Original Reserach

The Effect of Providing Health Education on Transmission Prevention Behavior and Treatment Compliance Among Tuberculosis Patients Using the Health Belief Model Approach

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ABSTRACT

Introduction: Public health problems are multicausal and therefore the solution must also be a multidisciplinary approach. Tuberculosis (TB) is an infectious disease caused by infection with Mycobacterium tuberculosis (MTB). Tuberculosis is one of the 10 most common causes of death in the world. However, not all patients have been found, treated, and reported to the national information system.

Method: Design was used observational analytic with a cross-sectional approach. The population used in this study were all TB patients in health services. The sample size were 37 patients. The sampling was simple random sampling. The analysis used the chi-square test and logistic regression test with a significant value of <0.05.

Results: The results showed that there was a correlation between transmission prevention behavior and treatment compliance with perceived susceptibility with a p-value of 0.013, there was a correlation between transmission prevention behavior and treatment compliance with perceived benefits p=0.005.The logistic regression test result showed that the most related transmission prevention behavior and treatment compliance using the health belief model on perceived susceptibility, perceived benefits, cues to action.

Conclusion: The research results showed that a correlation between transmission prevention behavior and treatment compliance, namely perceived susceptibility, perceived benefits, cues to action.

1. INTRODUCTION

Public health problems are multicausal and therefore the solution must also be a multidisciplinary approach. Tuberculosis (TB) is an infectious disease caused by infection with *Mycobacterium tuberculosis* (Mtb). In 2018 tuberculosis is one of the 10 most common causes of death in the world with 1.2 million deaths in HIV-negative patients and 251,000 deaths in HIV-positive cases. It is estimated that there are 10 million TBpatients in 2018 worldwide or equal to 132 cases per 100,000 population (Alisjahbana et al., 2020). Based on the 2021 global TB report, it is estimated that there are 824,000 TB cases in Indonesia, however, only 393,323 (48%) TB patients have been found, treated, and reported to the national information system. There are stiil about 52% of TB cases that have been found but have not been reported (Kemenkes, 2022).

The prevention program is still low so the prevalence of TB transmission that occurs in the community is still very high. The role of tuberculosis patients is very important in preventing transmission that occurs (Nur Fitria et al., 2016).

Public health efforts are defined as all activities, whether directly or indirectly to prevent disease (preventive), improve health (promotive), therapy (physical, mental, and social therapy,) or curative as well asrecovery (rehabilitative) health (physical, mental, social).

Breaking the chain of transmission and preventing recurrence are the main goals in TB treatment besides curative goals. TB transmission prevention behavior is carried out to reduce the rate of TB transmission to people in the surrounding environment (Ramadhan et al., 2021).

The theory of Health Belief Model (HBM) is in which individuals take health actions such as taking medication and prevention to improve health status which is influenced by factors such as susceptibility to disease, perceived seriousness, perceived benefits, perceived barriers, and one's belief in carrying out healthybehaviors.

2. METHODS

2.1 Design

This study is an observational analytic study. This study used a *cross-sectional approach.*

2.2 Population, Sample, and Sampling

The population used in this study were all TB patients in health services. The sample size in this study was 37 patients. The sampling used simple random sampling. This research instrument uses a questionnaire. The data collection process was carried out by researchers. The population of this study was all TB patients at the Kebomas Health Center.

2.3 Variable

The variable of this research is the independent variable of health education and dependent variable health belief model.

2.4 Instruments

The research instrument uses SAP for health education, and the health belief model questionnaire which consists of 5 components, namely perceived susceptibility 8 item questions, perceived seriousness 8 item questions, perceived benefits 10 item questions, perceived barriers 12 item questions, cues to action 10 item statement, preventive behavior 16 question items.

2.5 Procedure

The data collection process was carried out by the researcher by giving prior approval to the sample, after giving consent we provided health education about TB transmission prevention and treatment, after being given the next stage of education the researcher measured health beliefs using a questionnaire.

2.6 Data Analysis

Data analysis in this study used 3 analyses, namely univariate, bivariate, and multivariate. Univariate analysis is presented in tabular form so that the distribution of the different frequencies or proportions of each variable studied can be seen and then analyzed. Bivariate analysis was presented in the form of cross- tabulations using the chi-square statistical test, while for multivariate analysis using multiple logistic regression statistical tests which aimed to see how much influence the Health Belief Model had on transmission prevention behavior and medication regularity.

2.7 Ethical Clearance

The research ethics test was carried out by the research ethics commission at the Muhammadiyah university of Lamongan and obtained and ethical permit with number 240 / EC/ KEPK –S2/04/2022.

3. RESULTS

According to table 1, almost half of the TB patients at the Kebomas Health Center are female, 20 patients (54.1%), most of the TB patients are more than 40 years old, 25 patients (67.6%), the majority are Muslim, 36 patients (97%).), almost half of the employment status of 17 patients (46%) were housewives. The highest level of education is high school for 20 patients (54%). Social support is mostly from family, family and peers . had less perceived susceptibility, 34 people (91.9%) good, 9 people (24.3%) had less perceived seriousness, 28. people (75.7%) good. perceived benefits less 5 people (13.5%), good 32 people (86.5%), perceived barriers 3 people (8.1%), good as

Table 1 Characteristics of TB Patients Based on Gender, Age, Religion, Occupation, Education and social support

No	Characteristics	Frequency	Perscentage
	Gender		
1.	Man	17	45,9
2.	Famale	20	54,1
	Amount	37	100
	Age		
1.	≤ 20 years	2	5,4
2.	21 – 40 years	10	27
3.	> 40 years	25	67,6
	Amount	37	100
	Religion		
1.	Islam	36	97
2.	Hindu	0	0
3.	Kristen	1	3
	Amount	37	100
	Work		
1.	Enterpreuner	5	13,5
2.	Civil	3	8,1
3.	Private	12	32,4
4.	Not Working	17	46
	Amount	37	100
	Level of education		
1.	Yunior School	0	0
2.	Midle School	5	13,5
3.	Senior School	20	54
4.	College	12	32,5
	Amount	37	100
	Social Support		
1.	Family	15	40,5
2.	Peers	7	19
3.	Family and peers	15	40,5
	Amount	37	100

Table 2 Frequency Distribution of Health Belief Model of TB Patients and Prevention Behavior

No	Health Belief Model	Frequency	Perscentage
	Perceived Susceptibility		
1.	Less	3	8,1
2.	Good	34	91,9
	Amount	37	100
	Perceived Seriousness		
1.	Less	9	24,3
2.	Good	28	75,7
	Amount	37	100
	Perceived Benefits		
1.	Less	5	13,5
2.	Good	32	86,5
	Amount	37	100
	Perceived Barriers		
1.	Less	3	8,1
2.	Good	34	91,9
	Amount	37	100
	Cues to Action		
1.	Less	1	2,7
2.	Good	36	97,3
	Amount	37	100
	Transmission Prevention Behavior and Treatment Adherence		
1.	Less	3	8,1
2.	Good	34	91,9
	Amount	37	100

Table 3 Distribusi correlation Transmission Prevention Behavior and Treatment Adherence TB Patients After Providing Education with the Health Belief Model Approach

No	Health Belief	Transmission Prevention Behavior and Treatment Adherence				P value
		Less		Good		
		f	%	f	%	
	Perceived Susceptibility					0,013
1.	Less	2	66,7	1	33,3	
2.	Good	1	2,9	33	97,1	
	Amount	3	8,1	34	91,1	
	Perceived Seriousness					0,141
1.	Less	2	22,2	7	77,8	
2.	Good	1	3,6	27	94,4	
	Amount	3	8,1	34	91,1	
	Perceived Benefits					0,005
1.	Less	2	40,0	3	60,0	
2.	Good	1	3,1	31	96,9	
	Amount	3	8,1	34	91,9	
	Perceived Barriers					0,770
1.	Less	0	0	3	100	
2.	Good	3	8,8	31	91,2	
	Amount	3	8,1	34	91,9	
	Cues to Action					0,081
1.	Less	1	100	0	0	
2.	Good	2	5,6	34	94,4	
	Amount	3	8,1	34	91,9	

Table 4 Uji Regresi Logistik

No		
1	*Perceived Susceptibility*	.000
2	*Perceived Seriousness*	.075
3	*Perceived Benefits*	.003
4	*Perceived Barriers*	.591
5	*Cues to Action*	.001

34 people (91.9%), cues to action less 1 person (2.7%), good 36 people (97.3%), preventive behavior 3 people (8.1%), good as many as 34 people (91.9%).

Based on table 3, the results of the analysis using chi square showed that transmission preventionbehavior and treatment adherence with perceived susceptibility were $p = 0.013$ so that $ÿ < 0.05$ means there is a relationship. Transmission prevention behavior and adherence and treatment with perceived seriousness $p = 0.141$ so that $ÿ > 0.05$ which means there is no relationship, transmission prevention behavior and adherence and treatment with perceived benefits $p = 0.005$ so that $ÿ < 0.05$ there is a correlation. Transmission prevention behavior and treatment compliance with perceived barriers $p = 0.770$ so that $ÿ > 0.05$ there is no correlation, transmission prevention behavior and adherenceand treatment with cues to action $p = 0.081$ so $ÿ > 0.05$ there is no correlation.

Based on table 4 the results of the logistic regression test were found to be related to transmission prevention behavior and treatment compliance using the health belief model with a value for perceived susceptibility $p = 0.000$ so thatÿ < 0.05, perceived benefits $p = 0.003$ so that $ÿ < 0.05$, cues to action $p = 0.001$ so that $ÿ < 0.05$.

4. DISCUSSION

Awareness is needed to suppress the spread of TB in every individual. The *Health Belief Model* approach can be used to predict preventive health behavior as well as responses, including TB prevention. The health belief model is a set of one's perceptions about the threat of a disease that causes a change in behavior to become healthy.

From the results of the study, it was showed that there was a correlation between perceived susceptibility to prevention behavior and treatment adherence. Perceived susceptibility is a belief in one's self-related to

one's vulnerability to a condition or disease, the existence of this perception will encourage a person to perform a behavior that is believed to reduce vulnerability (Ismayadi, 2021). Someone will act if they feel they are vulnerable to the disease. This is consistent with research conducted by (Ismayadi, 2021) that perceived susceptibility is directly proportional to the treatment compliance controls in type 2 DM patients.

There is a correlation between perceived seriousness and preventive behavior and medication adherence. Perceived seriousness is one's belief in the severity of the illness and the impact it has on one's life. This is because the seriousness felt by individuals can encourage individuals to take medication obediently and completely. Sufferers with a low perception of seriousness could be because they feel better after taking the drug and neglect to take the drug regularly and completely. Providing education to sufferers can also have the effect of increasing the perception of individual seriousness so that it can be a factor in increasing treatment. An increase in the perception of seriousness can come from information obtained both from doctors and other supporting matters, besides information can also come from the magnitude of a problem being faced.

Perceived benefits have a correlation with transmission prevention behavior and treatment compliance. Perceived benefits Firman Maulana Safri (2013) one of the factors that can influence whether a patient is obedient or not in taking medicine is personal experience when taking medicine. There are TB patients who don't take medication because the patient feels cured. Based on the puskesmas staff Information, sometimes patient did not take the medicine at this puskesmas but took the medicine at another puskesmas because they feel embarrassed of having tuberculosis. The increase in perceived benefits and obstacles can come from the personal experience of each individual. There are some patients who have relapsed tuberculosis. Bastable (2003) states that one of the needs that drives action is influenced by several things that influence perceptions such as personal experience, cultural differences (Firman Maulana, 2013)

There is no correlation between Perceived Barriers and preventive behavior and medication regularity. Perceived Barriers are components that have a negative impact on a person to perform a behavior. The resistance felt by sufferers may come from the length of time the drug has been taken, in addition to the side effects of the drug. However, you can still feel the benefits of taking the drug regularly. This is consistent with research conducted by Ulum et al (2015) which stated that Perceived Barriers had no correlation with medication compliance in DM patients.

There was a correlation between Cues to Action and preventive behavior and treatment compliance.

Cues to Action is a way for someone to accelerate actions that make them feel the need to take action or take concrete action to carry out healthy behaviors. Cues to action also means support or encouragement from the environment for individuals who carry out healthy behaviors. The perceived driving perception is feeling the importance of getting something. support or information from around so that it can encourage individuals to do better things, namely doing treatment. Perceptions of encouragement can be obtained from internal and external, which can be in the form of things that support health either through consultations, mass media, recommendations from friends. Besides that, internal factors can come from the knowledge of each individual and the motivation that is within him (Iis Nurhayati, 2015). There is an increase in the perception of drivers from tuberculosis patients where they begin to feel the importance of getting information, and the need for support around as a driving force to carry out better activities. Information obtained from the surrounding conditions will be more easily accepted by someone so that it can influence the knowledge and perceptions of the individual.

5. CONCLUSION

Research results found a correlation with between transmission prevention behavior and treatment compliance, namely perceived susceptibility, ceived benefits, and cues to action.

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