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Impact of Storytelling on Oral Hygiene Practices Among Preschool Children in Banyuwangi

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ABSTRACT Oral hygiene problems that cause damage to the oral cavity in children in Indonesia are still high, reaching 57.6%. So it is very important to pay attention because this is an important growth stage. Damaged teeth can cause delayed tooth development in later life. The storytelling method can attract the attention of preschool children because storytelling is an activity that has constructive potential to support children's mental development, so that children understand what things need to be imitated to practice oral hygiene. The aim of this research is to determine the effect of storytelling on oral hygiene behavior in preschool children. This method is quantitative research using a quasi-experimental design (one group pre-test and posttest). The population consisted of 50 individuals, and the sampling technique used was total sampling, using an observation checklist sheet focused on brushing techniques. Statistical analysis was conducted using the Wilcoxon Signed Rank Test. The results showed that after the storytelling was given, there was an increase, namely 30 children behaved good, 18 children behaved enough, and 2 children behaved poorly. Wilcoxon Signed Rank Test results with a value of $p=000<0.05$, the analysis shows that the storytelling influences the oral hygiene behavior of preschool children. The storytelling has been proven to affect increasing children's oral hygiene knowledge and behavior. Therefore, parents or guardians of children can utilize audio-visual media in other forms that have moral messages so that children's knowledge and behavior regarding oral hygiene in particular and health, in general, can increase.

INDEX TERMS stories, oral hygiene behavior, preschool

I. INTRODUCTION

Oral hygiene is a fundamental aspect of physical health, particularly in children, as poor oral care can lead to severe consequences for overall well-being. Inadequate oral hygiene contributes to the development of cavities and dental diseases, which, if left untreated, may impair children's growth and health [1]. The mouth serves as a gateway for bacteria and germs that can compromise the function of vital organs, making early oral care essential [2]. Dental caries is one of the most common global health problems, affecting both children and adults. If oral hygiene is neglected, it can worsen the situation by allowing bacteria to flourish, particularly when food is left between teeth [3]. Early childhood is a critical period for establishing healthy oral hygiene habits, yet many children resist brushing their teeth or find it tedious [4]. Without proper care, damaged teeth can hinder growth and development, affecting a child's quality of life later on [5]. Therefore, instilling good oral hygiene practices from a young age is crucial for preventing dental issues. One approach that has shown promise in engaging children in oral care is the

storytelling method. Storytelling is a fun and interactive way to capture children's attention and encourage positive behavior [6].

The need for effective interventions is underscored by alarming global statistics. According to the World Health Organization (WHO), the prevalence of dental caries among children aged 1-9 years is highest in the Western Pacific region, at approximately 46%. In contrast, the African region has the lowest prevalence, at 39%. In Indonesia, untreated dental caries in children aged five years is prevalent in 28.8% of cases [7]. Local data from the Banyuwangi Health Service (DINKES) also shows a high incidence of oral hygiene problems among children, with 57.6% of cases leading to oral cavity damage. Specifically, 67.3% of children aged 5-9 years and 55.6% of those aged 10-14 are affected [6]. Research conducted preschool children in Lamongan shows that story telling method is effective to improve oral hygiene behavior [8].

Storytelling has long been recognized as a powerful tool for educating children, as it allows moral messages to be

conveyed in an engaging and memorable way. Stories stimulate children's imaginations and leave lasting impressions, helping to improve their understanding of concepts such as oral hygiene [9]. Several factors can affect oral hygiene behavior in children, including forgetfulness, lack of awareness, laziness, improper brushing techniques, and consumption of sugary foods and drinks [10]. While children typically brush their teeth when they shower in the morning and evening, the ideal times for brushing are after meals and before bedtime [11].

Knowledge of proper oral care practices can be increased through parental or teacher guidance, and presenting this knowledge in an enjoyable manner is essential [12]. Given the importance of fostering good oral hygiene habits in early childhood, this study aims to assess the effectiveness of using audio-visual storytelling media to improve preschool children's oral hygiene behavior. The research hypothesizes that storytelling, when presented through engaging audio-visual media, can enhance children's knowledge and behavior regarding proper tooth-brushing techniques. By addressing the gap in oral hygiene education and providing a fun learning experience, this research seeks to contribute to improving children's oral health outcomes.

II. MATERIAL AND METHODS

This research used a quantitative quasi-experimental one-group pretest-posttest design [13]. This design is commonly used in education and public health research when randomization or control groups aren't possible. Researchers like Siu et al. (2014) and Gao et al. (2016) have successfully used this approach to study interventions in small groups. Since our study involved a specific group of children in a classroom, this design was ideal for observing changes before and after the storytelling intervention [14]. The research sample used the total sampling method, namely the technique of taking the entire population; the sample size was 50 children. Data were collected using an observation checklist that evaluates toothbrushing technique. Children were observed before and after being given storytelling. Storytelling used audio visual media created by researchers with the title "Doni and Giginya" and has received copyright from the Ministry of Law and Human Rights Registration Number 000782514. Ethical approval for the study was granted by the STIKES Banyuwangi Ethics Committee (No: 271/03/KEPK-STIKESWI/VII/2024), and informed consent was obtained from parents. For statistical analysis, SPSS software was used, and the Wilcoxon Signed Rank Test was applied to compare pretest and posttest scores. This test was chosen due to the non-parametric nature of the data and the repeated measures within the same group. A p-value of <0.05 was considered statistically significant, allowing for an assessment of the effectiveness of the storytelling intervention on children's oral hygiene behavior [15].

III. RESULTS

The research results consist of

A. ORAL HYGIENE BEHAVIOR BEFORE STORYTELLING

FIGURE 1 shows the oral hygiene behavior of preschool children before storytelling, most of the children, 32 (64%), showed poor oral hygiene behavior. This illustrates that the majority of the sample has limited understanding or inconsistent practice of proper oral hygiene techniques. Such behavior has the potential to cause long-term dental health problems, as indicated by the high prevalence of dental caries among children in this age group, as in the introduction. Based on these data, there is a critical need for effective interventions in oral hygiene behavior.

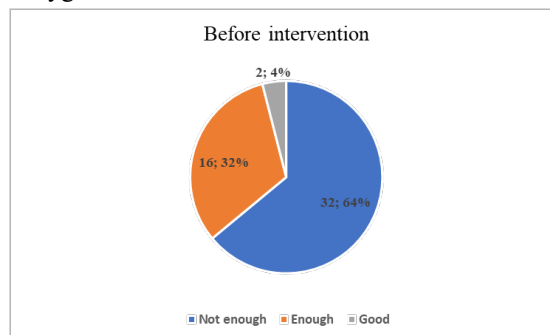


FIGURE 1. Oral Hygiene Behavior Before Storytelling

B. ORAL HYGIENE BEHAVIOR AFTER STORYTELLING

FIGURE 2 presents the oral hygiene behavior of preschool children after storytelling through audio-visual media. After the intervention, there was a very significant increase in behavior, namely 30 children (60%) showed good oral hygiene practices from the initial 4%. And the percentage of children with poor hygiene behavior decreased drastically from 64% to only 4%. These results indicate that the storytelling intervention effectively improved children's knowledge and behavior regarding oral hygiene and showed the potential of using interesting and educational stories to promote healthier habits in early childhood.

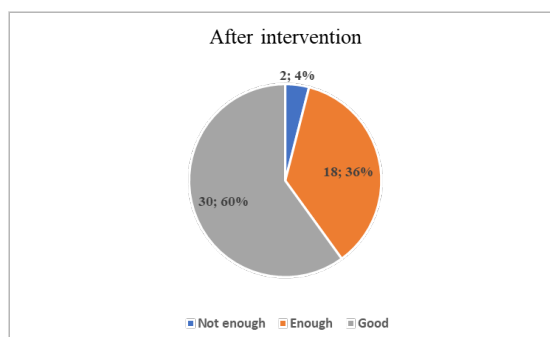


FIGURE 2. Oral Hygiene Behavior After Storytelling

C. THE EFFECT OF STORYTELLING ON ORAL HYGIENE BEHAVIOR

TABLE 1
Cross Tabulation Results

Before	Not enough	After Enough	good	Amount
Not enough	2	16	14	32
Enough	0	2	14	16
Good	0	0	2	2
Total	2	18	30	50

TABLE 2
Wilcoxon test results

	Post-Pre
Z	-6.030b
Asymp. Sig.	.000

The Wilcoxon test results obtained a value of $p=000 < 0.05$, there was an influence of the storytelling on oral hygiene behavior; this was because the information obtained through the story affected the level of children's behavior.

The results showed a statistically significant improvement in behavior from pre-intervention to post-intervention, with a Z value of -6.030 and a p-value of 0.000 ($p < 0.05$). This indicates that the storytelling intervention had a significant impact on children's oral hygiene practices. Before the intervention, the majority of children 64% exhibited poor oral hygiene behavior (Figure 1). However, after the intervention, this number dropped significantly, with 60% of children now exhibiting good oral hygiene behavior (FIGURE 2). This shift illustrates a marked improvement, which is directly attributable to the information conveyed through the stories. A comparative analysis of the pre- and post-intervention data (TABLE 1) underlines the effectiveness of the storytelling method. The significant decrease in poor behavior and increase in good behavior reflects that storytelling improved children's understanding and practice of proper oral hygiene techniques. These findings demonstrate the power of storytelling as an educational tool, effectively influencing behavior in children. Clear statistical significance ($p < 0.05$) strengthens the success of the intervention, highlighting its potential application in early childhood health education (TABLE 2).

IV. DISCUSSION

A. ORAL HYGIENE BEHAVIOR BEFORE STORYTELLING

Based on figure 1 shows the oral hygiene behavior before being given the storytelling by 50 respondents; the majority had less knowledge, 32 respondents (64%). Oral hygiene behavior is caused by various factors, one of which is a lack of knowledge, which is very important in the formation of actions to maintain oral hygiene [16]. One of the causes of this problem is paying attention to dental and oral hygiene in children. The teeth and mouth are important parts that must be kept clean because, through these organs, various germs can enter the body and develop [17]. One way to increase knowledge can be through health education taught in schools. The role of schools is very important in providing education regarding oral hygiene behavior. Not only that, parents, as the

main source of information for children, can teach and supervise children's daily activities in maintaining oral hygiene [18].

The results of this study showed that, in terms of the level of oral hygiene behavior in the initial test, most of the children behaved poorly. This is likely due to the need for more information about oral hygiene behavior at school. It is also known that children have never received counseling or health education about oral hygiene behavior before or outside school. Apart from that, the limited knowledge of children's parents is usually unable to provide sufficient information about oral hygiene behavior, so this could be a reason for adding information to children about oral hygiene behavior.

4.2 Oral Hygiene Behavior After Storytelling

According to figure 2 shows the oral hygiene behavior after being given the storytelling by the 50 respondents, the majority of whom had good knowledge, 30 respondents (60%).

Ways to increase oral hygiene knowledge in children should be done in a fun way, one of which is listening to stories through audio-visual media [19]. Providing stories through audio-visual media can further increase the effectiveness of the learning process for children and make it easier for them to understand language because children not only listen and imagine but also see directly what is being taught [18]. Stories presented through audio-visual media are very suitable for improving children's oral hygiene behavior because animation provides visualizations that children can imitate and audio that children can listen to and then practice [20].

This research shows that there is an influence after being given intervention regarding oral hygiene behavior where the majority of respondents, namely 30 children (60%), have good knowledge. Oral hygiene behavior increased due to the provision of health education through stories. In providing stories through audio-visual media, children looked enthusiastic in listening to the videos. High curiosity about oral hygiene behavior can be a driving force to explore and increase their knowledge so that children can think and act well and correctly regarding oral hygiene behavior. Audio-visual media involves the senses of sight and hearing, which makes children understand and remember information better.

B. IMPACT OF STORYTELLING ON ORAL HYGIENE PRACTICES AMONG PRESCHOOL CHILDREN

This study used the Wilcoxon signed rank test to show differences between knowledge of oral hygiene behavior both before and after, with a value of $p=000 < 0.05$; it can be concluded that there is a significant difference; this states that there is an influence.

Previous research has shown that the storytelling method can improve the knowledge and behavior of preschool children in maintaining oral hygiene [21]. Stories can be used as a tool to communicate about religion, health, and various cultural topics; apart from that, stories through audio-visual media also help children improve their comprehension skills, grow their fantasy and intelligence, and instill positive behavior from an early age [22]. Material about oral hygiene behavior in children should be presented in simpler language

because stories through audio-visual media can increase understanding in children who tend to be responsive to images and sounds [23].

The research results show that the storytelling influences oral hygiene behavior in preschool children; one of the reasons is that the storyline is interesting and is presented through audio-visual media, not only heard but also seen. Apart from that, use props that will be easier for children to accept. Therefore, health education about oral hygiene behavior is very important to expand knowledge and can create positive behavior. If children have good knowledge, then awareness of oral hygiene will be good, too. Children's positive behavior cannot be separated from the encouragement of teachers or parents who teach them to behave healthier. Storytelling creates a space for dialogue and connection between storyteller and listener. For educators, using storytelling can help students think critically and reflect on their own experiences, making learning more engaging and personal. For parents, storytelling is a useful way to teach children important social and moral lessons. By storytelling, parents can help children consider different perspectives, which supports their emotional and social growth [24]. Oral health education is important for boosting children's knowledge and encouraging positive hygiene habits. Storytelling can actively involve educators and parents, helping children develop and maintain better oral hygiene practices.

V. CONCLUSION

This study shows that storytelling with audiovisual media is very good in improving oral hygiene behavior in preschool children at Muslimat Khadijah Kindergarten 124, Banyuwangi. After storytelling, 60% of respondents showed good knowledge, storytelling proved to be an effective educational tool. These findings highlight the importance of incorporating storytelling into oral health education for educators and parents to engage children and promote healthy habits. However, the small sample size and short intervention period are limitations that must be addressed in further research. Expanding the study to a diverse population and exploring long-term effects can provide a broader understanding of how storytelling affects children's health behaviors. Integrating this method into the health education curriculum has the potential for large-scale interventions..

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