



The Effect of Psycho-education Based Audiovisual Program on Behavior Adherence for Preventing Tuberculosis Transmission

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Abstract. Treatment failure, disease transmission, and drug resistance were problems that occur due to non-compliance. One of the factors that caused non-compliance was a prolonged psychological problem and a lack of patient commitment to treatment. Psychoeducation, which was guided by implementation intention and packaged in audio-visual form, was expected to improve the behavior of adherence for preventing tuberculosis transmission. This study aims to explain the effect of psychoeducation based audio-visual programs on the behavior of adherence for preventing tuberculosis transmission. Methods: A quasi-experimental design, pre-test, and post-test with the equivalent control group were applied in this study. The study sample was 72 TB patients who underwent intensive category one treatment as many as two divided into two intervention groups (n=36) and controls (n=36). Samples were taken by random cluster sampling, inclusion criteria for intensive treatment category 1 TB patients (1-2 months), aged 18-65 years, and able to communicate verbally and in writing well. The behavior of preventing tuberculosis transmission was assessed using a questionnaire adapted from the Sukartini research in 2015. Data were analyzed using the Wilcoxon-Sign Rank test and the Mann-Whitney test. After the intervention of psychoeducation based audio-visual programs, it was found that there was a significant increase in the behavior of adherence for preventing tuberculosis transmission in the intervention group with $P < 0.05$. Psychoeducation based audio-visual program is an effective intervention to improve the behavior of adherence for preventing tuberculosis transmission.

Keyword: Audio-Visual Psychoeducation Program,
Behavior Adherence, Tuberculosis Transmission



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INTRODUCTION

TB is still a major global health problem (1). The government has implemented the Directly Observed Treatment Short Course (DOTS) strategy globally since 1995. However, non-compliance is still a difficult problem to overcome in the management of TB patient treatment (2). Factors affecting the non-compliance of TB patients in treatment include knowledge and treatment, stigma, psychological problems, and patient perceptions of disease and care (3). Prolonged psychological issues and not getting severe treatment are among the factors that cause non-compliance, which in turn will lead to failure in treatment (4).

Research conducted by Prasad (2013) states that patients newly diagnosed with TB experience psychological problems such as shame, worry, disbelief, fear of death, fate, and relief (5). Psychological counseling and education to improve compliance with TB patients are one of the recommended interventions (3).

This statement is reinforced by Kastien-Hilka, Rosenkranz, Schwenkglens, Bennett, & Sinanovic (2017). It states that in the management of TB patients in addition to adequate drug administration must also meet their mental and psychological needs (6). Behavior change is a long process and requires the determination of the individual to make an expected change. Intention implementation is a powerful self-regulatory strategy that can solve problems and initiate behaviors that are following the goals (7).

Providing education with audio-visual media can facilitate the delivery of information and can generate satisfaction for those who receive it (8). The statement was reinforced by Kholid (2015), who stated that education provided with audio-visual media would be more easily absorbed in memory because it involved the sense of hearing and sight in one process of the activity (9). Education provided with audio-visual media is more effective in changing one's behavior because the information conveyed through the sense of sight can be absorbed by the brain by 75% - 87%, and the rest are other senses (10-11). Therefore, the effect of audio-visual psychoeducation on implementation intention on the intention and behavior of compliance with treatment for TB patients has not been explained.

TB is the top ten causes of death and the leading cause of single infections worldwide. TB is estimated to affect around 10 million people still and cause 1.3 million deaths with HIV negative and 300,000 with HIV positive status. Based on the 2018 Global Tuberculosis Report, Indonesia ranks 3rd with the highest number of TB patients after India and China, which is 8% of all patients worldwide (1). In 2018, the number of new TB cases was 203,348 cases, an increase compared to TB cases found in 2017, which amounted to 168,412 cases. The highest number of cases reported is in the provinces of East Java, Central Java, and West Java. Tuberculosis cases in the three areas reached 38.63% of the number of new cases in Indonesia (12).

Research conducted by Tola et al. (2016) stated that 49% (almost half of the sample) experienced mild to severe psychological disorders and, in the end, would be a factor in medication non-compliance (3). Non-adherence to TB treatment is an important thing to observe because inappropriate treatment can cause treatment failure, the transmission of prolonged disease, and immunity to TB against anti-TB drugs (OAT) called MDR-TB (1). Pulmonary TB has a significant impact on the lives of its patients, both physical, mental, and social life. Physically, pulmonary TB disease that is not treated correctly can cause complications, such as the spread of infection to other organs, malnutrition, severe blood coughing, drug resistance, etc. (13).

Audio-visual psychoeducation based on intention is given to TB patients consisting of 4 stages, namely 1) problem identification; 2) knowledge management; 3) compliance

management; 4) stress management. In each step of psychoeducation, an implementation intention approach is carried out consisting of 1) finding forms of self-control problems; 2) choose an adequate response; 3) find the appropriate process that leads to anticipation; 4) problem-solving in action (14). The use of audio-visual media aims to maximize all five senses so that TB patients more readily accept the material or information obtained. Information received through hearing and vision will be processed through a thought process so that awareness and understanding of the importance of medication adherence arise (10).

OBJECTIVE

The study aimed to examine the effect of psychoeducation based audio-visual programs on the behavior of adherence to preventing tuberculosis transmission.

METHOD

A quasi-experimental design, pre, and post-test with the equivalent control group were applied in this study. Seventy-two samples were recruited using Cluster random sampling and divided into two groups (interventions n=36 and control groups n=36). The Inclusion criteria: TB patients treat category one intensive phase (1-2 months), age 18-65 years, and can communicate verbally and in writing well. The Exclusion criteria: TB patients experience impaired vision, hearing, and suffer from comorbid diseases.

The Intervention Implementation-based audio-visual psychoeducation consists of 4 stages. Each stage carried out within two sessions and conducted approximately 45-60 minutes. The total intervention about seven sessions within seven weeks. The data analyzing used the Wilcoxon Sign Rank Test to determine the mean difference of variables

The research ethics committee of the Faculty of Nursing Universitas Airlangga has approved this study for conducting among TB patients. All participants were required to sign informed consent who willing to participate in this study. Moreover, autonomy and freedom, veracity and fidelity, confidentiality, and justice also were found in this study. All respondents were informed of the purpose of the study and consented for their participation.

RESULTS

Characteristic of respondents

Table 1 showed that the sex with the most significant proportion in both groups is male. The most recent education in the intervention group was mostly junior high school, which was 41.67%, while in the control group, it was an elementary school, which was 50%. Marital status in both groups, most of whom were married with a proportion of > 50%. While the work of respondents in both groups showed the majority were private employees with a proportion of > 40%

Table 1. Characteristic of respondents

Characteristics	Group			
	Intervention (n = 36)		control (n = 36)	
	f	%	f	%
Gender				
Male	21	58.33	21	58.33
Female	15	41.67	15	41.67
Education				
No School	0	0.00	3	8.33
Elementary School	11	30.56	18	50.00
Junior High School	15	41.67	6	16.67
Senior High School	9	25.00	7	19.44
College	1	2.78	2	5.56
Marital Status				
Married	18	50.00	28	77.78
single	14	38.89	4	11.11
Widow/ widower	4	11.11	4	11.11
Work				
Not work	13	36.11	11	30.56
PNS/TNI/POLRI	0	0.00	0	0.00
Private	15	41.67	16	44.44
Laborer/ farmer/fishermen	7	19.44	9	25.00
Retired	1	2.78	0	0.00

Characteristic of respondents based on age and nutritional status among the experimental group and the control group

Table 2 showed respondents' characteristics based on age and nutritional status in the treatment and the control groups. The findings explained that the mean and standard difference of the experimental group was 38.83 ± 14.75 , and the control group was 47.83 ± 13.64 .

Regarding the nutritional status, the mean difference between the experimental group was 19.72 ± 3.03 , and the control group was 20.16 ± 3.15 .

Table 2. Characteristic of respondents based on age and nutritional status among the experimental group and the control group

Dependent Variable	Intervention	control	p-value
	Mean±SD	Mean±SD	
Age			
18-25 years old	38.83 ± 14.75	47.83 ± 13.64	P=0.231
26-35 years old			
36-45 years old			
46-55 years old			
56-65 years old			
Nutrition status			
Thin	19.72 ± 3.03	20.16 ± 3.15	P=0.865
Normal			
Obesity			

The effect of implementation-intention-based audio-visual psychoeducation program on the behavior of adherence

Table 3 Analysis results with the Wilcoxon sign rank test showed that in the intervention group before implementation-intention-based audio-visual psychoeducation program. Before receiving the intervention, the mean \pm SD value was 31.19 \pm 3.44, and after receiving the intervention, it increased to 34.31 \pm 2.84 with p-value 0.003. While, among the control group showed that before receiving interventions, the mean \pm SD value was 32.22 \pm 3.55. After the intervention, the mean increase to be 32.42 \pm 3.23, with a p-value 0.014. This means that implementation-intention-based audio-visual psychoeducation program increases the average compliance behavior of TB patients in the prevention of transmission. It is 3.12, higher than the control group that experienced an increase in the average adherence behavior of TB patients in the prevention of transmission 0.48. The p-value of 0.004 indicated that there were significant differences in adherence for preventing tuberculosis transmission between the intervention and the control group.

Table 3 The effect of implementation-intention-based audio-visual psychoeducation program on the behavior of adherence for preventing tuberculosis transmission (n=72)

Dependent Variable	Intervention			control		
	Pre	Post	Delta	Pre	post	Delta
	Mean \pm SD	Mean \pm SD	Δ	Mean \pm SD	Mean \pm SD	Δ
Intention	31.19 \pm 3.44	34.31 \pm 2.84	3.12	32.22 \pm 3.55	32.42 \pm 3.23	0.48
Wilcoxon Sign Rank Test	p = 0.003			p = 0.014		
Mann Whitney	p = 0.004					

DISCUSSION

The results of this study indicate that implementation-intention-based audio-visual psychoeducation program influences increasing the behavior of adherence for preventing tuberculosis transmission. The results of this study are supported by other research on implementation intention, which states that this strategy is useful in planning the right coping strategies and actions and can optimize intentions for compliance. Compliance is intended here, one of which is compliance with infection control (prevention of transmission) (15). The strategy of implementation of intention can influence the mental perception, intention, and behavior of patients to take medication compliance measures. Treatment that is intended in this study is one of which is adherence to carrying out healthy living behaviors (16).

The theory of the Action Phase Model (MAP) that underlies intention implementation states that to maintain one's intentions in achieving the goal there is a need to consider the benefits of intentions, ways (when, where and how) to achieve the goals of intention, and evaluate how much benefits if the intention is realized (17). The accuracy of intentions in predicting behavior is not entirely absolute. However, many experts have proven a strong correlation between intention and behavior. It turns out that some of the study results also found a weak relationship between the two. An implementation intention is an intervention approach that can be done to maintain stabilizing one's intentions to achieve goals (changes in compliance behavior) (7).

The results of this study were supported by Kaona about factors that influence treatment compliance and knowledge about transmission of transmission in TB patients. Male

patients transmit more pulmonary TB to others by using utensils simultaneously than female patients (18). Other studies on the effect of health education and counseling on behavioral changes in the prevention of transmission in tuberculosis patients indicate that an increase in transmission prevention behavior was found (19). The method used in the study is almost the same as audio-visual psychoeducation intervention based on implementation intention, where both provide learning in groups, the difference in the study is not given with audio-visual media and not given in stages

In this study, educational interventions based on intention can help patients maintain or maintain the stability of intention. Providing the audio-visual psychoeducation regularly for seven weeks and has a tremendous effect on medication adherence. Self-control was needed to prevent transmissions, such as coughing, phlegm, correct hand washing, and the right modification environment for TB patients. During the discussion, patients were allowed to find the best solution to the problem at hand, with direction and guidance from health workers. The subjects who received this intervention received direct support and information about clean and healthy living behaviors to prevent transmission of the disease to other people around them

CONCLUSION

The implementation-intention-based audio-visual psychoeducation program influences on increasing the behavior of adherence for preventing tuberculosis transmission. The nurse profession is expected to be able to use Implementation-Intention-based audio-visual psychoeducation interventions to improve medication adherence especially for preventing tuberculosis transmission

Patients who were respondents were patients who underwent intensive phase 1 TB treatment, but with varying treatment start times, not all were new patients who started treatment. So that there are patients who have previously received health education from local health workers and some who have not received it at all

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