ATLANTIS PRESS

Advances in Social Science, Education and Humanities Research, volume 362

5th International Conference on Physical Education, Sport, and Health (ACPES 2019)

The Association of Characteristics, Motivation, and Attitude of Health Workers On Tuberculosis Treatment Drop out at Balkesmas Semarang Area

1st Sri Ratna Rahayu
Public Health Science Department
Universitas Negeri Semarang
Semarang, Indonesia
sriratnarahayu@mail.unnes.ac.id

2nd Lukman Fauzi
Public Health Science Department
Universitas Negeri Semarang
Semarang, Indonesia
lukman.ikm@mail.unnes.ac.id

3rd Aufiena Nur Ayu Merzistya
Public Health Science Department
Universitas Negeri Semarang
Semarang, Indonesia
finamerzistya@gmail.com

***Abstract*—Tuberculosis (TB) is still a problem affecting infectious diseases. Semarang is in 6th place with the highest dropout rate in Central Java. The dropout rate from 2014 to 2016 is each number of 13.9%; 3.40% (13 cases); and 6.54% (14 cases) at Balkesmas Semarang area. The purpose of this study was to know the association of characteristics, motivation and attitude of health workers on TB treatment drop out at Balkesmas Semarang area. This method uses case-control with 21 cases of TB drop-out patients and 21 control sample of patients recovered or complete treatment, which is domiciled in Semarang and conducted more than 15 years old. The sampling technique uses purposive sampling and data retrieval using the questionnaire. The results of this study showed that lack of self-motivation (p-value 0.046) and moderate motivation (p-value 0.004), lack of family's motivation (p-value 0.03) associated with the incidence of drop out treatment among TB patients. Patients who have moderate motivation contribute greatly to TB treatment drop out. Self-motivation is needed in increasing the regularity of treatment, self-motivation can be obtained from family, the surrounding environment and health facilities.**

Keywords— Drop out, Tuberculosis, Motivation

I. INTRODUCTION

Tuberculosis (TB) is still a health problem in the world which is a major cause of morbidity and mortality. At present, TB has become a global health problem [1]. Every second there is one person infected with TB in this world and in the next decade no less than 300 million people will be infected by TB. In 2017, globally there are 10 million cases of TB incidence, equivalent to 133 cases per 100,000 populations, where the Southeast Asian region (WHO) is the highest at 44% [2].

WHO estimated that 2017 this bacteria killed around 1.3 million people in the world [2]. This death rate will be even higher if TB patients do not get or drop out of TB treatment. Dropout patients are patients who do not take medication for 2 consecutive months or more before the treatment period is completed [3].

Incomplete treatment of TB can lead to increased transmission, drug resistance, and mortality [4]. The rate of transmission of positive smear TB patients is 65%. If one person can transmit to 10-15 people, in the following year the number of people infected was 5.8 million people. This will increase if the sufferer discontinues treatment [5].

The Global Tuberculosis Report 2017 reports in 2015 the prevalence of global treatment outages was 22%. Of the entire division of the WHO region, the Southeast Asia region is the biggest contributor to the incidence of treatment for Anti-Tuberculosis drugs, then followed by the second place in the African region [6]

Indonesia is the country with the second highest TB case in the world in 2017, where the success rate of treatment from 2014-2016 remains estimated at 83% and in 2017 it declines to 80.12% with a target achievement of 90%. The treatment success rate is a percentage of new patients with pulmonary TB (AFB) who complete treatment (cured and complete treatment). So that it is known, that 17-20% is a rate of unsuccessful treatment for TB where the incidence of discontinuation of treatment takes part in it [7].

The success rate of treatment in Central Java Province in 2016 has also not reached the target of 68.69% with a target of 90%. This is because there are still many outbreaks of medical treatment in Central Java. Based on the report from the Central Java Provincial Health Office, the number of treatment drop out cases in 2016 was 2,409, of which 63% were male [8].

Based on the data from the Semarang City Health Office in 2016, Semarang is in the 6th position with the highest dropout rate in Central Java. It was found that there were 134 cases of drop out in 2015, an increase in 2016 to 141 cases and in 2017 to the third quarter 61 cases, with male sufferers having more out of treatment compared to women [9], [10].

Balkesmas Semarang area reports, there were 1303 cases of TB in 2016 (207 patients treated and 1096 referred to the Health Community Center). While the dropout rate for treatment from 2014 to 2016 experienced a significant increase and decrease with each number of 13.9%; 3.40% (13 cases); and 6.54% (14 cases) [11].

The results of a preliminary study conducted in May found characteristics of TB patients who dropped out of treatment, namely 65% male, 93% productive age (15-58 years), and jobs as private employees. Meanwhile, the reason for the patient to discontinue treatment due to domicile or residence far from the Balkesmas Semarang area (affordability of health services) and the existence of community stigma about conditions that have improved after treatment in the intensive stage (first 2 months). In addition, health service can be influential because of dissatisfaction with long waiting times and delays in receiving sputum results, which is one form of health service received by patients [12].

This study aims to determine the relationship between patient characteristics, motivation, and attitudes of health care workers to the incidence of drop out at the Balkesmas Semarang area. The results of this study are useful for improving health services so as to reduce the incidence of dropouts.

II. METHOD

This study uses observational analytic with case-control research design. The independent variables in the study included the characteristics of the patient, namely the patient's age, gender, education level, type of work, and family income, as well as the motivation and attitudes of health care workers. The dependent variable is the incidence of dropping out of pulmonary TB patients,

Samples were divided into cases, namely pulmonary TB patients who dropped out of treatment in the Balkesmas Semarang area in 2014-2016 as many as 21 people with criteria for pulmonary TB patients (HIV negative (-)) over 15 years old and control samples namely pulmonary TB patients who complete the treatment in the Balkesmas Semarang area in 2014-2016, 21 people with the criteria of patients with pulmonary TB (HIV negative (-)) who recovered or did complete treatment aged over 15 years. The technique in taking samples uses purposive sampling technique.

This research used questionnaire assistance in direct interviews with respondents. This study has received permission by the committee on ethical clearance of the Department of Public Health, Universitas Negeri Semarang. Before conducting the research, a meeting and coordination with the Balkesmas was held. During conducting direct interviews with the respondent, the researcher was accompanied by the Balkesmas.

The analysis used bivariate analysis namely Chi-Square test and multivariate analysis to determine the most influential factors, namely the Regression test.

III. RESULT AND DISCUSSION

Based on the results of the study found the characteristics of respondents based on the categories of sex, age, education level, type of work, and family income. Results can be seen in table 1.

The proportion of men who were 33 (78.6%) more than women were 9 (21.4%). In the age group, 37 (88.1%) respondents were included in the productive age group of 15-58 years and as many as 5 (11.9%) were included in the non-productive group > 58 years.

TABLE I. CHARACTERISTIC OF RESPONDENTS (N=42)

Variables	Categories	n	%
Sex	Men	33	78,6
	Women	9	21,4
Age	Productive	37	88,1
	Non productive	5	11,9
Education level	Primary Edu (Elementary/JHS)	17	40,5
	Secondary Edu (SHS)	18	42,9
	University Edu	7	16,7
Jobs	Private Employees	23	54,8
	Entrepreneur	9	21,4
	Government Employees	2	4,8
	No Job	8	19
Family Income	High	14	33,3
	Low	28	66,7

Most of the respondents had secondary education (SHS) (42.9%) respondents and at least only 16.7% of respondents had University education. Then, 54.8% of respondents worked as private employees and only 4, 8% of respondents work as government employees.

The opinions of respondents' families adjusted to the UMR of Semarang City in 2017. There are more respondents with high income (> Rp. 2,125,000.00) or as many as 66.7% compared to those who have low income (<Rp 2,125,000, 00) which only amounted to 33.3% respondents.

While the relationship between variables on the incidence of dropping out of patients with pulmonary TB. Results can be seen in table 2.

From table 2, it is known that there is no relationship between sexes on the incidence of dropping out of treatment with pulmonary TB patients. This is because, in the study, the proportion of male respondents was higher than women. In addition, in the survey conducted by researchers, both women and men had the same awareness of TB treatment.

This is consistent with the research conducted by Fauziyah, where there was no relationship between sex and drop out of pulmonary TB patients. Both women and men have the potential to drop out of treatment due to various factors, one of which is activities that are disrupted by the treatment of tuberculosis, so they are lazy to continue treatment [13]. This study is also in line with Khamidah, that there is no relationship between sex with dropping out of treatment with pulmonary TB patients with a greater number of men, 43 people [14].

In the age variable, there was no correlation between the age of the sufferer and the incidence of dropping out of pulmonary TB patients at the Balkesmas Semarang area where

the number of productive age (88.1%) more dropped out of treatment. This can be due to the high prevalence of pulmonary tuberculosis patients in Indonesia in the age group> 45 years [15].

In a study conducted by Soomoro, et al found that 71.8% of patients with tuberculosis who discontinued treatment were patients with productive age (15-54 years) and patients aged> 55 years more dropped out during intensive treatment phase (2 months first) compared to the advanced treatment phase [16].

Based on the level of education, it was concluded that there was no correlation between the level of education in the event of dropping out of treatment for pulmonary tuberculosis (TB) patients in the Balkesmas Semarang area. From the results of research conducted in the field, most of the patients who dropped out of treatment had enough knowledge about pulmonary TB, but many of them continued to stop treatment because they felt they were healthy and were able to move as usual. In addition, most respondents did not seek more information about TB disease. They are only limited to knowing the disease.

This is in accordance with Octavianus's research, that there is no relationship between the level of education and the incidence of drop out but with the highest number is patients with junior high school education (44%) [17]. However, it is not in line with Garido et al's [18] research which says that there is a significant relationship between low education and regularity of taking medication. This is because education is an important factor in someone receiving information. Good knowledge is supported by a high level of education so that one is able to understand correctly about health and disease, especially in this case is the treatment of pulmonary TB in addition to knowledge.

Likewise with the type of work. It is known that there is no relationship between the type of work and the incidence of dropping out of pulmonary TB patients in the Balkesmas Semarang area. Like Ariani, et al there was no significant relationship between work and regularity of taking medication [19]. But this result is different from the research conducted by Silva, et al in Timor Leste. Silva, et al. Said that work has a significant relationship to the incidence of outpatient treatment in Timor-Leste, where most jobs that patients with treatment have are farmers. According to the study, those who worked (66.3%) experienced more TB drop out than those who did not work (33.7%) [20].

There was no relationship between family income and the incidence of dropping out from pulmonary TB patients at the Semarang Community Health Center. This result is different from the study of Muture, et al study said that income has a significant relationship to the incidence of drop out in Kenya. Patients with low incomes are at risk of 5.57 times more likely to experience a drop out compared to patients who have high income [21].

Based on the results of the analysis, there is a correlation between the patient's motivation and the incidence of dropping out from pulmonary TB patients at the Balkesmas Semarang area.

TABLE II. RELATIONSHIP BETWEEN VARIABLES TOWARD THE INCIDENCE OF DROPPING OUT OF TB TREATMENT

Variables	Categories	*p-value*	OR (95% CI)
Sex	Men	0,71	0,75 (0,171-3,312)
	Women		
Age		0,63	1,58 (0,24-10,61)
Education Level	Primary Edu.	0,41	2,22 (0,33-14,80)
	Secondary Edu	3,91	3,91 (0,59-26,11)
	University	ref	Ref
Jobs	Private Employees	0,34	0,41 (0,07-2,53)
	Enterpreuner	0,05	0,13 (0,02-0,99)
	Government Employees	0,22	0,17 (0,01-2,98)
	No Job	ref	Ref
Family Income		0,19	2,4 (0,64-9,03)
Self Motivation	Low	0,046*	11,33 (1,05-122,55)
	Moderate	0,004*	10,38 (2,14-50,43)
	High	ref	Ref
Family Motivation	Low	0,03*	11,40 (1,20-108,29)
	Moderate	0,05	9,50 (0,97-92,83)
	High	ref	Ref
The attitude of the Health Worker	Bad	0,49	2,43 (0,19-29,66)
	Pretty Good	0,39	2,02 (0,41-9,99)
	Good	ref.	ref.

*p-value < 0,05 = related

The moderate to low motivation can be caused due to a lack of enthusiasm in the sufferer to intend to complete it thoroughly, feeling bored with the treatment of very long pulmonary TB and disrupting activities, and a low belief in recovering from this disease due to feeling in vain to take medicine but it didn't heal but it was just a side effect.

Fauziyah's research says the same thing, that there is a relationship between patient motivation and the incidence of dropping out TB patients. A total of 14 respondents (46.7%) had low self-motivation [13]. In line with the study of Octvianus, it was concluded that motivation had a significant relationship with the incidence of drop out where patients with more or less motivation experienced a drop out (83.6%) compared to good motivation (8.9%) [17].

Adherence of patients to treatment is one of the determining factors in the success of treatment. Although on the one hand, the accuracy of the examination and diagnosis is increasingly modern, on the other hand, the adherence to treatment on the part of the patient is often very low. Seeing that there is still a lack of motivation of the patients themselves, it is necessary to make an effort to increase motivation by periodic home visits by officers, at least 1-2 times during the treatment period [13].

Based on the results of the study, it was shown that there was a relationship between low family motivation and the incidence of dropping out of tuberculosis sufferers in the Balkesmas Semarang area. The low motivation given by the family to the sufferer will affect the patient to determine the treatment of pulmonary TB and regularity in taking the medicine.

In multivariate analysis, family support is known to be the most influential factor in the incidence of dropping out from TB treatment. In table 3 the following describes the family support that is being the most influential factor in the incidence of TB treatment dropouts. This is because of the motivation of the family that currently has the smallest p-value and the largest wald value.

This is also conveyed by Niven, where the family is the most important factor in determining the beliefs and values of individual health and can also determine the treatment program that they can receive. Family motivation in the form of support both physically and mentally is the most important factor in adherence to medical programs [22].

Family support is also a factor that influences a person to obey to carry out pulmonary TB treatment to completion, where both the nuclear family and extended family function as a support system for other family members. The basic function of the family is the function of health nursing, while the function of health nursing is the ability of the family to care for family members who experience health problems [23].

TABLE III. THE FACTOR THAT MOST INFLUENCE THE INCIDENCE OF DROPPING OUT OF TB TREATMENT

Variables	Categories	*p-value*	Wald
Jobs	Private Employees	0,542	0,765
	Enterpreneur	0,382	2,078
	Government Employees	0,149	0,642
	No Job	-	-
Self Motivation	Low	0,166	1,918
	Moderate	0,330	0,948
	High	-	6,192
Family Motivation	Low	0,046	3,995
	Moderate	0,004*	8,433*
	High	-	-

*most influential = the smallest p-value or the largest wald value

Based on the results of the analysis, there was no relationship between the attitudes of health care workers to the severity of the treatment of pulmonary TB sufferers at the Balkesmas Semarang area. However, Zuliana's study said that the attitude of health service officers had a moderate relationship (r = 0.358) and had a positive pattern which meant that the better the attitude of health workers there would be an increase in adherence to tuberculosis treatment [24].

IV. CONCLUSION

The motivation of patients and family motivation was related to the incidence of dropping out of TB treatment at the Balkesmas Semarang area. Patient characteristics and attitudes of health care workers are not related to the incidence of TB treatment discontinuation. The most influential factor for TB drop out is family motivation given to patients who are still in the middle. So it is expected to monitor and re-evaluate the implementation of TB treatment programs carried out by patients in the Balkesmas Semarang area and home visits for patients who experience dropouts. In addition, improving the personal approach between health care workers to patients is very necessary so that patients can be motivated to carry out routine treatment to completion.

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