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Comparison of Video and Booklet Media to Improve Parents' Knowledge About Childhood Tuberculosis

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Abstract

Tuberculosis (TB) is a disease caused by the bacteria Mycobacterium tuberculosis. Indonesia is the country with the second largest number of TB cases in the world. Tuberculosis in children cases in Indonesia reached 110,881 and West Sumatra is in sixth place with 2,751 cases. Tuberculosis in children cases are often ignored for various reasons such as lack of parental knowledge about preventing TB in children. Health education through audio-visual media and booklets is one of the efforts made to provide health information about preventing TB in children. The purpose of this study was to see changes in parental knowledge before and after intervention with video and booklet media and to compare the effectiveness of each media. This study used the "Pretest-Posttest Two Group Design" design which was conducted in the Pegambiran Health Center Work Area. The sample consisted of 54 people consisting of 2 groups, namely 27 people in the audio-visual media group and 27 people in the booklet media group. Sampling used the Simple Random Sampling technique. Univariate analysis showed frequency distribution and bivariate analysis used the Wilcoxon rank test and the Mann Whitney test. The results of the study with the Wilcoxon test obtained knowledge before and after audio-visual intervention with a p-value of 0.000 <0.05 and booklet media showed a p-value of 0.000 <0.05. The results of the Mann Whitney test with a p-value of 0.284> 0.05. It can be concluded that there is no difference in the effectiveness of using audio-visual media compared to booklet media in increasing parental knowledge about preventing childhood tuberculosis. It is hoped that the Health Center and related agencies will use audio-visual media and booklets in providing health education about preventing TB in children.

Keyword: Booklet, Parent’s Knowledge, Tuberculosis In Children, Video

INTRODUCTION

The World Health Organization (WHO) states that tuberculosis (TB) is a very important public health problem and a disease that causes a global emergency (1). According to the Global Tuberculosis Report, in 2021 Indonesia is ranked second after India with 969 thousand cases and 93 thousand deaths per year in Indonesia (2). Cases of pediatric TB in Indonesia in 2021 according to data from the Ministry of Health's TB Information System (SITB) amounted to 91,444 cases. This figure increased in 2022 with 110,881 cases of pediatric tuberculosis with a case finding coverage of 95.4%. West Sumatra ranked sixth in Indonesia in 2022 with 2,751 cases of pediatric tuberculosis in children 0-14 years old (3). Cases of childhood tuberculosis in Padang city in 2021 amounted to 381 cases with a case finding coverage of childhood tuberculosis of 61%. This figure increased in 2022 to 941 cases with a coverage of child TB

case finding in Padang City in 2022 of 150.8%. Most cases of childhood tuberculosis in Padang City in 2021 occurred in the Pegambiran Health Center area with 25 cases. This figure increased in 2022 to 51 cases followed by Puskesmas Andalas (38 cases) and Puskesmas Anak Air (30 cases) (4).

The high rate is inseparable from several factors associated with the incidence of tuberculosis. Risk factors for childhood TB transmission are BCG immunization status, child age, child gender, child nutritional status, environmental factors and parental knowledge (5). The lack of knowledge of the community, especially parents, in efforts to prevent the transmission of tuberculosis disease to children is due to the lack of information and education from health workers or posyandu cadres regarding childhood tuberculosis, causing a lack of public knowledge about the disease and a decrease in the number of community visits to the Puskesmas to conduct examinations or early detection of childhood tuberculosis disease (6).

Based on preliminary interviews with the person in charge of the tuberculosis program at Pegambiran Health Center, the increase in cases of childhood tuberculosis in the Pegambiran Health Center area tends to be caused by a lack of parental knowledge regarding the prevention of childhood tuberculosis such as prolonged or recurrent fever for more than 2 weeks, cough that does not heal for more than 30 days, weight loss for 3 consecutive months, night sweats and malaise. Parents assume that tuberculosis is a common disease that will heal by itself or only seek conservative treatment. The health center has conducted health promotion using leaflets and flip sheets with the target of counseling being parents of children under 15 years of age. The Puskesmas has never tried to conduct health promotion with new media that are more effective on the grounds that leaflets and flip sheets are media that have been frequently and commonly used by the Puskesmas and there has never been another media innovation. Although health promotion has been carried out by the Pegambiran Health Center, a preliminary study conducted with 10 random parents who were met at the Puskesmas and had children aged 0-14 years found that 7 out of 10 parents did not know the causes of childhood TB and the symptoms of children suffering from TB. Health promotion activities carried out must be supported by the use of appropriate methods and media so that health information is delivered to targets effectively. The use of methods combined with a variety of media can make it easier for targets to receive the material presented (7). The delivery of health promotion information must be interesting so that it can last long in one's memory so that health promotion delivery techniques and media are needed. Health education media that can be used are video media and booklets (8).

Booklet media can increase knowledge because it has advantages such as material that is presented more clearly, completely, in detail, more interesting and tailored to the needs and conditions of respondents. Booklet media can be an effective choice for health promotion because it can distribute health information in the form of books that contain text and images so that it can make other people interested and not bored to read and easy to carry everywhere (9). Another media that can improve health education is video, which is a means of health education that contains sound and image elements. The advantage of video media is that it clarifies and facilitates the delivery of information so as to avoid misperceptions by displaying objects that have never been seen before. Video media also stimulates the senses of hearing and vision so that it can attract people to see the information to be conveyed and can affect the absorption of information (10).

Research by Suryani et al., (2022) on the effectiveness of video media and booklets on maternal knowledge about nutrition stated that there were significant changes before and after being given video media. The study also compared the effectiveness of video media and booklet media and found that video media was

more effective than booklet media. A similar study on health education media systematically reviewed the effectiveness of traditional media (leaflets and posters) as health promotion media in communities with digital era and showed the results that leaflet and poster media are still effective health promotion media used in the digital era, especially among adults. This form of media will be more effective if combined with other media such as video, telephone interaction, games and others (11)

Health education media has advantages and disadvantages, currently the media that is often used is only media that only uses images and involves one sense in absorbing information. However, when compared, the easiest media to help the education process is to use media that has sound and image elements and can stimulate two senses at once and can increase the absorption of information so as to increase knowledge about tuberculosis in children (10).

OBJECTIVE

This study aims to determine changes in parents' knowledge before and after intervention with video and booklet media and compare the effectiveness of each media.

METHODS

This research is a quantitative study with the research method used is quasy experimental with pretest posttest two group design (12). The study population was parents who had children aged 0-14 years in the Pegambiran Health Center working area. The sampling technique was simple random sampling with a total of 54 people divided into 2 groups with different interventions, namely the media group with video and booklet groups. The research was conducted on July 08-14, 2024. The research site was selected based on the number of pediatric tuberculosis cases, namely in Pampangan village (booklet group) and Kampung Jua village (video group). The study used video media sourced from the youtube channel of the Directorate of MCH Nutrition uploaded on January 18, 2022 while the instrument for booklet media was adapted from material on childhood tuberculosis uploaded by the Ministry of Health in 2020.The measuring instrument to measure knowledge used a questionnaire that had been tested for validity and reliability. Pretest was conducted by giving a knowledge questionnaire and then continued by giving different interventions to each group, namely the group with video media and the group on booklet media. The intervention was carried out for 10 minutes and then given a break to repeat the material at home for 6 days. After 6 days, a posttest was conducted with the same questionnaire. The data that has been obtained is tested for normality. The data obtained were not normally distributed so the data used were univariate and bivariate analysis with the Wilcoxon test and the Mann Whitney test.

RESULTS

Table 1. Respondent Characteristics

Respondent Characteristics	Category	Video Intervention Group		Video Intervention Group	
		Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
Age	Late Adolescence (17-25 years old)	1	3,7	2	7,4
	Early Adulthood (26-35 years old)	8	29,6	8	29,6
		12	44,4	12	44,4

	Late Adults (36-45 years old) Early Elderly (46-55 years old)	6	22,2	5	18,5
Education	Elementary School Junior High School Senior High School Academy/Higher Education	3 4 17 3	11,1 14,8 63,0 11,1	1 6 15 5	3,7 22,2 55,6 18,5
Jobs	Housewife Private Employee Self-employed Others	27 0 0 0	100 0 0 0	22 1 1 3	81,5 3,7 3,7 11,1
Number of Children < 14 years old	1 person 2 people 3 people	18 8 1	66,7 29,6 3,7	17 9 1	63,0 33,3 3,7
Child Immunization History	Available None	27 0	**100** **0**	27 0	100 0
History of Childhood TB	Available None	0 27	**0** **100**	0 27	0 100
Family History of TB	Available None	0 27	**0** **100**	0 27	0 100
Income	<UMR >UMR	17 10	63,0 37,0	19 8	70,4 29,6

Based on table 1, it can be seen that the respondents studied were parents who had children aged < 14 years who were divided into 2 groups, namely 27 respondents in the video media intervention group and 27 respondents in the booklet media intervention group. The characteristics of respondents based on age in the video media and booklet media groups were mostly in the late adult phase (36-45 years), namely 12 people (44.4%) in the video group and 12 people (44.4%) in the booklet group. The respondents' education level was mostly at the high school level, namely 17 respondents (63.0%) in the video group and 12 respondents (55.6%) in the booklet group.

Most respondents were housewives, 27 respondents (100%) in the video group and 22 respondents (81.5%) in the booklet group. The number of children aged <14 years, most respondents had 1 child <14 years, namely 18 respondents (66.7%) in the video group and 17 respondents (63.0%) in the booklet group. All respondents' children had a history of BCG immunization, 27 respondents (100%) in the video group and 27 respondents (100%) in the booklet group. All respondents' children did not have a history of childhood TB. All respondents' families did not have a family history of TB and most respondents' family income was below the minimum wage in Padang city, namely 17 respondents (63%) in the video group and 19 respondents (70.4) in the booklet group.

Normality Test

This study used the Kolmogorov-smirnov normality test because the research respondents numbered more than 50. The data is normally distributed if the significant result (sig) of the normality test is greater than 0.05 (p>0.05). Based on the results of the normality test of the video media group and booklet media, it shows that the sig value is <0.05, which means that the research data is not normally distributed. Furthermore, to conduct bivariate analysis, researchers used non-parametric statistical tests, namely the Wilcoxon sign rank test.

Table 2: Level of Knowledge Before and After Health Education

Group	*Pre Tests*		*Post Test*		*p-value*
	Median	Min-Max	Median	Min-Max	
Video Media	80	50-95	85	65-100	0,000
Media Booklet	75	45-95	85	60-100	0,000

Based on Table 2, the median knowledge score of the video group in the first measurement (pre test) was 80 with a minimum score of 50 and a maximum of 95. The second measurement (post test) obtained the median knowledge score is 85 with a minimum value of 65 and a maximum of 100. Wilcoxon test results with a p value (sig) of 0.000 where the p value <0.05 indicates there is a significant change. The conclusion is that there is a significant difference in parents' knowledge about preventing childhood tuberculosis in the Pegambiran Health Center area before and after health education with video media.

The median knowledge score of the booklet group in the first measurement (pre test) was 75 with a minimum score of 45 and a maximum of 95. In the second measurement (post test), the median knowledge score was 85 with a minimum score of 60 and a maximum of 100. Wilcoxon test results with a p value (sig) of 0.000 where the p value <0.05 indicates there is a significant change. The conclusion is that there is a significant difference in parents' knowledge about preventing childhood tuberculosis in the Pegambiran Health Center area before and after health education with booklet media.

Table 3. Unpaired Test Results of Health Education with Video Media and Booklet Media

Variable	*Mean Rank* Media Video	*Mean Rank* Media Booklet	*p-value*
Knowledge Score	29,76	25,24	0.284

Based on Table 3, the mean rank of respondents' knowledge about preventing childhood tuberculosis using video media was 29.76 and the mean rank of respondents' knowledge about preventing childhood tuberculosis using booklet media was 25.24. The post-test knowledge score was tested with non-parametric analysis of Mann Whitney test and obtained a p value (sig) of 0.284 where p value > 0.05 indicating that there is no significant difference in health education using video media compared to booklet media on changes in parental knowledge about preventing childhood tuberculosis.

DISCUSSION

1. Effect of Video Media on Parents' Knowledge of Preventing Childhood Tuberculosis

Based on the results of statistical analysis in Table 2, the median value of knowledge before and after the intervention with video media shows that there is a significant difference in parental knowledge about

preventing childhood tuberculosis before and after being given video media-based health education. This is in line with the research of Kurnia & Rokhanawati (2023) where the results of the study showed that most respondents' knowledge had an average value of 49.57% and increased to 76.09% with a p value of 0.000 which indicates that there is a significant difference in the average value of knowledge before and after intervention on early marriage with video media and it can be concluded that video media can affect the level of knowledge of adolescent girls about early marriage for reproductive health (13). Fauziah's research (2023) also shows an increase in the average before and after giving intervention with video media about stunting with a p value of 0.000 which can be concluded that health education with video media about stunting is proven effective in increasing the knowledge score of mothers with stunting toddlers (14).

Video media includes electronic media that stimulates the senses of hearing and vision so that the information obtained will be remembered as much as 50% of the material received, the information obtained will be stored in a person's memory for a long time if the repetition of the material is done effectively. The ability to store information three times a week then the memory durability reaches one month. In this study, the video media group was asked to do repetition at home 3 times a week so that it is expected that the memory endurance reaches one month. The results of this repetition can be seen from the increase in parental knowledge of 21 people and there is no decrease in knowledge scores in parents and there are 6 parents who have the same score in the pre test and post test (15).

2. Effect of Booklet Media on Parents' Knowledge of Preventing Childhood Tuberculosis

Booklets are one of the learning media and health education media in the form of printed media in the form of small books that are packaged uniquely and interestingly because the booklet design is attractive and usually full of colors that will foster a sense of interest in using it and booklets are flexible because their small form can be carried and used anywhere and anytime (16).

Based on the results of statistical analysis in table 5.3, the median value of knowledge before and after the intervention with booklet media shows that there is a significant difference in parental knowledge about preventing childhood tuberculosis before and after being given health education with booklet media. The increase in knowledge score after being given health education about menstruation and prevention of sexual harassment in adolescents with disabilities with a p value of 0.00 which can be concluded that booklet media is effective in increasing knowledge about menstruation and prevention of sexual harassment (17).

Hutasoit et al.'s research (2023) also shows that there is an increase in the average score of adolescent girls after intervention with booklet media about anemia with a p value of 0.001 and it can be concluded that booklets as a health education media significantly affect the knowledge of adolescent girls about anemia. In this study, the booklet media group was asked to repeat at home 3 times a week so that it was hoped that the memory endurance would reach one month. The results of this repetition can be seen from the increase in parental knowledge as many as 19 people and a decrease in knowledge scores in parents as many as 3 people and there are 5 people who have the same score during the pre test and post test (18).

Booklets can be a suitable media to provide health education on the prevention of childhood tuberculosis because booklets are in the form of small books that are easy to carry anywhere and the content is detailed and interesting. Booklets have the advantage of being a reference that can be accessed again and can be used as a practical guide. The booklet can be opened at any time if parents want to see more detailed information and want to verify the data (19).

3. Comparison of Video Media with Booklet on Improving Parents' Knowledge of Preventing Childhood Tuberculosis

Based on table 3 shows that the mean rank value that has been done in the video group is 29.76> 25.24 in the booklet group and when researchers conducted statistical tests to see the effectiveness of video media compared to booklet media with the Mann Whitney test, it was found that the p value = 0.284 which concluded that Ho was accepted, which means there is no significant difference in health education based on video media compared to booklet media in increasing parental knowledge about preventing childhood tuberculosis in the Pegambiran Health Center working area. Although statistically there is no difference in the effectiveness of health education between video media compared to booklet media. However, judging from the increase in value and the difference in media, it can be seen that video media is more effective in increasing parents' knowledge about preventing childhood tuberculosis. Seen from the mean rank value of video media higher than the mean rank of booklet media (29.76 > 25.24), it can be concluded that health education with video media is more influential in increasing knowledge about preventing tuberculosis in parents.

This can also be seen from the increase in knowledge scores in parents. Statistical tests showed that parents in the video media group experienced a higher increase in knowledge compared to the booklet media group. In the video group, 21 parents experienced an increase in knowledge scores and 19 parents in the booklet group. A decrease in knowledge score was not seen in the video media group, but this was seen in the booklet group, namely 3 parents, so it can be concluded that video media can increase parents' knowledge about preventing childhood tuberculosis.

This is in accordance with the research by Suryani et al., (2022) which shows that video media is more effective than booklet media in increasing pregnant women's knowledge about nutrition in preventing chronic energy deficiency where the mean value of video media is higher than booklet media, 13.31> 10.74. Similar research was also researched by Selva & Karjoso (2023) who evaluated and concluded research findings which showed that some research results explained that video media was more effective in describing healthy eating patterns compared to booklets, video media allowed audiences to see the process of making food. Video is also considered better at providing real-life examples of eating patterns compared to booklet media (19).

Previous studies have also shown that delivering information with animated video media has been shown to be effective compared to booklet media that allows for a better understanding of the concepts being taught. Videos present information in an interesting way that can be easily accessed by various groups, helping in the socialization and dissemination of health education more effectively (20). Edgar Dale's cone theory that supports that video media is more effective in increasing knowledge than booklet media can be seen from the involvement of the five senses while using the media. Video media involves the senses of sight and hearing so that parents' ability to remember health education material is 50% of the material presented. Booklets that only involve the sense of sight only contribute 30% of the information seen (21).

CONCLUSION

The research has been conducted to 2 groups consisting of 27 groups of video media and 27 groups of booklet media with the aim of seeing media that are more effective in increasing knowledge about preventing childhood tuberculosis in the Pegambiran Health Center working area. Based on the results of the study, it was found that the average knowledge of parents in the two groups before the intervention was in the good category. The results of non-parametric statistical tests using the Wilcoxon test showed

that the p value of each group was 0.000, which concluded that there was an effect of health education with video media and booklet media on increasing parental knowledge about preventing childhood tuberculosis. Mann Whitney test results to test the most effective media between video and booklet media showed a p value of 0.284, which can be concluded that video media and booklet media are equally effective in increasing parents' knowledge about preventing tuberculosis, but when viewed from an increase in parental knowledge scores, video media proved to be more effective than booklet media in increasing parents' knowledge scores about preventing childhood tuberculosis in the Pegambiran Health Center working area.

ADVICE

1. Puskesmas and related institutions should utilize video and booklet media on the prevention of childhood tuberculosis, especially knowledge on coughing etiquette and sputum disposal for TB patients, and strive to provide more health education on the prevention of childhood tuberculosis using video and booklet media.
2. Future educational institutions are expected to innovate health education with several other media and with more detailed material so that there is a wider coverage in understanding the prevention of childhood tuberculosis.
3. Future researchers are expected to conduct more in-depth research innovations and emphasize the observation of previously obtained phenomena so that the scope of research is more comprehensive related to parents' understanding of the prevention of childhood tuberculosis.

CONFLICT OF INTEREST

The authors declare no potential conflict of interest in relation to the research, authorship and/or publication of this article.

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