

# The Effect of Bibliotherapy in Teeth-brushing Behavior to Prevent Dental Caries Among Pre-School Children

Putri Rahayu<sup>1</sup>, Diah Argarini<sup>1</sup>, Rizqi Nursasmita<sup>1\*</sup>

<sup>1</sup>Faculty of Health Science, Universitas Nasional, Indonesia

Submission date: 17-07-2023; Date of received: 25-07-2023; Publication date: 31-07-2023

## Abstract

**Background:** Dental caries is a dental disease caused by the presence of food residue and bacteria for a long time, where the bacteria produce acid which can cause tooth decay. In order for preschool-aged children to prevent tooth decay, bibliotherapy is needed which can provide insight and change the behavior of preschoolers. Bibliotherapy is using a story to start a discussion about a problem and it should be used as an alternative to problem solving.

**Purpose:** To determine the effect of bibliotherapy on tooth brushing behavior for the prevention of dental caries in preschool children at one of kindergarten in South Jakarta, Indonesia.

**Method:** This study used quasi-experimental design with pre-test and post-test design, where the intervention group is measured or observed before and after the intervention. The research sample consisted of 30 respondents.

The sampling technique uses total sampling. The research instrument is a tooth-brushing behavior questionnaire. Data analysis used the Wilcoxon test to determine the effect of bibliotherapy on tooth-brushing behavior.

**Results:** The behavior of the respondents before the intervention showed that the behavioral variable with good category was 13.3% and after the intervention showed that the variable with good behavior increased to 96.7%. The results of the study obtained a p value of  $0.000 < 0.05$  which indicates that bibliotherapy has an effect on tooth-brushing behavior.

**Conclusion:** There is an effect of bibliotherapy on tooth-brushing behavior to prevent dental caries in preschool children in one of kindergarten in South Jakarta.

**Keywords:** Bibliotherapy, Dental caries, Teeth-brushing behavior

## Introduction

Preschool age (3-6 years old), are in the developmental phase between school language and the initial phase of official language, as well as the time of active play, often neglect to eat random food and often forget about health. The concept of health refers to the perception, experience of illness, attitude of parents and children. Preschool children realize that they want to choose food according to their preferences, for example sweet foods that they like easily cause tooth damage or dental caries.<sup>1</sup>

\*Corresponding Author: Rizqi Nursasmita, Faculty of Health Sciences, Universitas Nasional, Jakarta, Indonesia, email: [rizqi.nursasmita@civitas.unas.ac.id](mailto:rizqi.nursasmita@civitas.unas.ac.id)

Caries is the most common oral and dental disease in children worldwide. According to the World Health Organization (WHO), in 2016, 60-90% of children worldwide suffer from dental caries. According to the Basic Health Research Survey (2018) the prevalence increased from 23% to 29.1% in 2018. The high prevalence of caries in DKI Jakarta is the 15<sup>th</sup> highest among the 34 provinces in Indonesia. DKI Jakarta is one of the provinces that experienced an increase in caries prevalence between 2007 and 2013. Preliminary observational data of researchers at one of kindergarten in South Jakarta obtained data found 30 children with dental caries. Based on the results of the observation, it shows that the incidence of dental caries in preschool children in those kindergarten is quite high.<sup>2</sup>

Dental caries is a dental disease caused by leftover food and bacteria over a long period of time, where the bacteria form acid that can cause damage to the teeth. The main factor causing tooth damage is due to several processes that interact from time to time, namely the host (condition of teeth and saliva), residual microorganisms and longer time.<sup>3</sup> Factors that cause caries in preschool children are the frequency of tooth brushing, the distance to dental care facilities, the lack of knowledge of parents about the health of children's teeth and mouths, as well as parents' ignorance of how to guide children.

Caries that are not treated properly will have a negative impact on other healthy teeth. Preschool age children's teeth are more prone to experience tooth damage, this is because the structure of children's teeth is thinner and smaller than the structure of adults' teeth. Often parents leave dental caries because they think the tooth will replace a new one, but this is not the case because the child's dental care also affects the health of the child's teeth and mouth in the future.<sup>4</sup> Several studies have discussed the impact of dental damage on preschool children, where children experience pain in the cavity of the tooth that reduces their appetite. Another impact that occurs is that the teeth become porous and even broken, causing the child to lose the ability to chew and their digestion is disturbed.<sup>5</sup>

Prevention of caries in preschool children can be done when the child's milk teeth have erupted for optimal handling with parents, paying special attention to the child's eating pattern, as the condition of the teeth affects the development of dental health in adulthood. It is necessary to have health education that arouses the interest of children, which is with the method of bibliotherapy to facilitate the work of children to understand the prevention of dental caries. The use of books as a learning therapy is

called bibliotherapy. Bibliotherapy is reading books, magazines, cartoons or newspapers, which can be a good way to communicate with children.<sup>6</sup>

## **Method**

### *1. Research design*

This study used quasi-experimental design with pre-test and post-test design, where the intervention group in the measurement or observation before and after the intervention.<sup>10</sup> There is one group with the same treatment. The researcher measured the behavior before and after the intervention using a valid and reliable questionnaire.

### *2. Setting and samples*

This research was conducted in January 2023 at PAUD Al Awalia in South Jakarta. The sample in this research is a total of 30 students who had met the inclusion and exclusion criteria with the total sampling technique.

### *3. Measurement and data collection*

Questionnaire with checklist method functions as a measuring tool in this research. The research instrument used to measure the respondent behavior before and after the intervention. The questionnaire used in this research is a questionnaire designed by the researcher himself. This validity test was conducted on 20 respondents of pre-school children in the Tanjung Barat area of Jakarta Selatan. Based on results the validity and reliability test in this research, all valid statements are proven by significance values greater than 0.468 and reliability value was 0.952. The researcher conducted a pre and post-test to find out the ability to prevent dental caries in preschool children by filling questionnaire about children's ability to brush their teeth which contains 11 items statement. If the respondent answers "yes" and "true" gets a score of 1, if the respondent answers "no" and "false" gets a score of 0.

### *4. Data analysis;*

The techniques used for data analysis, including the computer software used, SPSS (Statistical Package for the Social Sciences). Bivariate analysis in this research was used to see the behavior before and after the intervention by using the Wilcoxon test. The test results are said to be influential if the p value is  $< 0.05$  and not influential if the p value is  $> 0.05$ .

## Results

**Table 1.**  
**Characteristics of Respondents**

Variables	Frequency	Percentage (%)
Female	18	60
Male	12	40
4 y.o.	0	0
5 y.o.	7	23.3
6 y.o.	23	76.7

Notes. y.o. = years old.

Based on Table 1, characteristic of respondents based on gender in shows that most of the respondents are female, namely 18 respondents (60.0%) and most of the respondents are 6 years old as many as 23 respondents (76.7%).

**Table 2.**  
**Characteristics of Behavior Respondents Before and After the Intervention**

Behavior	Before		After	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Good category	4	13.3	29	96.7
Poor category	26	86.7	1	3.3

Based on Table 2, before the intervention was given to the respondents showed that the behavioral variables with the poor category were represented by 26 respondents (86.7%). After the intervention was given to the respondents showed that the behavioral variables with the good category were represented by 29 respondents (96.7%).

**Table 3.**  
**Effectiveness of the Intervention**

Behavior	Wilcoxon Signed Ranks Test				
	Negative Ranks	Positive Ranks	Ties	Z	P value
Before	0	28	2	-4.663	0.000
After					

Based on Table 3, the results of the analysis showed an increase of 28 respondents (positive ranks). Wilcoxon test results obtained p value (0.000) < (0.05) then  $H_0$  is rejected and  $H_a$  is accepted, which means that there is an effect of bibliotherapy on tooth brushing behavior to prevent dental caries in preschool children.

## Discussion

In order to achieve behavioral change, a method is needed to convey information or messages in such a way as to make people want to change their behavior for the better. One of the melting models that can be used is bibliotherapy.

Bibliotherapy is one of the forms of literature that uses literary sources (books). Books can be a means of therapy or healing for people who suffer from mental disorders, anxiety, trauma and stress.<sup>7</sup> Bibliotherapy had a significant pooled medium to large effect on reducing depression.<sup>11</sup> Bibliotherapy was also significantly more effective than the control conditions in reducing the symptoms of depression or anxiety.<sup>14</sup> Bibliotherapy can also be used as a means to provide psychotherapeutic support through reading materials to help with personal problems.

Basically, preschool age children care about their dental health and do not fully understand dental health. That's why it's so important provide information to preschool children in the form of library therapy models, so that they have knowledge and information about how to prevent the occurrence of caries depends on the time of gargling, the way and time of brushing teeth, eat food that can prevent dental caries, and have regular dental check-ups every 6 months at the dentist, until the child has the ability and knowledge to prevent dental caries that can be applied in everyday life and can become a daily habit. The knowledge that has been learned can be applied every day to maintain dental health and avoid dental caries.

The results of the analysis between the influence of bibliotherapy on the behavior of brushing teeth for the prevention of dental caries in pre-school children, which was done by using the Wilcoxon test, obtained a P value of  $0.000 < 0.05$ , which means that  $H_0$  is rejected and  $H_a$  is accepted, so it can be concluded that there is an influence of bibliotherapy towards the behavior of brushing teeth for prevention dental caries in pre-school children. This research is in line with the research done by someone in his research that health education with the bibliotherapy method has an effect on the prevention of caries in preschool children in Jember, East Java.<sup>8</sup>

The research results show that in the behavior of students regarding bibliotherapy is in the good category. The research results show an increase in behavior after was given bibliotherapy in a good category, before intervention 13.3% and after being given the intervention increase to 96.7%. It is influenced by bibliotherapy. A

person's behavior can be influenced by many factors such as knowledge. The better one's knowledge, the better one's behavior will be.

Bibliotherapy, as a method of guided learning and adjunctive therapy, is based on accurate identification of the needs and behavior of children with mental retardation, providing them with additional educational materials, empathy and cooperation among experts from various fields.<sup>13</sup> The results of other studies also show that Bibliotherapy affects the behavior of the respondents.<sup>12</sup>

### **Limitation**

During conducting this research, the researcher realizes that there are limitations of the researcher such as: many children experienced difficulties in adapting themselves, so that they do their own activities and disturb other friends because of children's ability to concentrate is still relatively low.

### **Conclusion**

Before being given bibliotherapy through story books, the results of behavioral variables with poor category as many as 26 respondents (86.7%) and respondents with good category as many as 4 respondents (13.3%) were obtained. After being given bibliotherapy through story books, the results of behavioral variables with poor category as many as 1 respondent (3.3%) and respondents with good category as many as 29 respondents (96.7%). There is an effect of bibliotherapy on tooth brushing behavior to prevent dental caries in preschool children in one of kindergarten in South Jakarta with p value (0.000).

### **Ethical Considerations**

This research had an approval from the health research ethics committee.

### **Acknowledgment**

Thanks to all people and institutions who helped in the research.

### **Conflict of Interest**

There is no conflict of interest among authors.

### Author Contribution

We encourage authors to provide statements outlining their individual contributions or roles to the manuscript.

### References

1. Andayasari, L. & Anorital. (2016) Hubungan Konsumsi Makanan Kariogenik dengan Status Kesehatan Gigi Anak Taman Kanak-Kanak di Provinsi Banten dan Daerah Istimewa Jogjakarta Tahun 2014. Prosiding Seminar Nasional Penelitian dan PKM Kesehatan, 2(1).
2. Riset Kesehatan Dasar. (2018), Riset Kesehatan Dasar. Jakarta: Badan penelitian dan pengembangan kesehatan Kementerian Kesehatan RI Tahun 2018.
3. Marliah, Arsad, Roesmono, B., & Andinagauleng, A. (2020). Pengetahuan Ibu Tentang Rampan Karies Pada Anak Balita. *JIKI Jurnal Ilmiah Kesehatan IQRA*, 8(2), 77–83.
4. Afiati, R., Adhani, R., Ramadhani, K., & Diana, S. (2017). Hubungan perilaku ibu tentang pemeliharaan kesehatan gigi dan mulut terhadap status karies gigi anak tinjauan berdasarkan pengetahuan, tingkat pendidikan, dan status sosial di TK ABA 1 Banjarmasin Kajian di Puskesmas Kota Banjarmasin. *Jurnal Kedokteran Gigi*, 2(1), 56–62.
5. Oktafiyanti, D. P. (2018), Hubungan Tingkat Pengetahuan Ibu Tentang Makanan Sehat Dengan Kejadian Karies Gigi Anak Prasekolah Di TK Candrasiswi Desa Candisari Kecamatan Windusari Kabupaten Magelang Tahun 2018, *Skripsi*, Universitas Muhammadiyah, Magelang.
6. Rumini, S., & Sundari, S. (2013), *Perkembangan Anak dan Remaja*, Rineka Cipta, Jakarta.
7. Rohmiyati, Y. (2019), *Proses Pelaksanaan Biblioterapi sebagai Alternatif Penyembuhan Individu melalui Membaca Buku*, ANUVA, 3(1), 11–17.
8. Rizka Eninea, F., Rohmah, N., & Karimata, J. (t.t.). Pengaruh Pendidikan Kesehatan Metode Biblioterapi Terhadap Kemampuan Pencegahan Karies Gigi Pada Anak Usia Prasekolah (3-6 Tahun) Di TK ABA Kalisat Jember.
9. Prasetiawati, L. (2021), Gambaran Karies Gigi Ditinjau Dari Kebiasaan Menyikat Gigi Malam Sebelum Tidur Dan Sesudah Sarapan Pada Anak Sekolah Dasar, *Skripsi*,

Poltekkes Tanjung karang.

10. Notoadmojo, S. (2018), *Metodologi Penelitian Kesehatan*, Rineka Cipta, Jakarta.
11. Wang, S., Bressington, D.T., Leung, A.Y.M., Davidson, P.M., & Cheung, D.S.K. (2020). The effects of bibliotherapy on the mental well-being of informal caregivers of people with neurocognitive disorder: A systematic review and meta-analysis. *International journal of nursing studies*, 109, 103643. <https://doi.org/10.1016/j.ijnurstu.2020.103643>
12. Peters, A.J., (2021) The Effects of Bibliotherapy on Students with Behavioral Problems: Combating Negative Behavior with Books. *Masters of Education in Teaching and Learning*. 42. <https://digitalcommons.acu.edu/metl/42>
13. Mehdizadeh, M., & Khosravi, Z. (2018). An inquiry into the effectiveness of bibliotherapy for children with intellectual disability. *International journal of developmental disabilities*, 65(4), 285–292.
14. Yuan, S., Zhou, X., Zhang, Y., Zhang, H., Pu, J., Yang, L., Liu, L., Jiang, X., & Xie, P. (2018). Comparative efficacy and acceptability of bibliotherapy for depression and anxiety disorders in children and adolescents: a meta-analysis of randomized clinical trials. *Neuropsychiatric disease and treatment*, 14, 353–365.