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AGE, GENDER, EDUCATIONAL LEVEL, OCCUPATIONAL, AND KNOWLEDGE LEVEL ABOUT MULTIDRUG RESISTANT TUBERCULOSIS (MDR-TB) AMONG TUBERCULOSIS PATIENTS

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Abstract

Background: Resistance of Mycobacterium Tuberculosis is a condition in which Anti-Tuberculosis (OAT) drugs are unable to kill the Mycobacterium Tuberculosis germs. One type of resistance is Multidrug Resistant Tuberculosis. Multidrug Resistant Tuberculosis (MDR-TB) is TB caused by TB bacteria that are resistant to 2 types of OAT, namely INH and Rifampin. The consequences if resistance to OAT are deterioration of health, increased costs, prolonged treatment, high rates of therapy failure and death.

Objective: This study aimed to determine relationship between age, gender, educational level, occupational, and knowledge level about multidrug resistant tuberculosis (MDR-TB) among tuberculosis patients at the Kanigaran Public Health Center, Probolinggo City.

Methods: This study used a cross sectional research design with a sample of 60 respondents with pulmonary TB undergoing treatment at the Kanigaran Public Health Center, Probolinggo City. Data was collected using a questionnaire with an ordinal scale which was then analyzed using the Spearman Rank statistical test.

Result: Based on the research results, it was found that only age and educational level had a relationship with knowledge level (r = -.291, p = .024; r = .470, p = .000; respectively).

Conclusion: The level of knowledge of TB patients about multidrug-resistant TB (MDR-TB) can be influenced by education level and age, so that health workers can provide an understanding related to MDR-TB according to the level of education and age of the TB patient.

INTRODUCTION

Tuberculosis (TB) is still a public health problem which causes high morbidity, disability and death. Tuberculosis, abbreviated as TB, is an infectious disease caused by the bacterium Mycobacterium tuberculosis which is transmitted through splashes of infectious sputum of smear-positive sufferers that can attack the lungs and other organs (Kementerian Kesehatan Republik Indonesia, 2016). This disease is a serious infectious disease that can cause death at all ages, especially the productive age (15-50 years) and children (Dinas Kesehatan Kabupaten Probolinggo, 2018). Patients with tuberculosis are

required to take anti-tuberculosis drugs (OAT). The anti-tuberculosis drug (OAT) aims to kill Mycobacterium Tuberculosis in the body, because of its strong nature, it must be consumed for 6 months. This is mandatory because it is feared that patients who are not regular in treatment will actually endanger the sufferer. Because TB bacteria will develop more and more and will be resistant or immune to OAT and will suffer from Multidrug-Resistant Tuberculosis (MDR-TB) (Nurbiah, 2017).

The existence of pulmonary tuberculosis patients who do not adhere to taking OAT, neglect to take medication, and stop taking medication and lack of knowledge of pulmonary TB patients about MDR-TB has a risk of Multidrug-Resistant Tuberculosis (MDR-TB). The consequences if resistant to OAT are worsening health, increasing costs, low patient recovery rates, longer treatment, namely 18 to 24 months, difficult diagnosis, high rates of therapy failure and death (Nurhayati, 2015). Multidrug-Resistant Tuberculosis (MDR-TB) in Indonesia is caused by several factors, namely microbiological factors and inadequate treatment programs and non-adherence of TB patients in undergoing TB treatment. Microbiologically, resistance is caused by genetic mutations. This makes the drug less effective against the mutant bacilli. Mutations will occur spontaneously against one type of drug and if you receive inadequate anti-TB therapy. Patient non-adherence in undergoing treatment is the biggest cause of drug resistance. The reason patients do not come for treatment (drop out) in the intensive phase is due to low motivation and lack of information about their illness (Linda, 2012; Putra & Toonsiri, 2019). Lack of knowledge becomes a problem of TB control. TB patients must know how to treat their disease so that TB problems can be overcome. If TB patients receive less information about TB disease, it will affect the increase in MDR-TB cases. MDR-TB cases require treatment which is more expensive than DOTS (Directly observed Treatment Short-course) and requires relatively long treatment. However, if MDR-TB is not treated, it will indirectly affect the economy because the costs incurred are quite large (Linda, 2012; Wiliyanarti et al., 2020). According Devi (2019), research on Factors Associated with the Behavior of MDR TB Patients in Prevention of MDR TB Transmission in the Working Area of Semarang City Public Health Centers showed that respondents who had good knowledge about MDR TB were 76.2%. While the remaining 23.8% had poor knowledge about MDR TB. So it can be concluded that there is a relationship between the knowledge of respondents and the behavior of MDR TB patients in preventing the transmission of MDR TB in the working area of the Semarang City Health Center.

Management of MDR-TB cases is carried out using the DOTS Plus strategy where "S" is a strategy not Short course therapy while "plus" means using second-line OAT and controlling infection. The DOTS Plus strategy, as a strategy recommended by WHO to tackle MDR-TB, has five things that take precedence, namely: ongoing political commitment to MDR issues, a case finding strategy by microscopic examination of sputum, treatment with a combination of second-line Anti-Tuberculosis Drugs (OAT) with direct supervision by the Drug Swallowing Supervisor (PMO), assurance of regular, comprehensive and timely availability of second-line OAT with guaranteed quality, as well as a standardized recording and reporting system to facilitate monitoring and evaluation of MDR-TB control

programs. The DOTS plus strategy has the same framework as the DOTS strategy for pulmonary TB control. The difference is in the duration of treatment and the use of second-line OAT and the sufferer. The duration of treatment for pulmonary TB with the DOTS strategy is carried out for 6 months while for MDR-TB with the DOTS Plus strategy it is carried out for 2 years (Kementerian Kesehatan Republik Indonesia, 2014).

METHODS

Study Design

The research used is a correlational study with a cross-sectional approach.

Settings

The case study was conducted in Working Area of Kanigaran Public Health Center, Probolinggo City, East Java Province, Indonesia.

Research subject

The population of this study were patients with pulmonary tuberculosis who were still undergoing treatment at the Kanigaran Health Center from September 2019 - June 2020. The sampling technique used in this study was purposive sampling. The researchers determined several criteria in selecting research respondents, including TB patients undergoing treatment at the Kanigaran Public Health Center, TB patients who did not experience resistance to OAT treatment, and TB patients aged between 15 and 65 years. Based on the criteria set by the researchers, the number of research samples was obtained as many as 60 people.

Instruments

The research instruments used in this study were demographic data of respondents and a questionnaire to assess the level of knowledge of tuberculosis sufferers about multidrug resistant tuberculosis. The knowledge level questionnaire was made by the researchers themselves and the validity and reliability tests were carried out, so that the questionnaire was stated to be used in a study. The knowledge level questionnaire consists of 20 multiple choice questions. The questions in the knowledge level questionnaire contain the definition of multidrug resistant tuberculosis, causes of multidrug resistant tuberculosis, signs and symptoms of multidrug resistant tuberculosis, modes of transmission of multidrug resistant tuberculosis, examination and treatment stages for multidrug resistant tuberculosis, and the process of preventing the occurrence of multidrug resistant tuberculosis. The results of the reliability test of the knowledge level questionnaire found that Cronbach Alpha was .892.

Data collection

In the preparatory or administrative stage, the researcher arranges a research cover letter from the College of Health Science Husada Jombang first, after obtaining permission from the College of Health Science Husada Jombang, then the application for permission to conduct research is submitted to the National Health Agency & Politics (Bakesbangpol) in Probolinggo City. . After receiving a letter

of reply or permission from Bakesbangpol, the researcher received 7 copies of the letter which were delivered to: Mayor of Probolinggo, Head of the Probolinggo City Health Service, Head of the Kanigaran Health Center, Probolinggo City, Head of Kanigaran Subdistrict, Probolinggo City, Head of Mayangan District, Probolinggo City, Head of the Mayangan Police, Probolinggo City, and for the Researchers themselves. From the Probolinggo City Health Office, the researchers obtained data on TB sufferers at every health center in Probolinggo City. After the request for initial data collection and research was received by the Head of the Kanigaran Health Center, the researchers began to conduct research and collect initial data at the Kanigaran Health Center, Probolinggo City. This research began in June 2020 until it was completed in Kanigaran District. This research was conducted by visiting the respondent's house or door to door.

Data Analysis

The data that has been collected is analyzed using the SPSS 21 application with the Spearmen Rank statistical test with a significance level of .05

Ethical Consideration

Before potential respondents filled out the questionnaire, the researchers asked for their willingness to become respondents in this study. In addition, the researchers also explained their rights as a respondent in this study. Researchers also explained that this study did not harm their condition. The implementation of this case study activity has received approval from the College of Health Science Husada Jombang.

RESULTS

Tabulation of Demografic Data

Table 1. Tabulation of Demographic Data based on Gender, Age, Educational Level, Occupational, and Knowledge Level about Multidrug Resistent Tuberculosis in Working Area of kanigaran Public Health Center on September 2019 until June 2020 (n = 60).

Demographic Data of Respondents	Frequency (f)	Percentage (%)
Gender		
Male	36	60.00
Female	24	40.00
Total	**60**	**100.00**
Age		
15-30 years	18	30.00
31-45 years	22	36.67
46-60 years	17	28.33
61-65 years	3	5.00
Total	**60**	**100.00**

Demographic Data of Respondents	Frequency (f)	Percentage (%)
Educational Level		
Elementary School	14	23.33
Junior High School	23	38.33
Senior High School	20	33.34
Diploma/ Bachelor	3	5.00
Total	**60**	**100.00**
Occupational		
No Work	5	8.34
Housewife	17	28.33
Laborer	18	30.00
Government Employees	3	5.00
Others	17	28.33
Total	**60**	**100.00**
Knowledge Level		
Good Knowledge	11	18.33
Lack of Knowledge	49	81.67
Total	**60**	**100.00**

Sources: Questionnaire Data, 2020.

Based on the research data, it was found that the majority of respondents were male, 36 respondents (60.00%) and 31-45 years old, 22 respondents (36.67%). Nearly half of the respondents had junior high school education, 23 respondents (38.33%) and worked as laborers for 18 respondents (30.00%). Research data also shows that the majority of respondents have a low level of knowledge about multidrug resistant tuberculosis as many as 49 respondents (81.67%).

Analysis of Correlation between Age, Gender, Occupational, Educational Level, and Knowledge Level about Multidrug Resistant Tuberculosis among Tuberculosis Patients in the Kanigaran Public Health Center using Spearmen Rank Test

Table 2. Correlation between Age, Gender, Occupational, Educational Level, and Knowledge Level about Multidrug Resistant Tuberculosis among Tuberculosis Patients in the Kanigaran Public Health Center using Spearmen Rank Test.

	Knowledge Level about Multidrug Resistant Tuberculosis	
	***r*-value**	***p*-value**
Age	-.291*	.024
Gender	-.211	.106
Occupational	.216	.098
Educational Level	.470***	.000
*** $\alpha < .001$; ** $\alpha < .01$; * $\alpha < .05$		

Sources: Questionnaire Data, 2020.

Based on the research result in the table 2, it found that age and educational level had relationship with knowledge level about multidrug resistant tuberculosis (r = -.291, p = .024; r = .470, p = .000; respectively). However, gender and occupational did not have correlation with knowledge level about multidrug resistant tuberculosis (r = -.211, p = .106; r = .216, p = .098; respectively).

DISCUSSION

Based on the results of the study, it was shown that only age and educational level had a relationship with the level of knowledge of TB patients about Multidrug-Resistant Tuberculosis (MDR-TB). This is in line with several previous studies. From these studies, it is shown that there are many MDR-TB patients in productive age, namely at the age of 15–55 years. Productive age is more at risk due to more activity than old age. In addition, age is one of the factors that influence one's knowledge. With increasing age, it is hoped that the mindset and understanding will develop so that the knowledge gained will increase (Budiman, 2014). According Fauji (2010), Age is a factor that influences individuals in utilizing health services. Age will affect the process of forming abilities where these abilities are obtained from everyday individual experiences assisted by the knowledge they have acquired. The average age of the respondents is still in the productive age category, enabling them to still be able to capture the information provided and be able to recall it. The influence of organ function maturity will affect the mindset in acting (Kuan & et al, 2014).

Apart from age, educational level also has a relationship with the level of knowledge of TB patients about Multidrug-Resistant Tuberculosis (MDR-TB). The results of this study indicate that even though the respondents in this study had not a low level of education, it is undeniable that they did not know about the risk factors for MDR-TB, and this is also likely due to the lack of prevention from the start of first-line treatment of the emergence of MDR. -TB when the patient does not complete the treatment being undertaken. One of the factors that influence knowledge is education. The higher a person's education level affects his knowledge (Nurbiah, 2017; Putra & Toonsiri, 2019; Yuni, 2016). Education is a process of transforming the attitudes and behavior of individuals or a group of groups as an effort to mature individuals through a process of teaching and training. Education can be interpreted as an attempt to influence other people, whether individuals, groups or communities to carry out a behavior that is expected through educational actors (Saptari & Sudiarti, 2013).

Based on the results of the research above, it shows that gender has no relationship with the level of knowledge of TB patients about Multidrug-Resistant Tuberculosis (MDR-TB). The results of this study are not in line with the results of research conducted by Nurbiah. According Nurbiah (2017), the high percentage of men is because they have high mobility, where a lot of activity is coupled with less rest, allowing wider transmission to occur. In addition, the frequency of leaving the house for men is also higher than for women, so that men are more at risk than women.

The results of the above study also show that occupational has no relationship with the level of knowledge of TB patients about Multidrug-Resistant Tuberculosis (MDR-TB). The results of this study are not in line with some of the results of previous studies. Work is an effort to earn income so that it will fulfill several needs that can increase welfare. More prosperous will increase individual access to health services to maintain better health status (Indriyani, 2012; Nurbiah, 2017). A dense environment or workplace that is in contact with many people can also increase the risk of pulmonary TB and MDR-TB considering that transmission of MDR-TB is very easy, namely through the air (Munawwarah & Dkk., 2013; Nurbiah, 2017).

LIMITATION

In its implementation, there is no conflict of interest in this research.

CONCLUSION

Based on the results of the research above, it is hoped that health workers can pay attention to age and education level in conveying information to tuberculosis sufferers related to Multidrug-Resistant Tuberculosis (MDR-TB), so that the information provided can be well understood by these pulmonary tuberculosis sufferers.

AUTHOR CONTRIBUTION

Fahrur Rozi: Literature review, conceptualization, methodology, investigation, resources, project administration, and manuscript drafting.

Fakhrun Nisa' Fiddaroini: Literature review, conceptualization, methodology, investigation, resources, and manuscript drafting.

Prawito Prawito: Literature review, conceptualization, methodology, investigation, resources, and manuscript drafting.

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Fahrur Rozi : None.
Fakhrun Nisa' Fiddaroini : None.
Prawito Prawito : None.

CONFLICT OF INTEREST

There is no conflict of interest in this study.

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