



The Effect of Audiovisual Health-Based Education on Medication compliance among Tuberculosis Patients

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Abstract. Tuberculosis (TB) has been around for thousands of years and remains a major global health problem. One of the factors that influence non-compliance in TB treatment is a lack of knowledge about TB and therapy. The study aimed at examining the effect of audiovisual health education on the compliance behavior of tuberculosis patients in taking medication. Methods: This study used a quasi-experimental, pre-test, and post-test with the non-equivalent control group that was applied in this study. Seventy samples were recruited by using purposive sampling and divided into the intervention group and control groups. Data were analyzed using descriptive statistics and paired t-test. The results showed that the mean scored of medication compliance increased among the intervention group before intervention (mean=SD: 6,89=1,105) and after the intervention (mean=SD: 7,46=0,701). Meanwhile, the control group showed than the mean scores of medication compliance level was slightly downhill from 6,89+ 1,105 to 7,23+1,060. The paired t-test obtained a p-value of 0.000, indicating that there were significant differences in the enhancement in medication compliance between the intervention and the control group. An audiovisual health education interventions improve the compliance behavior of TB patients in taking medication. The nurse profession is expected to be able to use preoperative based audiovisual health education interventions based on the Health Belief Model to become one of the independent nursing interventions.

Keywords: Tuberculosis, medication compliance, audiovisual health education.



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INTRODUCTION

Tuberculosis (TB) has been around for thousands of years and remains a major global health problem. TB remains one of the ten causes of death and the leading cause of a single infectious agent in the world. Three countries with the highest incidence of cases were India (27%), China (9%), and Indonesia (8%) (1). In Indonesia, it estimated that TB incidence in all cases is 842,000 or 319 cases / 100,000 population with an estimated incidence of Multidrug-Resistant / rifampicin-resistant (MDR / RR-TB) of 23,000 cases (1), Treatment success rates declined from previous years. Since the last seven years, treatment success rates have ranged from 90%, then decreased to 85% (data as of June 2016). This figure is still below the success rate target of WHO, which sets goals > 85% (2).

Education has been carried out as an effort to improve compliance. Still, the education carried out only once and in one direction, does not explore much about the patient's beliefs, and the media used have not provided a clear picture of TB disease. The Health Belief Model (HBM) is a behavioral change theory framework that can predict and explain health beliefs among patients, including those related to adherence to treatment (3). The audiovisual media is the most effective type of media used in learning activities because it involves hearing and sighting in one process or activity so that the more senses receive information, the more material can be absorbed (4).

A previous study (5), revealed that people remember only 20% of what they hear, 30% of what they see, and 70% can be absorbed from what they hear and see. The advantage of education using audiovisual media is the ability to create continuity in data storage and easy application and cost-effectiveness (6). Education prepared by referring to the construct of HBM and packaged in audiovisuals is expected to change the behavior of TB patients through increasing patient confidence, but the influence of HBM-based audiovisual health education on TB patient compliance behavior is unknown.

TB is still a top priority in disease control in Indonesia because TB has a broad impact on the quality of life, economy, and increased morbidity and mortality. Compliance with TB treatment is the primary determinant of treatment success (7). Non-compliance leads to prolonged periods of infection, recurrence, drug resistance resulting in increased morbidity and mortality. This poses a severe risk to the community and contributes to the failure to fight disease globally (8). TB sufferers are the key to success in efforts to control TB disease. Good endurance, attitude, and behavior of TB patients regarding transmission, danger, and treatment methods are individual factors that influence TB disease control efforts (2). One of the factors that influence non-compliance in TB treatment is the lack of knowledge about TB and its treatment (9). A previous study mentioned that patients' belief was the main factor affecting TB patient compliance (3). Confidence is one of the decisive elements in forming attitudes that ultimately affect a person to behave (10).

The strategy has been carried out as an effort to support compliance with TB treatment, among others, through counseling, education to sufferers and health workers, psychological interventions, reminder, direct medication assistance, peer support, and incentives, but non-compliance is still found in TB patients (11). Compliance with TB patients related to treatment can be improved through health education about the disease and its treatment and providing information about the location and cost of free care (12). Health education is an effort to improve the ability of individual behavior in achieving optimal levels of health through increasing knowledge and forming positive attitudes (10). In his study, (13) stated that health education provision could improve adherence and reduce treatment delay in TB patients.

OBJECTIVE

The study aimed at examining the Effect of audiovisual health education on the compliance behavior of Tuberculosis patients in taking medication

METHOD

The study aimed at examining the effect of audiovisual health education on medication taking compliance behavior among tuberculosis patients. This study used a quasi-experimental, pre-test, and post-test with a non-equivalent control group. Seventy samples were recruited using nonprobability sampling using purposive sampling and divided into interventions group n=35 and the control groups n=35. The Inclusion criteria were; 1) patients TB in intensive phase treatment who undergo treatment <1 month, 2) age 17 - 65 years, and 3) communicate verbally and written well. TB Patients with hearing and psychiatric disorders were excluded in this study.

The intervention group received the audiovisual health education based on the Health Belief Model (HBM) for eight weeks. The program was once a week, with a duration of 50 minutes for each meeting. The material is given through the lecture method using audiovisual media and modules. The intervention of HBM based audiovisual health education is carried out together / in groups with an average of 5-7 people in each group in sessions 1 through 8. Objective and subjective measurement was performed before and after the intervention. Data collection used the MMAS-8 (Morisky Medication Adherence Scale) questionnaire to measure medication adherence in TB patients undergoing treatment in the intensive phase. Objective and subjective measurement was performed before and after the intervention. The collected data were analyzed using the paired t-test.

The research ethics committee of the Faculty of Nursing, Universitas Airlangga, has approved the study. This study uses three ethical prerequisites of researchers, namely Fair, Good, and Respectful. All respondents were informed of the purpose of the study and consented for their participation.

RESULTS

Characteristics of respondents

Table 1 showed the highest age of respondents is 56-65 years old (40.0%). The sex of most respondents is male (62.9%). The work of most respondents is Farmers (48.6%). Most education in an elementary school (45.7%).

Table 1 Characteristics of mice tail weight

Distribution Respondents	Total	Percentage (%)	
Age	18-25	6	8.6
	26-35	8	11.4
	36-45	10	14.3
	46-55	18	25.7
	56-65	28	40.0
Gender	Man	44	62.9
	Women	26	37.1

Work	Employee	28	40.0
	Farmer	34	48.6
	Student	2	2.9
	Fisherman	2	2.9
	Housewife	2	2.9
Education	Elementary school	32	45.7
	Junior high school	22	31.4
	High school	14	20.0
	College	2	2.9

Effect of audiovisual health-based education on medication compliance

Table 2 showed the intervention group before receiving the Health Belief Model (HBM) based audiovisual health education, the mean of compliance behavior of TB patients in taking the drug was 6.89 with a standard deviation of 1.105, after receiving intervention there was an average increase of 7.46 with a standard of 0.701. Whereas patients in the control group before receiving the intervention, the mean average compliance behavior of TB patients taking the drug was 6.89 with a standard deviation of 1.105, after the intervention there was a mean decrease of 7.23 with a standard of 1.060, meaning the Health Belief Model (HBM) audiovisual health education intervention group occurred the increase in the average compliance behavior of TB patients in taking medication was 0.57, higher than that of the control group who experienced an increase in the average compliance behavior of TB patients in taking medication 0.34. After testing the data analysis using the Wilcoxon test (α 0,05) in the Health Belief Model (HBM) audiovisual health education intervention group obtained p 0.001, which means there is a Health Belief Model (HBM) based audiovisual health education effect on patient compliance behavior TB in taking medicine for TB patients.

Table 2 Effect of audiovisual health education on the compliance behavior of tuberculosis patients in taking medication (n=70)

Variable	Intervention		Delta Δ	p- value	Control		Delta Δ	P value
	Pre Mean \pm SD	Post Mean \pm SD			Pre Mean \pm SD	Post Mean \pm SD		
Compliance taking medication	6.89+ 1.105	7.46+0.701	0.57	0.001	6.89+ 1.105	7.23+1.060	0.34	0.003

*paired t-test for differences groups (p<0.05)

DISCUSSION

The results showed that improvement in the compliance behavior of TB patients taking medication influenced by the Health Belief Model (HBM)-based audiovisual health education provided by researchers had a good influence. The results of this study are in line with several studies related to the Health Belief Model (HBM) -based education that has been carried out in various cases of diseases with long-term therapy, such as DM, hypertension, cancer, and HIV. A previous study (14) confirmed that the application of the Health Belief Model to

support medication adherence in hypertensive patients in China, obtained results that the construct of the Health Belief Model (HBM) can be used to predict treatment compliance in hypertensive patients in China. According to Simonds (1976), health education is a health practice carried out to change the behavior of individuals, groups, and larger populations towards better behavior, and correct information will provide positive stimulation about healthy living behaviors(15). It is generally known that more knowledge (75% to 87%) is received through the eyes, and other senses channel only 13% to 25%. Therefore the most effective educational media is media that can involve all five senses. Audiovisual use is beneficial in clarifying the delivery of material (10).

The Health Belief Model (HBM) theory explains the determinant factors of health behavior that are oriented to personal beliefs or perceptions and beliefs about a particular disease or event and the way that it will be done to reduce the occurrence. The cognitive process of the Health Belief Model is influenced by a variety of information that comes, the possibility that individuals will perform obedient actions depends on health beliefs or assessments, namely threats perceived by individuals from illness and consideration of benefits and losses (15).

Behavior changes or adopt new behaviors through various processes, knowledge (attitude) - actions (practice) (10). In this study, the knowledge and attitudes of the treatment group had an effect after obtaining a Health Belief Model (HBM) audiovisual education intervention, as well as the compliance behavior of TB patients in taking medication, although in this study no statistical test of the relationship between the three variables was carried out. In the Theory of Reasoned Action, attitudes affect behavior through a careful and reasoned decision-making process whose impact is limited to three things. First, the behavior is not only determined by a general attitude but by a specific attitude towards something. Both behaviors are not only influenced by attitude but are influenced by subjective norms, namely, belief. Third, attitudes toward behavior, together with beliefs, form an intention to behave in a certain way. Briefly, the practice or behavior according to the Theory of Reason Action is influenced by intention, while attitudes and subjective norms influence the intention; beliefs influence self-attitudes about the results of past actions. A person will do an act when looking at and believes that the action is affirmative and useful for him and others.

The intervention of the Health Belief Model (HBM) audiovisual health education emphasizes the confidence of patients in taking TB drugs. This is in line with the meta-analysis (15), explaining that beliefs must be targeted in communication campaigns to cause positive health behaviors. By directing the beliefs of the components in the construct of the Health Belief Model (HBM) in a positive direction, the adoption of positive health behavior will be formed. In this study, the Health Belief Model (HBM) audiovisual health education intervention can help TB patients improve their confidence through increasing perceptions of vulnerability and seriousness, perceived barriers and self-efficacy, and decreased perceptions of barriers. Audiovisual Health Education that is given continuously once a week for two months has a significant effect in helping patients improve their confidence in achieving medication adherence. Patients who get this intervention will get direct support to prevent the occurrence of drug withdrawal, which will cause more significant effects such as the occurrence of transmission to others and the occurrence of multidrug resistance, which increasingly complicates treatment

CONCLUSION

Health education audiovisual based on the Health Belief Model (HBM) can improve the compliance of Tuberculosis patients in taking medicine. Nurse professionals are expected

to be able to apply the Health Belief Model (HBM)-based audiovisual health education interventions to become one of the independent nursing interventions.

The limitation possessed in this study is the collection of data related to behavior using questionnaires that tend to be subjective, so that the honesty of respondents strongly determines the correctness of the data provided. In the data retrieval process, it is better to use the observation method and validate the family members regarding the components of the questionnaire that require validation of family members, so that the assessment is more objective.

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