Analysis of Factors Affecting Druging Compliance in Lung Tuberculosis Patients: Theory of Health Belief Model (HBM) in the Working Area of the Health Center, Dompu City

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ABSTRACT

Tuberculosis is an infectious disease caused by TB bacteria called Mycobacterium tuberculosis, which mostly attacks the lungs (80%), but can also attack other organs such as bones, lymph glands, joints, lining of the brain, intestines, kidneys. , genitals, and others. The purpose of this study in general was to determine the effect of the Health Belief Model theory on medication adherence to tuberculosis patients. This research is a quantitative study with the method of observation and cross sectional approach. The research sample was 119 tuberculosis sufferers. The independent variables are perceived vulnerability, severity, barriers, cues for action, perceived benefits and self-efficacy. Adherence to taking medication in tuberculosis patients as the dependent variable. The results showed that simultaneously there was an effect of variable X on Y with a significance value of 0.000 and a large effect of 10.2%. And simultaneously it shows that there is an influence of variables X and Y with a significance value of 0.000 and a large influence of 12.8%. Data analysis using path analysis. Simultaneously there is an effect of the application of the Health Belief Model theory on adherence to taking medication in tuberculosis patients.

Keywords: Health belief model, nutrients, behavior, preventive, stunting

INTRODUCTION

The growth process experienced by toodler is a cumulative result since toodler was born. Conditions that have the potential to interfere with the fulfillment of nutrients, especially energy and protein in children, will cause growth and development problems (Hermina & Prihartini, 2011). Stunting is a toddler with chronic nutritional problems whose nutritional status is based on length or height according to the age of the toddler when compared to the 2005 Multicenter Growth Reference Study standard, has a z-score less than -2 standard deviation and if the z-value is less than -3 standard deviation it is categorized as under-five. very short (Depkes RI, 2015). The prevalence of stunting in South Central Timor Regency in 2019 reached 48.1%. Toddlers who experienced stunting at the Kualin Health Center in 2019 reached 74.8% (Dinkes TTS, 2019). This figure is still far from the SDGs target of reducing the prevalence of stunting by 20%. The prevalence of tuberculosis in Dompu City in 2019 reached 48.1%. Tuberculosis patients who experienced tuberculosis at the Dompu City Health Center in 2019 reached 74.8% (Dinkes TTS, 2019). This figure is still far from the SDGs target of reducing the prevalence of tuberculosis by 20%.

Health Belief Model theory is a model designed to encourage people to take positive health actions. The main concept of the health belief model theory is that healthy behavior is determined by

individual beliefs or perceptions about disease and the means available to avoid the occurrence of a disease (Hall, 2012). Health Belief Model theory is based on 6 components, namely perceived susceptibility, perceived severity, perceived barrier, cues to action, perceived benefit and self-efficacy.

One of the ways to prevent and control tuberculosis is to apply behavior change theory, especially adherence to taking medication by providing knowledge to sufferers. In addition, it also increases the motivation of health workers to increase patient knowledge related to taking medication through health education about good drug taking behavior in patients to prevent increased medication adherence to tuberculosis sufferers. The purpose of this study in general was to determine the effect of behavior change theory, namely the health believe model as an effort to prevent the improvement of medication adherence in tuberculosis sufferers.

MATERIALS AND METHODS

This research is a quantitative study with observational methods and cross sectional approach. The study was conducted in December 2020. The independent variables were perceptions of vulnerability, severity, barriers, action cues, benefits and self-efficacy, adherence to taking medication in tuberculosis patients as the dependent variable. The population in this study were 170 tuberculosis patients and the sample was 119 people. The sample technique uses simple random sampling. The research instrument of all variables used a questionnaire. Data were analyzed using path analysis. This research has gone through an ethical test conducted by the health authorities research ethich commission of Institute of Science Health STRADA Indonesia with the numbel 2008/KEPK/VI/2020.

RESULTS

1. Classic Assumption Test
    a. *Normality Test with One Sample Kolmogorov-Smirnov Test*
       The results of normality tet in regression model 1 and 2 show the value of Asymp. Sig (2-tailed) of 0.200 more than α = 0.05 so that the data is normally distributed.
    b. *Multicollinearity Test*
       The result shows values of tolerance in first and second model of each dependent and independent variables more than 0,1 (>0,1) and the value of VIF in first and second model of each dependent and independent variables less than 10 (<10) then multicollinearity does not occur so that it meets the requirements for the regression test.
    c. *Heteroscedasticity Test*
       The result of heteroscedasticity in the first and second model show that there is no clear pattern in the image of *scatterplot* and the dots spread above and below the number 0 on the Y axis so that the are no symptoms of heteroscedasticity

2. Multiple Linear Regression
   Determinant Coefficient Test

Table 1. Multiple Linear Regression Results

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	6.237	1.187		5.254	.000
Susceptibility (X1)	.084	.034	.203	2.423	.017
Perceived severity (X2)	.069	.031	.205	2.202	.030
Perceived Benefit of Action (X3)	.074	.033	.203	2.245	.027
Perceived Of Action (X4)	.088	.036	.205	2.477	.015
Perceived Efficacy (X5)	.094	.031	.225	3.047	.003

Source: Processed Research Data (2021)

The results of the multiple linear regression equation between the variables Susceptibility (X1), Perceived severity (X2), Perceived Benefit of Action (X3), Perceived Of Action (X4), and Perceived Efficacy (X5) on Compliance with Medication (Y) are presented as follows.

3. Simultaneous Test (F-Test)

Table 2. Simultaneous Test Results

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	175.595	5	35.119	19.937	.000[b]
1	Residual	199.044	113	1.761		
	Total	374.639	119			

Source: Processed Research Data (2021)

Simultaneous test results with the F test obtained the calculated F value (19.937) more than F table (2.295) or a significance value (0.000) less than alpha (0.050) indicates that there is a significant influence between Susceptibility (X1), Perceived severity (X2), Perceived Benefit of Action (X3), Perceived Of Action (X4), and Perceived Efficacy (X5) on Compliance with Medication (Y) simultaneously.

4. *Coefficient of Determination (R2)*

2.2. Result of the coefficient of determination

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.685[a]	.469	.445	1.3272

Source: Processed Research Data (2021)

The results of the coefficient of determination obtained an R Square value of 0.469, which means that the influence on the Adherence to Medication (Y) variable is explained by the variable Susceptibility (X1), Perceived severity (X2), Perceived Benefit of Action (X3), Perceived Of Action (X4), and Perceived Efficacy (X5) amounted to 46.9 percent, while the rest is explained by other factors.

5. *Partial Test (t-test)*

Table 3. Partial Test Results

Model		t	Sig.
1	(Constant)	5.254	.000
	Susceptibility (X1)	2.423	.017
	Perceived severity (X2)	2.202	.030
	Perceived Benefit of Action (X3)	2.245	.027
	Perceived Of Action (X4)	2.477	.015
	Perceived Efficacy (X5)	3.047	.003

Source: Processed Research Data (2021)

a. The partial test between the Susceptibility variable (X1) on the Drug Adherence variable (Y) got the t value (2.423) more than the t table (1.981) or the significance value (0.017) less than alpha (0.050) so that there was a significant influence between the Susceptibility variable (X1) on the medication adherence variable (Y).

b. A partial test between the variable Perceived severity (X2) on the Adherence variable in taking medication (Y), the t value (2.202) is more than the t table (1.981) or the significance value (0.030)

is less than alpha (0.050) so that there is a significant influence between the Perceived variables. severity (X2) on the medication adherence variable (Y).

c. The partial test between the variable Perceived Benefit of Action (X3) on the Adherence to Taking Medication (Y) variable obtained the t value (2,245) more than t table (1.981) or the significance value (0.027) less than alpha (0.050) so that there was a significant influence between variable Perceived Benefit of Action (X3) on Drug Adherence variable (Y).

d. The partial test between the Perceived Of Action (X4) variable on the Adherence to Taking Medication (Y) variable obtained the t value (2.477) more than the t table (1.981) or the significance value (0.015) less than alpha (0.050) so that there was a significant influence between the variables. Perceived Of Action (X4) on Drug Adherence variable (Y).

e. The partial test between the Perceived Efficacy (X5) variable on the Adherence to Taking Medication (Y) variable obtained the t value (3.047) more than the t table (1.981) or the significance value (0.003) less than alpha (0.050) so that there was a significant influence between the Perceived variables Efficacy (X5) on the medication adherence variable (Y).

DISCUSSION

1. The effect of susceptibility perceptions on adherence to taking medication in patients with pulmonary tuberculosis.

Based on the results of the T test or commercially listed in the previous chapter, it shows that partially there is a positive and significant influence between the perception of susceptibility variables on medication compliance in pulmonary TB patients. The results of other studies conducted by Rambu Eri Hupunau, et al (2019) show that there is a significant relationship between the perception of susceptibility to adherence to taking medication in patients with pulmonary TB. The results of the analysis in this study indicate that the higher the perception of susceptibility in knowing the treatment and the impact that will be experienced by the patient if the problem of pulmonary TB is prevented, the better the patient's behavior in fulfilling medication compliance in pulmonary TB patients. This can be seen based on the results of the t-test between the variables obtained by the T count of 2.423, which is greater than the T table value of 1.981 and the significance value of 0.017 is smaller than alpha (0.05) so that there is a significant effect between the susceptibility variable X1 on medication compliance in patients with pulmonary tuberculosis.

2. The Effect of Perceived Severity on Compliance with Medication in Pulmonary TB Patients.

Based on the results of the T test or commercially listed in the previous chapter, it shows that partially there is a positive and significant influence between the variable Perceived severity on medication compliance in pulmonary TB patients. The results of other research conducted by Siagian. Ronald I. Ottay. (2016). shows that there is a significant relationship between perceived severity and adherence to taking medication in patients with pulmonary tuberculosis. The results of the analysis in this study indicate that the greater the perceived severity in knowing the treatment and the impact that will be experienced by the patient if the pulmonary tuberculosis problem is prevented, the better the patient's behavior in fulfilling medication compliance in pulmonary TB patients. This can be seen based on the results of the t-test between the variable Perceived severity and the compliance variable taking medication in pulmonary tuberculosis patients, the T count is 2.202, which is greater than the T-table value of 1.981 and the significance value of 0.030 is smaller than alpha (0.05). There is a significant effect between variable Perceived severity X2 on medication compliance in pulmonary TB patients.

3. The influence of Perceived Benefit Of Action

Based on the results listed in the previous chapter, it shows that there is a negative and significant effect of Perceived Benefit of Action on the variable compliance with taking medication in patients with pulmonary TB. The results of other studies conducted by Helmy Bachtiar, et al. (2017) show a relationship between perceived severity and TB prevention efforts with a strong level of association. From the results of the analysis in this study, it shows that there is a negative and significant effect between perceived benefit of action on the variable of medication compliance in pulmonary tuberculosis patients, which means that the more perceived benefit of action it will have an effect on increasing efforts to prevent treatment for pulmonary tuberculosis patients. If there is a large Perceived Benefit of Action on treatment problems in

sufferers, it will make TB sufferers to take good preventive actions. This is based on the results of the t-test between the Perceived Benefit of Action variable on the compliance variable taking medication in patients with pulmonary tuberculosis, the T count is 2.245, greater than the T table value of 1.981 and the significance value of 0.027 is smaller than alpha (0.05) There is a significant influence between the variable Perceived Benefit of Action X3 on medication compliance in patients with pulmonary TB.

4. The influence of Perceived Berrier To Action

   Based on the results listed in the previous chapter, it shows that there is a negative and significant effect of perceived barrier to action on the variable compliance with taking medication in pulmonary TB patients. The results of other studies conducted by Helmy Bachtiar, et al. (2017) show a relationship between perceived severity and TB prevention efforts with a strong level of association. From the results of the analysis in this study, it shows that there is a negative and significant influence between perceived barrier to action on the variable compliance with taking medication in pulmonary tuberculosis patients, which means that the more perceived berrier to action it will have an effect on increasing treatment prevention efforts in pulmonary TB patients. If there is a large perceived barrier to action on treatment problems in patients, it will encourage TB sufferers to take good preventive measures. This we can see from the results of the t-test between the variable Perceived berrier to action on the variable compliance with taking medication in pulmonary tuberculosis patients, the T count is 2.477, which is greater than the T-table value of 1.981 and the significance value of 0.015 is smaller than alpha (0, 05) so that there is a significant effect between the variable Perceived berrier to action X4 on medication compliance in pulmonary TB patients.

5. Perceived Efficacy influence

   Based on the results listed in the previous chapter, it shows that there is a negative and significant effect of Perceived Efficacy on the variable of medication adherence in pulmonary TB patients. The results of other research conducted by Siagian. Ronald I. Ottay. (2016). shows a relationship between perceived severity and TB prevention efforts with a strong level of association. From the results of the analysis in this study, it shows that there is a negative and significant influence between Perceived Efficacy on the variable compliance with taking medication in patients with pulmonary TB, which means that the more Perceived Efficacy will have an effect on increasing efforts to prevent treatment for pulmonary TB patients. If there is a large Perceived Efficacy regarding treatment problems in sufferers, it will make TB sufferers take good preventive measures. This we can see from the results of the t-test between the Perceived Efficacy variable on the compliance variable taking medication in pulmonary TB patients, the T count is 3.047 greater than the T table value of 1.981 and the significance value of 0.003 is smaller than alpha (0.05). so that there is a significant effect between the variable Perceived Efficacy X5 on medication compliance in pulmonary TB patients.

CONCLUSION

   Based on the results of research on the application of the Theory of Health Belief Model (HBM) on medication compliance in patients with pulmonary tuberculosis in the Dompu District Health Center Work Area, the researchers came to the following conclusions:

1. The value of the coefficient β of the Susceptibility variable (X1) = 0.203 and a significance of 0.017 <0.05 so that there is a direct influence between the Susceptibility variable (X1) on the variable compliance with taking medication in patients with pulmonary tuberculosis (Y) then the 1st hypothesis is accepted.

2. The value of the β variable Perceived severity (X2) = 0.202 and a significance of 0.030 <0.05 so that there is a direct influence between the variable Perceived severity (X2) on the variable compliance with taking medication in patients with pulmonary tuberculosis (Y) then the 2nd hypothesis received.

3. The value of the β variable of Perceived Benefit of Action (X3) = 0.203 and a significance of 0.027 <0.05 so that there is a direct influence between the variable Perceived Benefit of Action (X3) on the variable compliance with taking medication in patients with pulmonary tuberculosis (Y). the 3rd hypothesis is accepted.

4. The value of the coefficient β of the Perceived Of Action variable (X4) = 0.205 and a significance of 0.015> 0.05 so that there is no direct influence between the Perceived Of Action variable (X4

on the variable compliance with taking medication in patients with pulmonary tuberculosis (Y) then the hypothesis to -4 received

5. The value of the β variable Perceived Efficacy (X5) = -0.225 and a significance of 0.003 <0.05 so that there is a direct influence between the variable Perceived Efficacy (X5) on the variable compliance with taking medication in patients with pulmonary tuberculosis (Y), then the hypothesis 5 is accepted

SUGGESTIONS

For the Dompu District Health Center, it is recommended that the Puskesmas be improved in supervising and giving more attention to 119 pulmonary TB patients, especially elderly pulmonary TB patients who have high motivation to recover but are constrained by the absence of a family to supervise by making home visits and giving responsibility to health workers who are responsible as PMO (Drug Drinking Supervisor) who will later have a role to supervise and remind continuously to take medicine. And for pulmonary TB patients who have low motivation to always be given support and understanding of the importance of compliance in undergoing pulmonary TB treatment so that pulmonary TB sufferers can be motivated to undergo treatment so that optimal cure for pulmonary TB disease can be achieved.

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CONFLICT OF INTEREST

In the research that has been conducted, this research does not have a conflict of interest with other parties

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