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EFFECTIVE COMMUNICATION STRATEGY IN CONTROLLING TUBERCULOSIS IN ASSISTED AREA OF PUSKESMAS SETIABUDI IN 2024

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ABSTRACT

Tuberculosis (TB) is an infectious disease caused by *Mycobacterium tuberculosis.* Based on Indonesian Health Survey (SKI) 2023, the prevalence of pulmonary tuberculosis according to doctors' diagnosis reached 0.3% in Indonesia and 0.4% in DKI Jakarta. This study aims to determine effective communication strategies regarding TB control in the Puskesmas Setiabudi's assisted area in 2024. We used a two group pre- and post-test design with 42 samples. They were divided into two groups and each group received education by using poster or video as medias. Knowledge data was obtained by filling out questionnaires and characteristic data through interviews. Results most of the cadres had secondary education level (84 and 76.5%) and the average age was above 50 years (55.28 and 50.71 years). There was a greater knowledge increase in the group that received education with audiovisual media (0.59) compared to the group that received education with poster (-0.80) after receiving the education. Conclusion is the utilization of audiovisual media in education is a more effective communication strategy in increasing cadre's knowledge related to TB prevention and control in the Puskesmas Setiabudi's assisted area in 2024. It is recommended to modify the refresher workshop method by using audiovisual media.

Keywords: *Tuberculosis, Education, Media, Video, Poster.*

INTRODUCTION

Tuberculosis (TB) is a contagious infectious disease caused by *Mycobacterium tuberculosis* (1). The bacteria can invade the lungs and other organs, including bones, lymph nodes, urinary tract, genitals, as well as the liver or also known as extra-pulmonary TB. TB can also be divided into active and latent TB, which can be distinguished by the presence of symptoms. Active TB occurs when an infected patient shows symptoms, including coughing, fever, weight loss, night sweats, weakness, and discomfort (2). Meanwhile, latent TB occurs when an infected person does not show any symptoms. Latent TB is also not contagious.

Globally, WHO estimated that 10.6 million people would have TB by 2022 (3). Based on the result of Indonesian Health Survey in 2023, the prevalence of pulmonary TB based on doctors' diagnosis reached 0.3% with the prevalence in DKI Jakarta being above the national prevalence, which amounted to 0.4% (4). The same thing happened in 2018 with DKI Jakarta's TB prevalence reached 0.51%, which was above the national prevalence of 0.42% (5). Most TB patients came from the age group of 65 – 74 years, were male, and lived in urban areas.

TB can impact both the sufferer and their family, including those in early age. TB in children under five is associated with developmental delays, including low H/A (height-for-age), W/A (weight-for-age), and BMI z-scores, as well as wheezing and arrhytmia (6). Socioeconomically, TB in children can also lead to poverty, stigma, separation from family, and missed educational opportunities (7). For adults, TB can lead to decreased respiratory capacity (pulmonary TB), bone abnormalities and reduced range of motion (bone TB), and reduced ability to hear, see, and move (TB meningitis) (8). Patients with latent TB can also experience various side effects, both physically, in the form of decreased vital capacity and pain or discomfort, and socially, including fear and anxiety regarding the diagnosis they receive (9). For the patient's family, a diagnosis of TB for their family member can lead to financial crisis, stunted growth of children, stunted education, and limited social interaction due to stigma associated with TB (10).

In Indonesia, the estimated economic burden of TB in Bengkulu reached 28.28 – 50.84% of average household income. As many as 19% of high-income households

experienced income decreases and categorized as low-income households later. Patients with low incomes spent 14% of their household income on TB treatments and 43.7% of households had to relocate their consumptions (11). Those impacts indicate that TB is a dangerous infectious disease that deserves attention.

The incidence of TB can be influenced by social and economic development factors, including poverty and living in slums, as well as health-related risk factors, including malnutrition, diabetes, HIV infection, alcohol abuse, smoking, and illicit drug use (12)(13). In addition, the level of awareness of TB is also one of the factors that play an important role in the incidence of TB. Low- and middle-income countries tend to have an inadequate TB awareness. This lack of awareness due to lack of knowledge can lead to delayed access to health care and increased transmissions (14).

Education (*penyuluhan*) is one of the methods to improve people's knowledge on certain topics, including TB and how to prevent it. A study by Yousif et al. on TB patients in Sudan showed that education could significantly increase patients' knowledge on TB and its prevention (15). Similar results were shown in a study by Marna et al. on the community in North Toraja, South Sulawesi, where there was a significant increase of community knowledge regarding TB prevention after receiving health education (16).

Most studies related to TB education focus on TB patients, health workers, or people close to TB patients as targets. In addition, there are still few studies that discuss the comparison of education media used in increasing target knowledge about controlling TB. Therefore, this study aims to determine effective communication strategies in controlling TB in Puskesmas Setiabudi's assisted area in 2024.

MATERIAL & METHODS

This research was a quasi-experimental research with the two group pre- and post-test design. The design uses two sample groups as the control and intervention groups. This study was conducted in the working area of Puskemas Setiabudi, South Jakarta in July 2024. The sample was 42 TB cadres registered at Puskesmas Menteng Atas and Pasar Manggis in Setiabudi Sub-District for the last 6 months. The cadres who became samples must be in good health and able to see, hear, read, and write.

Data collected included knowledge level and cadre characteristics as the supporting data. The level of knowledge was measured using pre- and post-test questionnaires filled out by cadres, while characteristics data was obtained by interviews using questionnaires by researchers.

In this study, the sample was divided into two groups, the poster group and the video group. The poster group received 20 minutes of education session about preventing TB using official poster made by the Indonesian Ministry of Health. The video group received education session on TB prevention using videos for the same duration, 20 minutes. Before and after the sessions, cadres from both groups were asked to fill out a knowledge questionnaire about preventing TB.

The research data were then analyzed using SPSS. Univariate analysis was used to analyze data on sample characteristics, including age and education level of cadres. Bivariate analysis was conducted using the Wilcoxon signed rank test to see the difference between pre- and post-test mean scores. They were related to differences of knowledge about TB prevention before and after receiving education with poster or video. A *p*-value of less than 0.05 indicates significant difference between pre- and post-test scores. This study has received approval from the Health Research Ethics Commission of the Jakarta Health Polytechnic II (KEPK-PKJ II) with approval number DP.04.03/I/KE/31/427/2024.

RESULT & DISCUSSION

Characteristics of cadres who became the sample were divided into age and education level. The average age of cadres in the poster group was 55,28 ± 7,72 years and the average age of cadres who received education with video was 50,71 ± 9,07 years. The youngest cadre in this study was 35 years old and the oldest was 70 years old. Based on Table 1 regarding the education level of cadres, most cadres in the poster (84%) and video (76,5%) groups had secondary level of education, namely completed junior and senior high schools.

Table 1 Cadre Education Level

Education Level	Poster Group		Video Group	
	n	%	n	%
Primary	2	8	0	0
Secondary	21	84	13	76.5
High	2	8	4	23.5
Total	**25**	**100**	**17**	**100**

Table 2 Average Pre- and Post-Test Scores of Cadres

Media	Score		Δ	*p*-value
	Before	After		
Video	87.65 ± 8.50	88.24 ± 5.85	0.59	1.000
Poster	86.80 ± 6.10	86 ± 6.92	-0.80	0.490

Table 2 shows the average score of cadres' knowledge regarding TB before and after receiving educations with video or poster. The largest score increase happened in the group who received education using video with average pre-test score of 87.65 and average post-test score of 88.24. The cadre that received education by using poster had a decrease in average post-test score with differences in scores reaching 0.80. The increase and decrease were not significant ($p<0.05$).

The average age of cadres in this study was above 50 years and most of them had secondary education level, namely junior and senior high school graduates. Similar educational characteristics were shown in a study by Novalia et al. on the community in Lhokseumawe City, Aceh, where most of the targets (64.4%) were junior and senior high school graduates (17). The level of education is known to be related to a person's level of knowledge on TB (18). It is because someone with higher education receives more information, including information about health and TB, thus having more knowledge and higher awareness as well.

After receiving the education, there was a greater increase of the average post-test score from the group who received education using videos. This suggests that audiovisual media

such as videos can be a more effective strategy to increase cadres' knowledge on TB prevention and control. Similar result was shown in a study by Yanti et al. on high school students in Banda Aceh where the group that received education using audiovisual media experienced a greater increase of knowledge than the group who received education by using leaflet as the media (19). Another study by Kumboyono on TB patients at Puskesmas Kedungkandang, Malang showed similar result that there was a significant difference in knowledge improvements between the group who received education using printed media and the group who received it using audiovisual media (20).

Audiovisual media uses moving images and sounds that encourages the target audience to use their senses, hearing and vision, simultaneously; covers various learning styles; and illustrate the concepts clearer and easier to understood. In addition, audiovisual media such as videos tend to be more interesting to view for a longer period of time compared to printed media, so that targets can focus longer on the material presented through audiovisual media (21).

After receiving the education, it was shown that there were still many cadres from both groups with knowledge regarding recommendations for opening windows, vegetable and fruit consumptions, and good ventilation conditions in home that tended to be lacking. Therefore, in the future, educators can focus on these topics more to ensure cadres' knowledge on TB prevention and control can be more comprehensive.

The strength of this study was the attempt to compare the effectiveness of 2 different media, printed and audiovisual, in improving cadres' knowledge. Meanwhile, there were several weaknesses in this study, including the absence of blinded system for the intervention, the absence of control group, and the characteristics of cadres that tended to be diverse, so there was a possibility of confounding factors affecting the results of the study.

CONCLUSION

Based on the results of the research conducted, it can be concluded that audiovisual media is a more effective communication strategy in increasing the knowledge of cadres regarding TB prevention and control in the assisted area of Puskesmas Setiabudi. To ensure that cadre refreshment workshop related to TB prevention and control can run effectively in the future,

it is recommended to modify the workshop method by using audiovisual media such as videos.

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