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The Effect of Health Education with Power Point Media on Children's Knowledge about Tuberculosis Disease Prevention At the Pagambiran Health Center in Padang City

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ABSTRACT

The incidence of tuberculosis in children is increasing, due to the lack of knowledge and attitude of children about tuberculosis. One of the preventive efforts that can be done to improve children's knowledge is by providing health education through *power point* media. This study aims to determine the effect of health education with *power point* media on children's knowledge. The research conducted was quantitative research using a *quasi experimental* design with a *one group pre-test and post test* approach. *The population in this study were 4th and 5th grade students of SD 16 Pagambiran, Padang City with a* sample *size* of 40 respondents. The research instrument used a questionnaire sheet. The test analysis used is *wilcoxon* because the data is not normally distributed. The results showed the effect of health education with *power point* media on children's knowledge ($p<0.000$). It is expected that Pagambiran Health Center, especially in health promotion activities, can use *power point* media in providing health education about preventing tuberculosis disease to children.

Keywords: Tuberculosis, School-Age Children, Power Point, Health Education

INTRODUCTION

Tuberculosis in children is an infectious disease caused by the mycobacterium tuberculosis bacteria that can affect children aged 0-14 years, tuberculosis is an important cause of morbidity and mortality in children who have a low immune system where if the bacteria are inhaled and dwell in the lungs can develop to other parts of the body. [1].

Based on data from the *World Health Organization* (WHO) reported that in 2021 there were 10.6 million cases of tuberculosis and 1.2 million of them occurred in children. [2]. Based on the Indonesian Health Profile, the incidence of tuberculosis in children aged 0-14 years has increased continuously where in 2020 there was 9.3% and an increase in 2021 of 9.7%. [3]. The prognosis of the incidence of tuberculosis in children requires changes in health behavior, which is connected to knowledge, attitudes and positive habits that can be carried out by children. Given the health problems associated with tuberculosis, interventions must be well planned to have a positive effect on the knowledge, attitudes and health behaviors of the child. [4]. Knowledge greatly influences a person's attitude to take an action, it provides a cognitive basis for the formation of attitudes. [5]. A person who has good knowledge will tend

to have a favorable or positive attitude, including in the prevention of tuberculosis, on the contrary, a person who has less knowledge will tend to have an unfavorable or negative attitude, therefore knowledge and attitude are supporting things in making efforts to prevent tuberculosis. [6]. One of the factors causing high tuberculosis cases in school-age children is the lack of knowledge and attitude towards preventing tuberculosis. Based on research conducted by Nyasulu et al (2016) in Malawi showed that there is still a lack of knowledge about tuberculosis, especially among school children. Likewise, research conducted by Idris et al (2020) in Malaysia who found low awareness and knowledge of children about tuberculosis disease.

To realize a joint movement towards the elimination of tuberculosis in 2030, the government also makes prevention efforts in the school environment by establishing a tuberculosis school care program in educational units, which is expected to enable children to participate in the prevention and control of tuberculosis. [9]. Health education is one of the important roles of nurses in providing health-related information as an effort of persuasion or learning carried out with actions that can maintain or improve health. [6].

One of the media as a means of education that can be done and quite effectively applied to school-age children is audiovisual media assisted by *power point*, because this media can present subject matter, present information, explain concepts, explain processes, teach skills to students in the form of text, images, and animations that can be processed by themselves according to the creativity of their use, besides that audiovisual media assisted by power point is also equipped with photo/video animation and audio inserts presented in the form of slides. So that this presentation media makes children able to learn actively and independently and can strengthen understanding and improve children's memory. [10].

Seeing the above phenomenon, researchers are interested in conducting research on the effect of health education with *power point* media on children's knowledge about preventing tuberculosis in the Pagambiran Health Center working area, Padang City.

OBJECTIVE

The purpose of this study was to analyze the effect of health education with *power point* media on children's knowledge about preventing tuberculosis disease in the working area of the Pagambiran Health Center, Padang City.

METHODS

This study uses a quantitative approach with a quasi experimental design of *one group pre-test and post-test.* The research was conducted on June 07-June 21, 2024 with a research population of 4th and 5th grade students of SDN 16 Pagambiran, Padang City with a sample size of 40 respondents. The sampling technique was carried out using *stratified random* sampling technique, which means that the sampling method is randomized by considering the stratification or strata contained in the population so that each stratum is represented in the determination of the sample. The inclusion criteria for respondents in this study are students who are in grades 4 and 5, willing to become respondents, do not experience problems in speaking or hearing, can read and write. The independent variable in this study is health education with *power point* media, while the dependent variable is children's knowledge. The intervention carried out in this study was health education with *power point* media on children's knowledge about disease prevention. The data collection instrument used was a questionnaire sheet that had been tested for validity and reliability. Univariate analysis was used to determine the distribution of characteristics of

research variables, including the frequency of gender, age, and family history of tuberculosis disease. Meanwhile, bivariate analysis was conducted to assess the impact of health education with power point media on children's knowledge about preventing tuberculosis disease. This study obtained ethical permission from the Ethics Committee of the Faculty of Medicine, Andalas University with No. 324.layaketik/KEPKFKEPUNAND.

RESULT

Univariate Analysis

Univariate analysis was based on gender, age, and family history of tuberculosis disease (Table 1).

Table of Socio-Demographic Frequency Distribution of Respondents Based on Gender, Age, family history of tuberculosis disease (n=40)

Respondent characteristics	Category	*Power Point* Group		Test Homogeneity (*p value*)
		f	%	
Age	10 years	*10*	*25%*	0,589
	11 years	16	40%	
	12 years	14	35%	
Gender	Male	21	52,5%	0,370
	Female	19	47,5%	
Family history of tuberculosis	There is	3	7,5%	0,456
	No	37	92,5%	

Based on the table above, it was found that almost half of the respondents were 11 years old, namely 40%, most of the respondents were male, namely 52.5% and in the characteristics of the history of tuberculosis disease in the family, only a small proportion of the total experienced, where there were 7.5%.

Bivariate Analysis

Bivariate analysis of the results of testing the normality of knowledge variable data using the *Shapiro Wilk* test, with the results of a significance value ≤ 0.05, where the knowledge data is not normally distributed. Then testing the difference in the average knowledge of children before and after being given health education with *power point* media in this study using the *Wilcoxon* test with the results can be seen in table 2.

Table 2. Mean Difference Knowledge Before and After Health Education (n=40)

Variables	*Pre test*		*Post test*		Difference	*p value*
	Median	Min-Max	Median	Min-Max		
Power point	6	5-8	9	8-12	3	0,000

Based on table 2. shows the results of the *Wilcoxon test*, there are differences in knowledge before and after being given health education with a *p value of* 0.000 (p < 0.05) and the difference between *pretest*

and *posttest* is 3, which means that there is a positive effect of health education with *power point* media on children's knowledge about preventing tuberculosis.

DISCUSSION

The results of the study using univariate analysis showed that the mean value of knowledge before the intervention was 6 with the lowest value of 5 and the highest value was 8. Of the 12 questions given, the question most answered incorrectly was question number 5 about the prevention of tuberculosis, where 25 out of 40 respondents (62.5%) answered incorrectly. The most common question answered correctly was question number 2 on the transmission of tuberculosis, where 28 out of 40 respondents (70%) were able to answer correctly. This illustrates that respondents in the *power point* group know how tuberculosis is transmitted, one of which is tuberculosis can be transmitted through droplets/saliva, but respondents do not know how to prevent it. This is supported by research conducted by Ellen Rosawita V P et al.[11] which showed that most school-age children did not know how to prevent tuberculosis. Likewise, the research by Fauziyah et al (2023)[12] which confirms that school-age children who lack understanding about tuberculosis disease cannot take steps in prevention efforts. As for the results of this study after being given health education, the median value of knowledge after being given health education is 9 with the lowest value of 8 and the highest value is 12. This is in line with research conducted by Sajjad et al, (2020) which shows that there are differences in respondents' knowledge about tuberculosis disease prevention.[12] which shows that there are differences in respondents' knowledge about preventing tuberculosis after being given counseling in Pakistan.

Based on the results of using the *Wilcoxon* test, the difference in knowledge before and after the intervention is 3 with a significance value of *p* value = 0.000 (p value <0.05) which indicates that there is a significant difference between the level of knowledge before and after being given health education on the prevention of tuberculosis disease in school-age children in the Pagambiran Health Center working area in Padang City. This increase in knowledge is due to the intervention given using *power point* media which is one form of audiovisual media consisting of several visual elements and operational control, the visual elements in question include text slides, sound, animation and color fields that can be combined with the background that is available. These visual elements can be made without motion, or made with certain movements as desired. The entire display of this power point media can be set as needed, whether it will run itself according to the desired time, or run manually by clicking the mouse button. [11]. Then this power point media is used as a health education media in preventing the transmission of tuberculosis disease by presenting learning materials, presenting information, presenting concepts and teaching skills, so that this *power point* media is easy to understand and can increase one's knowledge, especially about preventing tuberculosis disease. [13]. The *power point* media has several advantages in providing health education such as the information presented is more structured, can be played repeatedly, its interesting presentation makes children more stimulated to find out more information about the material presented and can be stored in the form of optical or magnetic data so that it is practical to carry everywhere.[14].

In this study, there was a difference in increasing knowledge before and after being given an intervention with power point media. In accordance with previous research conducted by Yanti et al., (2022)[14] which shows that there is a significant difference between the level of knowledge before and after in the group given the intervention using power point media through the lecture method. Likewise, research conducted by Amanda et al (2024) showed that there was a significant effect between the level

of knowledge before and after the group given the intervention using power point media through lecture method.[15] which shows that there is a significant effect between before and after being given education about maintaining oral health using *power point* media. Therefore, *power point* media can be used as a health education media in an effort to improve the health status of school-age children and reduce disease risk factors, especially tuberculosis in children.

CONCLUSION

Based on the socio-demographics of the respondents, most of the respondents were male, almost half of the respondents were 11 years old, and a small percentage had a family history of tuberculosis disease. And it was found that there was an effect of health education with power point media on children's knowledge about preventing tuberculosis in the working area of the Pagambiran Health Center, Padang City.

CONFLICT OF INTEREST

The authors declare that the authors have no potential conflicts of interest related to the research, authorship, and/or publication of this paper.

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