



Pillow Book Media as Dental Health Promotion in Preschool Children: is it effective?

Ngatemi¹, Syifa Yulia Lestari², Suwarsono³, Tedi Purnama^{*4}

^{1,2,4}Assistant Professor, Department of Dental Health, Poltekkes Kemenkes Jakarta I, Indonesia.

³Assistant Professor, Department of Dental Health, Poltekkes Kemenkes Semarang, Indonesia.

[Original Article](#)

Address for Correspondence Author

Tedi Purnama; Assistant Professor, Department of Dental Health, Poltekkes Kemenkes Jakarta I, Indonesia.

E-mail: tedypurnama23@yahoo.com

Crossref doi: <https://doi.org/10.36437/ijdrd.2022.4.1.B>

ABSTRACT

Background: The main problem in dental health and in preschool children is dental caries, where the prevalence of dental caries in children aged 5-6 years is 92.6% with a def-t index of 8.43. One of the causes of high dental health problems is low tooth brushing behavior and preschool children do not yet have the independence in brushing their teeth. It is proven that the data on the behavior of brushing teeth correctly is only 2.3%. Efforts to improve the dental health of preschool children by providing dental health education. Media pillow book is a development of booklet. The media pillow book is made of cloth containing pictures and writings about maintaining dental health which aims to increase creativity and cognitive abilities and skills of preschool children in maintaining dental health.

Material and Methods: This study uses a quasi-experimental design with a pretest and posttest with one group design. This research was conducted at Bintang Kindergarten, Cilandak District, South Jakarta City. Independent variable: pillow book media and dependent variable: knowledge and skills of brushing teeth of preschoolers. Data were tested using Wilcoxon.

Results: Pillow book media proved to be significantly ($p < 0.001$) effective in increasing the knowledge and skills of brushing teeth of preschoolers.

Conclusion: Pillow book media is effective as promotion of dental health in increasing knowledge and skills of brushing teeth of preschool children.

Keywords: Pillow Book Media, Dental Health Promotion, Preschool Children.

Introduction

Health is something important in the life of every individual, impaired health affects individual activities.^{1,2} Individual health status is influenced by four factors, namely environment, behavior, health services and heredity. Behavioral factors have a very large influence on health status in addition to environmental factors which are the factors that have the greatest influence on health including dental and oral health.^{3,4}



Dental and oral health requires attention because it is an integral part of overall health that requires immediate treatment before it is too late and can affect a person's health condition. Concerning dental and oral health needs to be cultivated throughout the family and community. People in Indonesia have not considered dental and oral health. People tend to ignore the pain caused by toothache and dental disease is the main complaint that people and children complain about.⁵⁻⁷

The results of the Basic Health Research in Indonesia show that dental caries are a major problem for dental and oral health in Indonesian society. The data shows an increase in the prevalence of active caries in the Indonesian population by 57.6%, while the prevalence of dental health for children aged 5-6 years is 92.6% with a def-t index of 8.43. These data show that the number of children's dental health problems in Indonesia is included in the high category when compared to the WHO target, which is 50% of children aged 5-6 years free from caries.^{8,9}

One of the causes of dental and oral health problems in the community is the low behavior of maintaining dental and oral hygiene. Behavior is a person's response or reaction to a stimulus or stimulus from outside, so that behavior occurs through the process of a stimulus to someone, meaning that the response to the same stimulus can be different depending on the characteristics or other factors of the person concerned. Behavior is divided into three domains: knowledge, attitudes, and actions.¹⁰⁻¹²

Knowledge, attitudes, and actions are factors that influence a person's awareness in maintaining dental and oral health. This is in accordance with the research by Purnama et al which showed that good behavior in maintaining oral and dental health can improve dental hygiene status. Therefore, it is necessary to improve the maintenance of oral health from an early age.¹³⁻¹⁵

Efforts to improve dental health status in preschool children are to provide dental health promotion. Preschoolers must know and understand the correct technique of brushing teeth, the right time to brush their teeth, healthy food for teeth, etc. During the growth and development of children, so that children can grow and develop optimally, good health conditions are needed, including dental and oral health.¹⁶⁻¹⁸

Dental health promotion is influenced by many factors. One of the influencing factors is the method and media factors. The combination of media and educational games is preferred as a method of promoting dental health for children, especially preschool children.^{19,20}

Media Pillow book is a development of booklet and picture books. Made of cloth that contains writing and pictures about daily activities in maintaining dental health, especially brushing teeth. The advantage of the pillow book media is that it is not easily damaged and torn, so it can be used as a guide for independent learning at home in maintaining dental health. Pillow book media can stimulate children's curiosity in a fun way, encourage children's motor skills, mental and emotional skills, so that they can be used as educational media in promoting dental health.

Materials and Methods

The design of this study used a quasi-experimental design with a pretest and posttest design with one group. This study aims to analyze the effectiveness of the pillow book media on increasing the knowledge and skills of brushing teeth for preschoolers. The study was conducted at Bintang Kindergarten, Pondok Labu Village, Cilandak District, South Jakarta from September-October 2021. The sample was selected by determining the subjects to be taken according to the predetermined inclusion criteria. The sampling technique used by the

researcher was purposive sampling with a total sample of 35 children. Purposive Sampling is a sampling technique where the researcher determines the desired sample criteria.

The independent variable in the study was the pillow book media, while the dependent variable was the knowledge and skills of brushing teeth. The research instrument used was a questionnaire to measure the knowledge of brushing teeth and an observation sheet to brush teeth to measure the skill of brushing teeth. Data analysis used the Wilcoxon test to analyze differences in knowledge and skills of brushing teeth before and after providing dental health promotion interventions with pillow book media.

Result

The results showed that shows that the characteristics of the respondents have a proportion of mostly 5 years of age with the female. The age of the parents is mostly with the proportion of age < 30 years with the last education being senior high school. (**Table-1**)

Variable		Frequency	Percentage
Age	5 years	21	60.0
	6 years	14	40.0
Gender	Male	19	54.3
	Female	16	45.7
Parents age	≤ 30 tahun	22	62.9
	> 30 tahun	13	37.1
Parent's education	Junior high school	15	42.9
	Senior high school	19	54.3
	College	1	2.9

Table 1: Frequency distribution of respondent characteristics

The average value of children's tooth brushing knowledge increased from 5.34 to 9.20. The average value of children's brushing skills increased from 5.11 to 9.63. (**Table-2**)

Variable	Min	Max	Mean	SD
Knowledge				
Pre-test	4	7	5.34	0.802
Post-test	8	10	9.20	0.719
Skills of brushing teeth				
Pre-test	3	8	5.11	0.901
Post-test	8	10	9.63	1.011

Table 2: The average value of knowledge and skills of brushing teeth

The results of the normality test for knowledge and skills of brushing teeth were not normally distributed, because the p-value < 0.05, the non-parametric test was continued. (**Table-3**)



Variable		p-value
Knowledge	Pre-test	0.001
	Post-test	0.001
Skills of brushing teeth	Pre-test	0.001
	Post-test	0.001

Table 3: Data normality test

The results of the effectiveness test of the data before and after being given dental health promotion with the pillow book media showed knowledge of brushing teeth, the p-value was 0.001 ($p < 0.05$) and the p-value for brushing teeth was 0.001, meaning that the pillow book media was effective in increasing knowledge and skills of brushing teeth. **(Table-4)**

Variable		Mean $\pm$ SD	P-value
Knowledge	Pre-test	5.34 $\pm$ 0.802	0.001
	Post-test	9.20 $\pm$ 0.719	
Skills of brushing teeth	Pre-test	5.11 $\pm$ 1.022	0.001
	Post-test	9.63 $\pm$ 0.598	

Table 4: Test the effectiveness of knowledge and skills of brushing teeth before and after intervention

Discussion

The results of this study show the average level of knowledge before being given the intervention of 5.34 including the poor category, while the average tooth brushing skill before being given intervention is 5.11 including the category of unskilled brushing teeth. The results of this study correlate the characteristics of the respondent's parents including age, education level, and parental occupation. Inculcating habits in children are strongly influenced by the level of parental education, the higher the level of parental education is believed to be the more able to direct children to good habits. The participation of parents is very necessary for guiding, providing understanding, reminding, and providing facilities to children so that children can maintain good oral and dental health. These results are in accordance with the results of the study showing that most of the parents are aged < 30 years with most of them having a high school education.^{21,22}

The results showed that the results of the knowledge effectiveness test before and after being given dental health promotions with the pillow book media showed that the knowledge of brushing teeth had a p-value of 0.001 ($p < 0.05$), meaning that the pillow book media was effective in increasing knowledge in preschool children. Dental health education using learning media can increase the knowledge of early childhood.²⁰ Pillow book media is a development of picture books that are useful for improving the ability and social development of early childhood. Pillow book media is a medium to convey dental health messages in the form of a pillow book containing text and images made using cloth. Its use can be obtained by the game method. The game is an activity that is intended for early childhood and is used for various children's interests, such as triggering children's motor, intelligence, and cognitive abilities so that the dental health pillow book media can be liked by children. This dental health pillow book made with colorful and attractive colors will make dental health education fun and of course, the material taught will be easily absorbed by children. The advantages of the pillow book media as a promotion of dental and oral health include; the nature of the media

is durable because it is made of cloth so it is not easy to get dirty, wrinkled, or torn; easy to understand because the real pictures make learning fun because there are lots of colors, lots of activities, and it provokes children's creativity to do the existing activities to be better and systematic; practical because in one book there are various kinds of activities that support children's fine motor skills and are easy to carry everywhere.

The results showed the results of the effectiveness test of brushing teeth before and after being given dental health promotion with pillow media showed the p-value was 0.001 ($p < 0.05$), meaning that the pillow book media was effective in improving tooth brushing skills in preschool children. This is because after being given dental health promotion with pillow book media, the practice of brushing teeth is continued according to the stages contained in the pillow book material. The practice of brushing teeth was carried out for 5 consecutive days. In addition, respondents were given a media pillow book with material on how to maintain dental health and how to brush their teeth in order to practice brushing their teeth independently at home. The pillow book material explains the steps/stages of brushing teeth properly, starting from preparing tools and materials, giving toothpaste the size of a corn kernel, gargling, brushing teeth according to the movement on each surface, rinsing again and explaining the right time to brush your teeth at least after breakfast and before bed at night.

The increase in knowledge and skills of brushing teeth for preschoolers is due to the advantages of promoting dental health with pillow book media given the game method. In accordance with Widyarani research, the art therapy model has been proven to be effective in increasing knowledge and practice of maintaining dental health in preschool children.²³ The steps in conducting dental health education with a dental health pillow book game are; the first stage is made into small groups consisting of 5-6 people; in the second stage, the children were given an explanation about the material from the dental health pillow book; in the third stage the child is led to do each activity from the first page to the end, if the child has difficulty playing the pillow book, then continuous assistance must be provided; the fourth stage, the representatives of each group convey the material in front of the whole class according to the material that has been determined and the last stage is the practice of brushing teeth. Also supported by the toothbrush storage locker facilities found in the intervention group, each child has a toothbrush and toothpaste as well as a mouthwash cup for personal storage so that it is easier for children to take and store toothbrushes without the help of others. Facility support is one of the successes of dental health programs in schools. Purnama research states that the toothbrush locker affects the success of the formation of tooth brushing behaviour in preschool children.²⁴

Conclusion

Based on the results of the study, it can be concluded that there is pillow book media is effective as promotion of dental health in increasing knowledge and skills of brushing teeth of preschool children.

References

1. Steptoe A, Deaton A, Stone AA. Subjective wellbeing, health, and ageing. *Lancet*. 2015; 385(9968):640–648. doi: [https://doi.org/10.1016/s0140-6736\(13\)61489-0](https://doi.org/10.1016/s0140-6736(13)61489-0)
2. Wu S, Wang R, Zhao Y, Ma X, Wu M, Yan X, et al. The relationship between self-rated health and objective health status: a population-based study. *BMC Public Health*. 2013;13(1):1–9. doi: <https://doi.org/10.1186/1471-2458-13-320>
3. Notoatmodjo. *Promosi Kesehatan dan Perilaku Kesehatan*, Edisi Revisi. Jakarta: Rineka Cipta; 2012.
4. Sheiham A, Alexander D, Cohen L, Marinho V, Moysés S, Petersen PE, et al. Global oral health inequalities: task group—implementation and delivery of oral health strategies. *Adv Dent Res*. 2011;23(2):259–67. doi: <https://doi.org/10.1177/0022034511402084>

5. Pudentiana RR, Purnama T, Tauchid SN, Prihatiningsih N. Knowledge of Oral and Dental Health Impacts the Oral Hygiene Index Simplified (OHI-S) of Primary School Children. *Indian J Forensic Med Toxicology*. 2021;15(4):2179–83.
6. Rahardjo A, Adinda S, Nasia AA, Adiatman M, Setiawati F, Wimardhani YS, et al. Oral health literacy in Indonesian adolescent. *J Int Dent Med Res*. 2015;8(3):123. http://www.ijdmr.com/journal/DENTISTRY/2015/vol8_no3/5_D15_272_Diah_Ayu_Maharani.pdf
7. Trihandini I, Wiradidjaja Adiwoso A, Erri Astoeti T, Marks L. Oral health condition and treatment needs among young athletes with intellectual disabilities in I ndonesia. *Int J Paediatr Dent*. 2013;23(6):408–14. doi: <https://doi.org/10.1111/ipd.12010>
8. Kemenkes RI. Hasil utama riskesdas 2018. Jakarta.
9. Kemenkes RI. Pedoman Usaha Kesehatan Gigi Sekolah (UKGS). Jakarta Kementerian Kesehatan RI. 2012; <https://dinkes.jatimprov.go.id/userfile/dokumen/pedoman-ukgs.pdf>
10. Ngatemi, Purnama T, Kasihani NN. Independence of Brushing Teeth to Free-Plaque Score in Preschool Children: A Cross Sectional Study. *Indian J Forensic Med Toxicology*. 2021;15(3):3722–7.
11. Purnama T, Rasipin N. Tedi's Behavior Change Model to Improving Brushing Teeth Behavior Parents. *J Appl Heal Manag Technology*. 2020;2(1):1–12.
12. Notoatmodjo S. Ilmu perilaku kesehatan. Jakarta: rineka cipta. 2010;200:26–35.
13. Yulita I, Purnama T, Marliani Y. Knowledge and Attitudes of Dental and Oral Health Maintenance in Pregnant Women (Case Study: Obstetrics and Gynecology Polyclinic at Pertamina Central Hospital, Jakarta). *Int Res J Pharm Med Sci*. 2021;4(2):9–11. <http://irjpms.com/wp-content/uploads/2021/01/IRJPMS-V4N1P165Y20.pdf>
14. Purnama T, Fadjeri I, Widiyastuti R. Model Mentoring Teachers and Parents as an Efforts for Brushing Teeth Behavior in Preschool Children. *Indian J Forensic Med Toxicology*. 2020;14(4):3511–6.
15. Ngatemi, Purnama T. Dental Health Handbook as Parents Monitoring in the Formation of Independence for Brushing Teeth in Early Childhood. *Indian J Public Heal Res Dev*. 2020;11(1).
16. Shenoy RP, Sequeira PS. Effectiveness of a school dental education program in improving oral health knowledge and oral hygiene practices and status of 12-to 13-year-old school children. *Indian J Dent Res*. 2010;21(2):253. doi: <http://dx.doi.org/10.4103/0970-9290.66652>
17. Chhabra N, Chhabra A. Parental knowledge, attitudes and cultural beliefs regarding oral health and dental care of preschool. *Eur Arch Paediatr Dent*. 2012;13(2):76–82. doi: <https://doi.org/10.1007/bf03262848>
18. Kasihani NN, Ngatemi TP, Purnama T. Determinants of Parental Behavior in Maintaining Deciduous Teeth in Early Childhood: A Cross Sectional Study. *Eur J Mol Clin Med*. 8(02):2021. https://ejmcm.com/article_7753.html
19. Pudentiana, Subandini SL. Pendidikan kesehatan gigi. Jakarta:EGC.2019.
20. Widiyastuti N, Fatmasari D, Djamil M. Effectiveness of “Heni’s Dental Flannel Book” On Improving Dental Health Care among Early Childhood. *Int J Nurs Heal Serv*. 2020;3(5):540–8. doi: <https://doi.org/10.35654/ijnhs.v3i5.234>
21. Sari DN, Laela DS, Restuning S. Tingkat Pengetahuan Orang Tua dengan Kejadian Nursing Bottle Caries. *JDHT J Dent Hyg Therapy*. 2020;1(2):40–4. Doi: <https://doi.org/10.36082/jdht.v1i2.137>
22. Naidu R, Nunn J, Irwin JD. The effect of motivational interviewing on oral healthcare knowledge, attitudes and behaviour of parents and caregivers of preschool children: an exploratory cluster randomised controlled study. *BMC Oral Health*. 2015;15(1):1–15. doi: <https://doi.org/10.1186/s12903-015-0068-9>



23. Widyarani L, Priliana WK, Kustanti C. Efektivitas Art Therapy terhadap Pengetahuan dan Praktik Pemeliharaan Kesehatan Gigi pada Anak Usia Prasekolah. J Keperawatan Terpadu (Integrated Nurs Journal). 2020;2(1):29–39. doi: <http://dx.doi.org/10.32807/jkt.v2i1.57>
24. Purnama T, Ngatemi N, Sofian R, Kasihani NN, RE PR, Nurbayani S. Model 5 Days Gosgi sebagai upaya pembentukan kemandirian menggosok gigi anak usia dini di sekolah. Qual J Kesehatan. 2020;14(1):19–24. doi: <https://doi.org/10.36082/qjk.v14i1.96>

How to cite this Article: Ngatemi, Syifa Yulia Lestari, Suwarsono, Tedi Purnama; *Pillow Book Media as Dental Health Promotion in Preschool Children: is it effective?*; Int. J. Drug Res. Dental Sci., 2022; 4(1): 7-13, doi: <https://doi.org/10.36437/ijdrd.2022.4.1.B>

Source of Support: Nil, **Conflict of Interest:** Nil.

Received: 27-11-2021 **Revised:** 5-1-2022 **Accepted:** 10-1-2022