The Effect of Educational Videos on Knowledge and Compliance with Taking Pulmonary Tuberculosis Drugs at The Kenali Besar Health Center Jambi City

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Abstract

Background: One of the factors leading to treatment failure of pulmonary TB patients is low levels of knowledge and compliance. The level of knowledge and drug adherence is very important if treatment is not carried out regularly and prescribed, there will be germ immunity (resistance) to anti-tuberculosis drugs.

Aims: The purpose of the study was to determine the effect of educational videos on knowledge and compliance with taking pulmonary Tb medication at the Kenali Besar Community Health Centre, Jambi City. This research is a quantitative study with Pre-experimental.

Methods: The research design uses the Pre-test and Post-test design method. The research was conducted in April-July 2022.

Results: The results showed that of the 60 pulmonary TB patients there were (31.67%) women and (68.33%) men with an age range of 26-35 years totalling (53.33%). Based on the results of the paired sample T-Test test, the level of knowledge is at the pre-test (49.89) and post-test (70.99) the results of the level of compliance are at the pre-test (49.69) and post-test (83.54), meaning that there is a significant difference between the pre-test and post-test.

Conclusion: In conclusion, there is an effect of educational videos on knowledge and compliance with taking medication in pulmonary TB patients after being given educational videos.

Keywords

Adherence, Knowledge, Pulmonary TB, Pulmonary TB patients, Tuberculosis

Background

One of the factors causing treatment failure of pulmonary TB patients is the low level of knowledge and compliance. Because the level of knowledge and drug compliance is very important if treatment is not carried out regularly with the specified time, there will be germ immunity (resistance) to anti-tuberculosis drugs. Tuberculosis cases are currently still increasing, known from the prevalence of pulmonary tuberculosis in 2019 based on WHO data in Indonesia of 845,000 people(WHO, 2019). The global prevalence in 2020 of TB cases has increased with many people dying, which is estimated to be 1.3 million people. (WHO, 2021).

One of the indicators used in TB control is the Case Detection Rate (CDR), which is the number of all TB cases treated and reported among the estimated number of all TB cases (incidence). The Ministry of Health set a minimum CDR target in 2019 of 36%. The CDR achievement of Jambi Province in 2019 was 35.62%, this figure almost meets the minimum target that has been set at 36%. At the district/city level, the CDR was highest in Merangin Regency at 62.40% followed by Sarolangun Regency (52.08%). while the district with the lowest CDR was Sungai Penuh City at 11.48%. In measuring

the success of TB treatment, the treatment success rate (Succes Treatment Rate) is used, which indicates the percentage of all TB cases that complete treatment, either cured or undergoing complete treatment, among all TB cases treated and reported. This rate reflects the quality of TB treatment. The Success Rate (SR) achievement from 2014 to 2019 has increased from the national target of 90%. The Succes Rate (SR) for 2019 has reached the target set by the Province which is 91.07%.

According to data from the Jambi City Health Office, data on pulmonary TB cases in 2018 recorded 946 people positive for TB, but in 2019 cases of pulmonary TB increased to 981 positive people and in 2020 cases of pulmonary TB in Jambi city decreased again, where 759 people were recorded positive for pulmonary TB. The second highest case of pulmonary TB in Jambi city is Kenali Besar Community Health Center, with data obtained in 2018 recorded 59 people, in 2019 recorded 60 positive pulmonary TB and in 2020 recorded 59 positive people with pulmonary TB. (Jambi City Health Office, 2020). Based on previous research conducted by (Yani et al., 2020).

When counseling and PMO (Drug Swallowing Supervisor) must provide information to patients with Pulmonary TB about health

through counseling and health education. The success of this study is the difference in knowledge before and after health counseling on the response to routine treatment of Lung TB with an increase in knowledge before and after counseling.According to research conducted by (Hotmauli manik, R kintoko rochadi, 2020) stated that the lecture method thathas been implemented is less effective. But this lecture method is still often done in several other health centers. Because if you use the lecture method, most patients quickly feel bored and bored. And according to (Yunis Hernowo et al., 2020) By using video media, patients will be more interested and more focused in following the material and the message will be easierto convey and remember.

Methods

Study Design
This research design is a type of quantitative research with Pre-experimental. This research design uses the Pre-test and Post-test design method, which is a sample group with the same subject but undergoes a different assessment between before and after treatment.

Samples/Participants
The population of this study were all pulmonary TB patients at the Kenali Besar Community Health Center, Jambi City, totaling 60 people.

Data Collection

This research was conducted from April 2022 to July 2022 at the Kenali Besar Health Center, Jambi City.

Data Analysis
Knowledge data collection techniques were carried out using pre-test and post-test techniques and Morisky MedicationAdherence Scale-8 (MMAS-8) assessment. Characteristic data was collected by filling out a questionnaire.

Research Ethics Approval
This research has received research ethics approval from STIKES Harapan Ibu Jambi number SK-425/STIKES/JBI/VI/AK- 2022. The purpose and procedures of the study were explained to respondents before data collection. Each respondent was asked to sign a respondent's consent letter. Stating the consent sheet to participate as a respondent in the study.

Results

Demographic Characteristics Results
An overview of respondent characteristics including gender and age is as follows:

Gender of Respondent:
Based on the table above, it can be seen that out of 60 respondents, the highest frequency is male gender as many as 41respondents (68.33%) and female gender as many as 19 respondents (31.67%). (see table 1.)

Table 1 Frequency and Percentage Distribution of Respondents' Gender

Gender	total	Percentage
Female	19	31,67%
Male	41	68,33%
Total	60	100

Age of Respondents

Table 2 Frequency and Percentage Distribution of Respondents' Age

Category	Age	Total	Percentage%
Late adolescence	17-25	5	8,33%
Early Adulthood	26-32	32	53,33%
Late Adults	36-45	7	11,67%
Early Elderly	46-55	16	26,67%
	Total	60	100

Based on the table above, it can be seen that out of 60 respondents, the highest frequency is in early adulthood, namely aged 26-35 years as many as 32 respondents (53.33%), late adulthood aged 36-45 years as many as 7 respondents (11.67%), and early elderly aged 46-55 years as many as 16 respondents (26.67%), and late adolescents aged 17-25 years as many as 5 respondents (8.33%).

Respondents' Knowledge Level
The level of knowledge of respondents was seen from the

results of the pre-test and post-test which had been filled in by 60 respondents of Pulmonary TB patients at the Kenali Besar Community Health Center in Jambi City.

Descriptive Knowledge Questionnaire of Respondents. The following is data on the frequency of true and false questions related to patient knowledge before and after being given educational videos to patients:

Table 3 Descriptive Questionnaire of Respondents' Knowledge

Nilai	Knowledge	
	Pre-Test	Post-Test
Average score	49,89	71,00
Minimum score	6,67	46,00
Maximum score	80	100

Based on the table above, it can be concluded that there are still many

patients who answer incorrectly on questions related to patient

knowledge. At the time before education was given, the average was 49.89, the maximum value was 6.67, and the maximum value was 80.

Meanwhile, after education was given, the average was 71.00, the minimum value was 46.66, and the maximum value was 100.

Respondents' Knowledge Improvement
Normality Test Results of Respondents' Knowledge

Table 4 Respondents' Knowledge Normality Test Results

Knowledge	Normality test	Sig	Decision	Statement
Pre-Test	Kolomogorov Smirnov	0,098	0,098>0,05	Normal
Post-Test	Kolmogorov Smirnov	0,154	0,154>0,05	Normal

Based on the results of the Normality Test of knowledge, it shows that the pre-test and post-test patient knowledge data are normal.

Results of Homogeneity Test of Respondents' Knowledge

Table 5 Normality Test Results of Patient Knowledge

Compliance	Homogeneity Test	Sig.	Decision	Statement
	Levene Statictic	0.257	0.257>0.05	Homogen

Based on the results of the knowledge homogeneity test, it shows that the patient's knowledge data is homogeneous with a Levene Knowledge value of 0.257 > 0.05.

Paired Sample T-Test
The following are the results of the test for the effect of education on patient knowledge:

Table 6 Respondent's Knowledge

Compliance	Pre-Test		Pos-Test	
	Total	Persentage	Total	Persentage
Low	10	16,67%	0	0%
Medium	31	15,67%	8	13,33%
High	19	31,66%	52	86,66%
Total	60	100	60	100

Based on the patient knowledge table, it shows that the respondent's knowledge before being given an educational video is categorized as low as 10 respondents (16.67%), the respondent's knowledge is categorized as moderate as 31 respondents (51.67%), the respondent's knowledge is categorized as high as 19 respondents (31.66%).

Whereas after being given an educational video, it shows that the knowledge of respondents categorized as low (0.00%), patient knowledge is categorized as moderate as many as 8 respondents (13.33%), patient knowledge is categorized as high as 52 respondents (86.66%).

Result Paired Sample T-Test
Test results for the effect of education on patient knowledge:

Table 7 Paired Sample T-Test Results Knowledge

Description	N	Rata-Rata	Std.dev	Signifikansi
Pre-Test	60	49,89	12,63	0,000
Post-Test	60	70,99		

Based on the results of the Paired Sample T-Test, it shows that the significance value is 0.000 less than 0.05. which means that there is a significant difference between the level of patient knowledge before and after being given an educational video Thus it can be concluded that H0 is rejected or there is a difference between pre-test and post-test.

Results of Homogeneity Test of Respondents' Compliance

Table 10 Results of Homogeneity Test of Respondents' Compliance

Compliance	Uji Homogenety	Sig.	Description	Decisions
	Levene Statictic	0.350	0.350>0.05	Homogen

Based on the results of the knowledge homogeneity test, it shows that patient compliance data is homogeneous with a Levene Compliance value of 0.350>0.05

Paired Sample T-Test

The following are the results of the test of the effect of education on respondents:

Table 11 Respondents' Compliance

Respondents' Compliance	Pre-Test		Pos-Test	
	Total	Presentage%	Total	Presentage%
Low	50	83,33%	11	18,33%
Medium	9	15,00%	37	61,67%
High	1	1,67%	12	20,00%
Total	60	100	60	100

Based on the patient compliance table, it shows that compliance is categorised when the pre-test is low as many as 50 respondents (83.33%), moderate as many as 9 respondents (15%), high as many as 1 respondent (1.67%), and when the post-test category is low, 11 respondents (18.33%), moderate categories are 37 respondents (61.67%), high categoriesare 12 respondents (20%).

Paired Sample T-Test Result

Table 12 Paired Sample T-Test Results

Descriptions	N	Average	Std.Dev	Signifikansi
Pre-Test	60	49,69	21,54	0,000
Post-Test	60	83,54	1179	

Based on the results of the Paired Sample T-Test, it shows that the significance value is 0.000 less than 0.05, which meansthat there is a significant difference between the level of patient compliance before and after being given an educational video.Thus it can be concluded that H0 is rejected or there is a difference between pre-test and post-test.

Discussion

Characteristics Of Respondents

The characteristics of patients with pulmonary TB studied consisted of gender and age. There were 60 patients with pulmonary TB at the Kenali Besar Community Health Centre in Jambi City who met the criteria and were willing to becomerespondents. In this study, the characteristics based on the gender of the respondents who were most affected by pulmonary TB at the Kenali Besar Community Health Centre in Jambi City were male as many as 41 respondents (68.33%).

The resultsof this study are in line with research proving that gender tends to be more affected by TB disease than female gender (Pangaribuan, 2020). In research (Syaifiyatul H, 2020) and (Christy, 2020) also explained that most Lung TB patients were male patients. Men are at greater risk of developing pulmonary TB disease compared to women. This is because in general, more men smoke and drink alcohol compared to women, smoking and drinking alcohol can reduce the body's immunity so that it is easier to get pulmonary TB disease. So it is natural that smokers and alcohol drinkers are often referred to as agents of Pulmonary TB disease.

Differences in disease incidence by gender can arise due to different anatomical forms, physiological forms and hormonal systems (Korua, 2018). Based on the Basic Health Research (Riskesdas, 2018), the percentage of smokers (daily smokers, occasional smokers and former smokers) in men (65.0%) is higher than women (3.2%)(Riskesdas, 2018).

In this study, the age of respondents who were most affected by pulmonary TB at the Kenali Besar Community HealthCentre in Jambi City was 25-34 years old and followed by 45-54 years old. This shows that pulmonary TB disease is most often found at a young age or productive age. This may be due to lifestyle patterns because most young people smoke a lot and productive age who generally already work will be easier to buy and do smoking habits. In this study, in addition to productive age, there were also those affected by pulmonary TB disease. At an advanced age a person's immunological system decreases, making it very susceptible to various diseases, including pulmonary TB disease (Widiawati, 2021).

In addition, this study also showed that most patients with pulmonary TB were aged 25 to 34 years. Smoking habits at a young age can be the cause of pulmonary TB at a young age. Research conducted by (Yani, 2020) also explains that the age of most people sufferingfrom pulmonary TB is 18 to 25 years old.

Patient Knowledge of Pulmonary TB

Based on the results of the study, it shows that the total knowledge score before and after being given an educational video about pulmonary TB disease followed by 60 respondents who answered 15 questions, there was a very significant difference. When the pre-test was carried out the value of knowledge and the average respondent who answered correctly witha percentage value of At the time before being given education got an average of 49.89, a maximum value of 6.67, and a maximum value of 80. While after being given education got an average of 71.00, a minimum value of 46.66, and a maximumvalue of 100. Based on the Paired Sample T-Test results, it shows that the average pre-test value is 49.88 and the average post-test value is 70.99. In addition, the significance value is 0.000 <0.05. This means that there is a significant difference between patient knowledge before and after being given an educational video. Based on the results of the study also showed that knowledge before being given educational videos was mostly categorised as quite high at 51.67%. Then, after being given an educational video, most were categorised as high at 53.33%. This shows an increase in patient knowledge with the educationalvideos provided. Educational videos are able to make patients begin to understand the material on the use of TB drugs.

Knowledge is the result of knowing that a person obtains by using his senses in observing or seeing a particular object. Factors that influence knowledge include education, experience, age, and information. Education is very effective in increasing respondents' knowledge after being given education. The use of a combination of various health promotion methods and media in providing education will greatly assist in the process of delivering health information to the community. The more senses used to receive a message delivered, the more and clearer the information obtained by a person. The use of audiovisual media as health promotion media is a health promotion media approach by combining images, text, and video so that it can modify a series of still images into a moving animation so that it attracts more attention (Maemunah, 2021). This research is relevant to research conducted by (Yani, 2020) which explains that there is a significant difference between before and after providing education. Hamzah's research (2018) also explains that there are differences in knowledge before and after health education on the response to routine treatment of pulmonary TB. TB is a major health problem in Indonesia. The WHO Global Tuberculosis Report 2011 shows that Indonesia has a high burden of pulmonary TB. Thus, the education carried out is expected to reduce patients with Lung TB.

Compliance of Pulmonary TB Patients in Taking Pulmonary TB Medication
Based on the results of the study, the number of patient compliance scores in taking Pulmonary TB drugs before and after being given educational videos there is a very significant difference, it can be concluded that there are still many patients who are not compliant. Before being given education, the average value was 49.69, the minimum value was 0.00 and the maximum value was 93.75. After being given education, the average value is 83.54, the minimum value is 46.88 and the maximum value is 100. Based on the Paired Sample T-Test results, it shows that the average pre-test value is 49.69 and the average post-test value is 83.54. In addition, the significance value is 0.000 <0.05. This means that there is a significant difference between the level of patient compliance before and after being given an educational video. The large number of respondents who do not have compliance with taking medication may be due to ignorance about the importance of medication. This is supported by the results of the percentage of knowledge of respondents who are still low and still lack knowledge about the disease and tuberculosis treatment.

Based on the results of the study also showed that compliance before being given educational videos was categorised as high at 1.67%. Then, after being given an educational video, it was categorised as high at 20%. This shows an increase in patient compliance with the educational video provided. Patients can change good attitudes and behaviour in using drugs. The level of compliance with treatment for pulmonary TB patients is influenced by health behaviour. According to the researcher, this compliance is influenced by factors from within the patient himself to recover. The desire to recover encourages and motivates patients to continue taking medication in accordance with the rules and instructions from health workers until the completion of the pulmonary tuberculosis treatment period. In addition, the role of the family also encourages patients to formactions to comply with the treatment being undertaken. Encouragement from family, friends and the environment around the patient to feel comfortable and feel that they are still valued even though they are experiencing illness, so that patients have the enthusiasm to recover for the sake of those around

them (Adam, 2020).

There is an effect of providing education on adherence to taking medication for pulmonary TB patients. This can be seen from the significance value which shows the difference in compliance of Pulmonary TB patients before and after being given education. Adherence is the most difficult to change. Processes and various considerations are needed to change a person's behaviour. Patients need 18-224 days to change a behaviour into a habit. Based on this, nurses can promote sustainable behaviour change by combining interventions that target patients' physical and psychological factors (Kusuma, 2021).

Conclusion
From the results of research on increasing knowledge and compliance with the use of pulmonary TB drugs at the Kenali Besar Community Health Centre in Jambi City with educational videos, it can be concluded that

1. There is an effect of educational videos on the knowledge of pulmonary TB patients after being given educational videos.
2. There is an effect of educational videos on compliance with taking medication in pulmonary TB patients after being given educational videos.

References
Adam, L. (2020). Knowledge of Patients with Pulmonary Tuberculosis on Adherence to Taking Anti-tuberculosis Drugs. *Jambura Health and Sport Journal* 2 (1): 12-18.

Christy, B.A., R. Susanti, and Nurmainah. 2020. The Relationship between the Level of Adherence to Taking Medication for Tuberculosis Patients and the Side Effects of Anti-tuberculosis Drugs (OAT). *Journal Syifa Sciences and Clinical Research* (JSSCR). 4 (2). 484-493.
Jambi City Health Office (2020).

Hotmauli manik, R kintoko rochadi, fazidah aguslina siregar. (2020). The Effect of Health Promotion Methods on Knowledge and Attitudes of Tb Patients in Tb Prevention at Puskesmas Aek Parombunan Sibolga City. *Faculty of Public Health, University of North Sumatra Medan, North Sumatra, Indonesia*, 2507 (February), 1-9.

Hamzah, A., Sudirman, and A. Yani. 2018. Analysis of Differences in Patient Knowledge About Lung TB Through Health Counseling in the Sienjo Health Centre Working Area, Parigi Moutong Regency. Journal of PROMKES. 268-275.

Kusuma, A.H., I.P. Setiyaningrum. 2021. Structured Supportive Education Improves Adherence to Taking Medicine for Pulmonary Tuberculosis Patients. *Journal of Nursing*. 13 (3). 653-660.

Ministry of Health RI.2018. Basic Health Research Results (Riskedas) 2018. Jakarta: Ministry of Health Research and Development Agency.

Korua, E. S., Nova, H. K., and Paul, A. K. (2018). Relationship between Age, Gender and Occupancy Density with the Incidence of Pulmonary TB in Outpatients at Noongan Regional General Hospital. *MKMI Journal* 6 (4): 1-9

Maemunah, N., Wahyu, D. N. M., and Clementinus, H. (2021). Providing Education Through

Animation About Lung TB on the Knowledge of Elementary School Children of Merjosari 02 Malang City. *Mesencephalon Health Journal* 7 (1): 46-55.

Pangaribuan, L., Kristina, Dian, P., Teti, T., and Dina, B. L. (2020). Factors Influencing the Incidence of Tuberculosis in 15 Year- Olds in Indonesia (Analysis of Tuberculosis Prevalence Survey Data (SPTB) in Indonesia 2013-2014). *Bulletin of HealthSystem Research* 23 (1), 10-17.

Syaifiyatul H., F. Humaidi, and D.R. Anggraini. 2020. Adherence to Taking AntiTuberculosis Drugs in TB Patients with Category I Regimen at Palengaan Health Centre. *Attamru Pharmaceutical Scientific Journal.* 1(1). 7-15.
WHO, 2019. Global Tuberculosis report 2019. Geneva, Switzerland: WHO Press.
WHO. (2021). Global Tuberculosis Report. World Health Organisation: Tereza Kasaeva.

Widiati, B., and Muhamad, M. (2021). Factor Analysis of Age, Education Level, Occupation, and Pulmonary Tuberculosis in the Korleko Health Centre Working Area, East Lombok Regency. *Journal of Sanitation and Environment* 2 (2): 173-184

Yani, A., Tasya, Z., & Syam, S. (2020). Health Education to Improve Knowledge about Routine Treatment of Pulmonary TB Patients. MPPKI (Indonesian Health Promotion Publication Media): *The Indonesian Journal of Health Promotion*, 3(1), 74-77.

Yunis Hernowo, K., Sri, I., & Wulandari, M. (2020). Increasing Adventist University Indonesia Students' Knowledge of Tbc Through Health Education with Lecture and Video Methods. *Chmk Nursing Scientific*