



Stair poster media as an effort to improve the dental health behavior of elementary school children

Nita Noviani¹, Ngatemi², Indrayati Fadjeri³, Tedi Purnama^{4*}, Sekar Restuning⁵

^{1,2,3,4} Department of Dental Health, Health Polytechnic of Jakarta I, Jakarta, Indonesia

⁵ Department of Dental Health, Health Polytechnic of Bandung, Bandung, Indonesia

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*Address for Correspondence:

Tedi Purnama, Department of Dental Health, Health Polytechnic of Jakarta I, Jakarta, Indonesia.

Abstract

The prevalence rate of dental caries has experienced an increasing trend from year to year, so that the condition of dental and oral health problems in Indonesia is still worrying, especially for elementary school children. The high number of dental health problems is caused by many factors, one of which is the low level of dental health maintenance behavior. Promotive and preventive measures are needed to prevent dental and oral health problems, namely by providing dental and oral health education. Poster media is a medium or prop/tool that can be used to convey messages from communicators to the audience. Staircase poster media is a development of general poster media, this media is designed for the sequence/stages of maintaining dental health which are attached to the school steps. Objective: This research is to analyze the effectiveness of stair poster media in improving the dental health behavior of elementary school children. Method: This research used a non-equivalent control group quasi-experimental design. The research sample was 125 people taken using purposive sampling technique. The intervention group was given dental health education using posters, while the control group was given dental health education using flipchart. Data were tested using Wilcoxon test analysis, namely a pre-post design, while to compare the means of the treatment and control groups, the Mann Whitney test was used. Results: The results of the test of differences in knowledge, attitudes and actions of brushing teeth show that the p-value between the intervention group and the control group is 0.000 ($p < 0.05$), meaning that there is a difference between the values of knowledge, attitudes and actions of brushing teeth after dental health education with children's poster media. steps and dental health education with flipchart. Conclusion: dental health education using stair poster media is more effective in increasing the knowledge, attitudes and actions of brushing teeth in elementary school children compared to dental health education using flipcharts

Keywords: Stair poster, media, dental health, behavior

INTRODUCTION

Dental and oral health problems can have an impact on a person's quality of life, because teeth have a function in speaking, chewing and appearance. The health of a child's teeth and mouth will affect their growth and development. Tooth decay in children can cause pain, thereby reducing appetite, and incomplete breakdown of food in the mouth, which interferes with the absorption of nutrients needed by the human body, thus causing malnutrition in children. In addition, children are a vulnerable age group because at that time the milk teeth begin to fall out one by one and are replaced by permanent teeth. Newly erupted permanent teeth are immature and therefore easily damaged, they only grow once in a lifetime, so they need to be cared for and cared for to avoid dental problems. If children neglect to keep their teeth and mouth clean, this will increase the risk of plaque forming on the surface of the teeth which can cause dental caries and periodontal disease.¹⁻⁴

The results of the 2018 Basic Health Research stated that the prevalence of caries according to the characteristics of ages 5-9 years in Indonesia was 92.6% and ages 10-14 years was 73.4% with the proportion of damaged, cavities or diseased teeth in the 5-9 years age group being 54%, and the aged 10-14 years is 41.4%. Gum problems and/or abscesses increased

11% for ages 5-9 years, and 11.3% for gum problems and/or abscesses at ages 10-14 years. This data shows that the dental and oral diseases most suffered by children are dental caries and periodontal disease. One of the causes of these two diseases is behavioral factors.^{5,6}

People's behavior that ignores dental and oral health care causes dental and oral health problems. This is based on a lack of knowledge about the importance of maintaining oral health. Budiharto's research, knowledge, attitudes and actions are forms of behavior. Children's behavior regarding maintaining dental health includes knowledge, attitudes and actions aimed at preventing plaque accumulation as a cause of caries and periodontal disease.⁷⁻⁹

Efforts to improve behavior include promoting dental health, which places more emphasis on vulnerable groups of school children. The school environment is an extension of the family in laying the foundation for healthy living behavior for school children. Health promotion is an effort to increase a person's knowledge and abilities through practical techniques or instructions with the aim of influencing human behavior both individually and in community groups to increase awareness of the importance of health so as to change their behavior into healthy living behavior.^{10,11}

Dental health promotion cannot be separated from the media

because through the media, the messages conveyed can be more interesting and understood. Posters are an outreach medium in the form of printed media with images and delivered using the lecture method. Posters have often been used as an outreach medium and are able to increase the target's knowledge from not knowing to knowing and ultimately wanting to change behavior.^{10,12,13}

Step poster media is a development of mini poster media. Staircase posters are an effective graphic medium for presenting certain messages, in the form of a series/steps containing pictures or writing about maintaining dental health which are then attached to the steps.

MATERIAL AND METHOD

The research design used was a quasi-experimental study with a pretest-posttest control group design. The aim of the study was to analyze the effectiveness of stair poster media in improving the dental health behavior of elementary school children. The research was conducted in June to August 2023 at SDN 02 Pangkalanjati and SDN 02 Cinere, Cinere District,

Depok City. The research sample was 125 students, with a purposive sampling technique. The intervention group was given dental health education using posters as a medium for 64 students, while the control group was given dental health education using filcharts as many as 61 students.

Data collection was carried out on each group on day 1, carrying out a pre-test to measure knowledge, attitudes and actions of brushing teeth, then education was provided according to the planned intervention. On the 3rd day, dental health education was conducted and on the last day, on the 21st day, a post-test was carried out to determine changes in elementary school children's knowledge, attitudes and teeth brushing actions.

The instruments used in this study were a knowledge and attitude questionnaire and a tooth brushing checklist to measure the act of brushing your teeth. Data analysis used the Wilcoxon test, namely a pre-post design, while to compare the means of the treatment and control groups, the Mann Whitney test was used.

RESULT

Table 1: Frequency Distribution based on respondent characteristics

Variable	Intervention		Control	
	N	%	N	%
Age				
10 years	13	20,3	16	26,2
11 years	43	67,2	38	62,3
12 years	8	12,5	7	11,5
Total	64	100	61	100
Gender				
Man	34	53,1	34	55,7
Women	30	46,9	27	44,3
Total	64	100	61	100

Table 1 shows that the ages of children in the intervention and control groups have the same proportion, most of whom are 11 years old and male.

Table 2: Data normality test

Variable	Groups	
	Intervention	Control
Knowledge pre-test	0,000	0,000
Knowledge post-test	0,000	0,000
Attitudes pre-test	0,001	0,000
Attitudes post-test	0,000	0,000
Actions of brushing teeth pre-test	0,000	0,000
Actions of brushing teeth post-test	0,000	0,000

Table 2 shows the results of the normality test for knowledge, attitudes and actions of brushing teeth in the intervention and control groups with an abnormal distribution, because the p-value < 0.05, the non-parametric test was continued, using the Wilcoxon test, namely a pre-post design, while to compare the means. from the treatment and control groups, Mann Whitney was used.

Table 3: Test the effectiveness of knowledge, attitudes and actions of brushing teeth before and after intervention in the intervention and control groups

Groups		Knowledge		Attitudes		Actions	
		Mean± SD	P-value	Mean± SD	P-value	Mean± SD	P-value
Intervention	Pre-test	5,08± 1,238	0.000	39,36±5,214	0.000	4,67±1,183	0.000
	Post-test	8,81± 0,889		43,45±2,889		9,16±0,597	
Control	Pre-test	5,62± 1,157	0.763	40,41±2,877	0.188	4,69±1,041	0.285
	Post-test	5,61± 1,130		40,52±2,826		4,75±0,960	

Table 3 shows the results of the data effectiveness test before and after being given dental health education using posters as media, showing the knowledge p-value of the intervention group was 0.000, the p-value of attitude was 0.000 and the p-value of the action of brushing teeth was 0.000 ($p < 0.05$) means that dental health education using posters as media is effective in increasing knowledge, attitudes and actions of brushing teeth in elementary school children. The control group's p-value for knowledge was 0.763, the attitude p-value was 0.188 and the p-value for the action of brushing teeth was 0.285, meaning that dental health education using flipcharts was not effective in increasing the scores of knowledge, attitudes and actions of brushing teeth in elementary school children.

Table 4: Test differences in knowledge, attitudes and actions of brushing teeth before and after intervention in the intervention and control groups

Groups	Knowledge		Attitudes		Actions	
	Mean	P-value	Mean	P-value	Mean	P-value
Intervention	8,81	0.000	43,45	0.000	9,16	0.000
Kontrol	5,61		40,52		4,75	

Table 4 shows the results of the difference test in knowledge, attitudes and actions of brushing teeth, showing that the p-value between the intervention group and the control group is 0.000 ($p < 0.05$), meaning that dental health education using children's posters is more effective in increasing knowledge, attitudes and actions of brushing teeth. compared to the control group.

DISCUSSION

Efforts to improve dental and oral health include promotive, preventive, curative and rehabilitative efforts. One promotional effort to improve people's behavior is through an educational process regarding the importance of maintaining healthy teeth and mouth. For children aged 6-12 years, this is the age where children are in the transition period or mixed dentition period, namely the period of change between deciduous teeth (children) to permanent teeth (adults). At this age, children still lack behavior in terms of maintaining dental and oral hygiene, resulting in the potential for damage to dental tissue in the form of caries.^{9,14,15}

Behavior that is based on correct knowledge will greatly influence the incidence of children's dental and oral health problems. Knowledge is the result of knowing about an object that a person obtains through the senses and is mostly obtained from the eyes and ears. A person has the ability to re-express the knowledge he knows in the form of an answer to a stimulus in the form of a question, either verbally or in writing. Dental and oral health knowledge is all the data an individual has to understand what oral disease is, how the disease arises, and understand protective measures. This knowledge will lead to changes in behavior that guide individuals to make changes in everyday life.^{7,16,17}

Knowledge can be increased through health promotion. Health promotion is an action or activity aimed at increasing the abilities or activities of individuals, groups and communities in terms of knowledge, attitudes and skills to achieve the best healthy living standards. Promoting health in elementary school age is an ideal time to practice motor skills and improve cognition. Children's attention spans are short, so they need training that is fun and motivating. Using attractive

integrated media for health promotion can increase knowledge and change behavior.¹⁸⁻²⁰

Dental health education as an effort to provide knowledge about dental health basically emphasizes aspects of dental health which are closely related to targeted daily efforts in maintaining dental health, so that the selection of education material is prioritized regarding efforts to maintain dental and oral health, where efforts are common and common. by students and adults in general is brushing their teeth and efforts to control themselves in consuming food and being selective in choosing types of food that are good and that can facilitate tooth decay. The selection of extension materials and extension priorities must consider the magnitude of the impact of the problem/material to be presented.^{11,21,22}

Health promotion media is a tool used in health promotion so that targets understand the information conveyed. Media that promote health must be regulated based on the principle that humans receive or capture information obtained through the five senses. The choice of media is one of the factors that can influence the promotion of oral health, the media can foster children's motivation and attention to learning, and the meaning of the information conveyed will be clearer, so that children can understand and better understand the learning objectives.^{8,23,24}

The media used by researchers in conducting research is poster media which is a development of mini poster media. Staircase posters are an effective graphic medium for presenting certain messages, in the form of a series/steps containing pictures or writing about maintaining dental health which are then attached to the steps. In this study, researchers made two packages of stair posters which were displayed on all the school stairs with material on 9 tips for maintaining healthy teeth and steps for brushing your teeth properly.

Based on the results of the data effectiveness test before and after being given dental health education using poster posters, the knowledge p-value of the intervention group was 0.000, the p-value of attitude was 0.000 and the p-value of the action of brushing teeth was 0.000 ($p < 0.05$) This means that dental health education using posters as media is effective in increasing the knowledge, attitudes and actions of brushing teeth in elementary school children. The p-value of the control group on knowledge is 0.763, the p-value of attitude is 0.188 and the p-value of the action of brushing teeth is 0.285, meaning that dental health education using flipcharts is not effective in increasing the scores of knowledge, attitudes and actions of brushing teeth in elementary school children.

The results of different tests also show that knowledge, attitudes and actions of brushing teeth show that the p-value between the intervention group and the control group is 0.000 ($p < 0.05$), so it can be interpreted that dental health education using children's poster media is more effective in increasing knowledge, attitudes and actions of brushing teeth compared to dental health education with flipcharts. This is because education using posters as media has the advantage of attracting children's attention more easily and stimulating children's understanding. Counseling with posters on stairs can also make children see interesting pictures at the same time related to the material provided, where every day when children go to school when they enter the classroom on the 2nd floor, they are sure to read it every day, giving rise to a response and motivation in them to follow the material in stair poster media.

With the hope that the child's emotional response will emerge, the child will eventually become enthusiastic or motivated to want to take part in the next activity. Stimulus-Organism-Response (SOR) theory of behavior change which says that the cause of behavior change depends on the stimulus or stimuli given.²⁵ So it can be interpreted that the staircase poster media can stimulate children to know more about maintaining dental health, especially brushing their teeth.

This is in line with research by Jumilah et al. proves that there is an increase in dental and oral health knowledge in Saigon Village Public Elementary School students after being exposed to posters for 7 and 14 days. Wayudi's research states that poster media is effective in increasing students' attitudes and intentions to act in maintaining dental health. Another study by Sukarsih et al showed that there was an increase in knowledge of how to brush teeth at high criteria before being given counseling by 29.41% to 82.35% after being given counseling using poster media. There was an increase in skills on how to brush teeth with good criteria by 25% to 86.76% after being given counseling on how to brush teeth using poster media.²⁶⁻²⁸

CONCLUSION

Based on the results of the study, it can be concluded that the dental health education using stair poster media is more effective in increasing the knowledge, attitudes and actions of brushing teeth in elementary school children compared to dental health education using flipcharts.

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CONFLICT OF INTEREST

The authors declare that they have no conflict interests.

ETHICAL CLEARANCE

This research has received a certificate of appropriate research ethics from the Yogyakarta Health Research Ethics Commission No.DP.04.03/e-KEPK.2/773/2023

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