment of knowledge and can lead to changes in respondent behavior [12].

Puppet media is also classified as a three-dimensional type of media, this media can make it easier for teachers to convey stories easily because through hand puppets children will be more interested in listening and paying attention to the contents of the story so that the information and messages contained in the story can be received by children. well. Hand puppets can also be used to stimulate children to focus on all the teaching activities that will be given to them [13].

According to research by Ediyarsari et al. tooth brushing education using doll media is more effective than education using film media. Puppet stories can be a fun medium because puppets encourage children to fantasize, imagine, and develop cognition [14]. Based on Pekolj's research, puppets can be used to develop language skills, counting, adopting new materials, practicing communication, and developing motor, visual and auditory skills. Fine motor skills training can improve attention and focus, express creativity, and develop imagination [15].

So, this study aims to analyze the effectiveness of pop-up book media and hand puppets on teeth brushing skills in slow learners grades 3-5 in the inclusion class of SDN Mojo III and SDN Airlangga I Surabaya.

The results of this study can be used to add insight into the field of education. Especially oral health education in children with special needs, one of which is slow learner children. The results of this study can also be applied practically in the field and in the classroom as a form of oral health learning, so that students can understand how to brush their teeth properly and correctly and can form good and healthy behavior to support children's oral health from an early age. Thus the innovations that have been found can be used in teaching related to good and correct brushing skills.

II. METHOD

This research was conducted at SDN Mojo III and SDN Airlangga I Surabaya which were held from January to February 2023. This research is analytical research with Quasy Experiments. The population in this study were 20 slow-learner students in grades 3-5 in the inclusion class at SDN Mojo III and SDN Airlangga I Surabaya. The primary data collection technique on the slow learner student's tooth brushing skill variable in this study used an observation sheet. The data collection procedure was carried out by the researcher by measuring teeth brushing skills using an observation sheet where previously the respondent filled out an informed consent form to agree to be a respondent in this study. Each

respondent who can perform the movement correctly is given a score of 1 and the wrong movement is given a score of 0. The category of assessment is good if 4-5 movements are correct, moderate if 2-3 movements are correct, and bad if 0-1 movements are correct.

Researchers use the theory of behavior change for 21 days. Within 21 days it is divided into three stages to form memories and order the mind and body to carry out new habits [16]. This study began by conducting a pretest in each group to determine the level of tooth brushing skills in slow learner students. In the first 7 days, treatment was given in the form of counseling using pop up book media for slow learner students at SDN Mojo III and counseling using hand puppet media for slow learner students at SDN Airlangga I, then for the second 7 days motivation to brush their teeth properly was given by the parents of students, then for the third 7 days released students to practice brushing their teeth independently. On the last day, a posttest was conducted to determine the level of change in the tooth brushing skills of slow learner students in each group after being treated.

The analysis technique used in this study was the Wilcoxon test to determine the score of tooth brushing skills before and after counseling in each group, both the pop-up book media group and the hand puppet group, as well as using the Mann Whitney test to determine differences in increasing tooth brushing skills in both groups.

III. RESULTS

Based on the data presented in TABLE 1, it can be concluded that the majority of respondents in this study were boys (85%), while only a small proportion were girls (15%). In terms of age, the majority of respondents were 10 years old (40%). TABLE 2 shows that there was an increase in the skills of the respondents after receiving counseling, with 4 out of 10 respondents (40%) reaching a moderate skill level. This shows that counseling using pop-up book media can improve respondents' skills in brushing their teeth.

TABLE 1
Characteristics of Respondents

Characteristics	Frequency	Percentage (%)	
Gender	Boy	17	85
	Girl	3	15
Age	8 Years old	4	20
	9 Years old	3	15
	10 Years old	8	40
	11 Years old	5	25

TABLE 3 shows that there was an increase in the skills of the respondents after receiving counseling, with 7 out of 10 respondents (70%) achieving a good level of skills. This shows that counseling using hand puppet media can improve the skills of respondents in brushing their teeth.

TABLE 2
Frequency Distribution of Slow Learner Students Teeth Brushing Skills Before and After Counseling Using Pop-Up Book Media

Tooth Brushing Skills Category	Before	After	Before	After
	Frequency	Percentage (%)	Frequency	Percentage (%)
Good	0	0	3	30
Moderate	3	30	4	40
Bad	7	70	3	30
Total	10	100	10	100

TABLE 3
Frequency Distribution of Slow Learner Students Toothbrushing Skills Before and After Counseling Using Hand Puppet Media

Tooth Brushing Skills Category	Before	After	Before	After
	Frequency	Percentage (%)	Frequency	Percentage (%)
Good	0	0	7	70
Moderate	3	30	3	30
Bad	7	70	0	0
Total	10	100	10	100

TABLE 4
Wilcoxon Test Results Before and After Counseling Using Pop-Up Book Media

Variable	Category			p Value
	Good	Moderate	Bad	
Before Counseling	0	3	7	0.008
After Counseling	3	4	3	

Based on TABLE 4 a p value of 0.008 is obtained, thus it is known that there are differences in teeth brushing skills before and after being given counseling using pop-up book media.

TABLE 5
Wilcoxon Test Results Before and After Counseling Using Hand Puppets Media

Variable	Category			p Value
	Good	Moderate	Bad	
Before Counseling	0	3	7	0.004
After Counseling	7	3	0	

Based on TABLE 5 a p value of 0.004 was obtained, so it can be seen that there are differences in teeth brushing skills before and after being given counseling using hand puppet media.

TABLE 6

Differences in the Effectiveness of Pop-Up Book Media and Hand Puppets in Improving the Tooth-brushing Skills of Slow Learner Students

Groups	Mann Whitney Test						ρ Value
	Practice						
	Good		Moderate		Bad		
	n	%	n	%	n	%	
Pop Up Book	3	30	4	40	3	30	0.042
Hand Puppet	7	70	3	30	0	0	

Based on TABLE 6 a ρ value of 0.042 was obtained, so H1 was accepted and H0 was rejected. It can be concluded that there is a significant difference in effectiveness between counseling using pop-up book media and hand puppets on teeth brushing skills of slow learner students in grades 3-5 in the inclusion class of SDN Mojo III and SDN Airlangga I Surabaya City.

IV. DISCUSSION

Barriers that slow learner children have can have an impact on their inability to perform self-care such as taking care of themselves, helping themselves, and brushing their teeth in the right way, if this problem continues, their quality of life will continue to decline. Lack of knowledge can affect children's skills in maintaining oral health [8].

Based on the results of the study it was found that the teeth-brushing skills of slow learners at SDN Mojo III and SDN Airlangga I were in the bad category. Similar research results are also known from research conducted by Prasetyowati, et al. that the practice of brushing their teeth was carried out before counseling was carried out with the puppet stage, it was found that on average children could not brush their teeth properly and correctly.

Increasing the knowledge of slow learner students regarding how to brush their teeth properly can help improve students' brushing skills. Increasing the knowledge of slow learner students is done by providing counseling on how to brush their teeth properly. However, slow-learner children have unique characteristics that are different from normal children. One of the striking characteristics is that they have difficulty understanding subjects, especially abstract ones. Slow-learner children are usually unable to cope with the work that is generally expected of their age group. This means that slow learner students need more time to complete their assignments and of course in this case a special strategy is needed in slow learner learning. A learning strategy is a series of activities including the use of methods or media and the use of various resources in learning to achieve predetermined goals. The use of concrete or real media tools can make it easier for slow learners to receive and understand the information provided, one of which is by using three-dimensional media [7].

Interventions to improve teeth brushing skills for slow learner students were given in the form of counseling using

pop-up book media and hand puppets showing differences in tooth brushing skills before and after counseling.

Pop-up books can improve students' teeth brushing skills because a three-dimensional display that can move in a pop-up book can present the real world so that it is by the concrete operational stage of children's cognitive development. Pop-up books can develop creativity, stimulate imagination, and be more active in learning the contents of reading books. Pop-up books can also be used independently or in groups [17]. Through pop-up book media, it is easy and fast for students to learn something because it is assisted by unique visuals. The impact can provide excellent learning motivation to students. The design style displayed in the pop-up book can provide a stimulus for children to use it because not only is the visual easy to digest but also the surprising elements of the book make children amazed at first sight [18]. Pop-up books can involve students kinetically by opening books [19]. This is in line with the opinion expressed by Haryani & Siregar, that pop-up books can be an alternative to attract more students' attention in supporting students understanding of dental health education. Pop-up books are also easier to use and more practical [11].

According to Pudentia et al., A unique and attractive pop-up book display can stimulate children's learning, make it easier for them to remember the material, and develop children's abilities. Pop-up books can also serve to bridge the relationship between real-world situations and the symbols that represent them. Media images presented in pop-up books are concrete to overcome the limitations of one's observation and to clarify a problem [12]. This is by the opinion expressed by Pratiwi et al. that pop-up books can also be used as examples to explain abstract concepts and require concrete objects in learning, and have the ability to strengthen the message to be conveyed in a narrative so that it can be felt more [20][21]. Pop-up books are also suitable for use as learning media for mentally retarded children because they match the characteristics of mentally retarded children, namely, they like to learn with something real [22].

Hand puppets can also improve students' teeth-brushing skills because hand puppets are a type of fun three-dimensional media to support students skills [23]. Hand puppets can trigger children's interest in seeing and hearing, as well as make children interested in trying to use hand puppets which will encourage them to imagine in their language [24]. This is also in line with the research by Ediyarsari et al. that learning about brushing teeth with hand puppet stories is more effective than using film media. The advantage of using puppet stories as a learning medium can help children learn while seeing, hearing, and imitating the storyline or material presented [14].

The selection of hand puppets as learning media can attract students attention, and interest, and be a good stimulus. Hand puppet media helps facilitate students' understanding of the story being told. Hand puppets are also a communicative medium and are suitable for visualizing a story [25]. Hand puppets are quite easy to find and implement in the learning

process [26]. The application of hand puppets can develop students' skills, improve students memory, and develop their creative potential [27].

The results of this study are in line with the results of Prasetyowati et al. that there is a change in the practice of brushing teeth after the use of puppet stage media. Evidenced by the increase in the average results of children's teeth brushing skills after counseling using the puppet stage in the very good category. Counseling with the puppet stage makes it easy for children to understand how to brush their teeth properly, respond quickly, and be able to practice how to brush their teeth as exemplified [28].

According to Kroger & Nupponen, hand puppets can increase knowledge and change attitudes towards persons with disabilities [29]. This is in line with research conducted by Pekolj, that hand puppets can be a good medium of communication between students who need special education and teachers, especially with students who are introverts and slow learners. Hand puppets can also be a motivation for students to develop motor skills [15].

There are several weaknesses and limitations of this study, namely the small number of samples and the lack of variety. This study was only devoted to looking at the level of tooth brushing skills, but no monitoring was carried out until the formation of good and correct tooth brushing behavior. This study was also only conducted on slow learner children so that regular class children and other children with special needs do not have good tooth brushing skills.

Based on the results of this study, it is known that there is a significant difference in effectiveness between counseling using pop-up book media and hand puppets on the teeth brushing skills of slow learner students. Of the two media, counseling with hand puppet media was more effective than pop-up book media in improving the teeth brushing skills of slow learner students. This is because the hand puppet media has a shape that more closely resembles the condition or shape of the human teeth and oral cavity so that it can make it easier for students to understand and remember the material presented.

V. CONCLUSION

The purpose of this study was to determine the effectiveness of pop up book media and hand puppets on the teeth brushing skills of slow learner students. Based on the results of the previous research and discussion, of the 20 samples divided into 2 treatment groups that were given counseling using pop up book media and hand puppets showed that slow learner tooth brushing skills a significant improved after being given the treatment. The results of counseling using hand puppet media are more significant in improving the skills of slow learner students because the shape of the hand puppet media resembles human teeth and oral cavity.

So it can be concluded, that counseling using hand puppet media is more effective in improving the teeth brushing skills of slow learner students in inclusive class. Counseling related

to tooth brushing can be done by organizing routine tooth brushing activities with students once a week and incorporating learning in sports subjects.

The recommendation for research development is to develop counseling using pop-up book media and hand puppets for normal children in regular classes and other children with special needs using different variations and more samples.

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