



Correlation between Family Support and Health Professional Education on Tuberculosis Patient Compliance at Public Health Centers Tasikmalaya

Doni Anshar, [Genialita Fadhilla*](#), & Wulansari

Faculty of mathematics and natural science, garut university Jl. Jati No 42, tarongong kaler, kab. Garut, jawa barat, Indonesia

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ABSTRACT: Tuberculosis prevalence in Indonesia is still high, as 824.000 people are infected with Tuberculosis (Indonesia Basic Health Research 2022). This shows that Tuberculosis is still difficult to control due to various factors, including patient compliance. Patient compliance can be influenced by family support and health professional education about Tuberculosis therapy, which plays an important role in increasing knowledge of correct therapy for patients and families. This study examines the influence of family support and health professional education on tuberculosis patient compliance. This is a descriptive study with the cross-sectional method. Data was collected from 52 Tuberculosis patients who met the inclusion criteria using a questionnaire. The result shows that family support and health professional education had very good scores (84.6% and 46.2%) on Tuberculosis patients. This affects patient compliance is very good (82.7%). Based on correlation results, it shows that there is a direct influence of family support (p -value <0.05). At the same time, there is an indirect influence of health professional education on patient compliance (p -value >0.05). This shows that family support has a greater direct influence than health professional education on tuberculosis patients compliance. However, health professionals still play an important role because the patient's family also receives education from health professionals.

Keywords: tuberculosis; compliance; family; education; health professional.

Introduction

Tuberculosis is an infectious disease caused by *Mycobacterium tuberculosis* [1]. World Health Organization (WHO) reported that tuberculosis cases occur in every part of the world. In 2022, The largest number of tuberculosis cases occurred in Southeast Asia, with a total % of cases at 46%. Indonesia is in the second sequence after India, which is in the first [2]. According to Indonesia Basic Health Research, in 2022, Tuberculosis cases reached 824,000 people infected [3]. Moreover, West Java has the highest number of tuberculosis cases, reaching 101,272 cases in 2021, based on the reports from West Java Open Data [4]. One of the cities in West Java, namely Tasikmalaya city, is also an area with many cases of people infected with Tuberculosis. According to the Tasikmalaya City health office, 788 people from 10 sub-districts have tested positive for Tuberculosis [5].

Based on the distribution of Tuberculosis cases in Indonesia, Tuberculosis disease is still an epidemic. This disease is difficult to control due to several patient medication or therapy compliance factors. Based on research conducted by Chen et al., 45.7% of patients had poor compliance, 27.4% had good compliance, and another 26.8% had moderate compliance. Based on their research, the factor influencing patient compliance was the family support effect. This family support will influence the treatment process for Tuberculosis patients, in which the family provides attention and always loves the patient so that the patient feels happy [6].

Apart from the factor above, the role of health professionals is also important in handling tuberculosis cases. Health professional's education about routine treatment for Tuberculosis

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*Corresponding Author: Genialita

Faculty of mathematics and natural science, garut university, Jl. Jati No 42, tarongong kaler, kab. Garut, jawa barat, Indonesia, 44151 | Email: genialita@uniga.ac.id

patients aims to increase Tuberculosis knowledge and how to take Tuberculosis medication properly and correctly [7]. Additionally, patients' educational background also influences their ability to receive any information provided by health professionals. Meanwhile, patients' low levels of education will lead them to low levels of knowledge, which will cause them to be indifferent to their disease, resulting in non-compliance with treatment [8]. Therefore, based on this issue, the current study examines the influence of family support and health professional education on Tuberculosis patients compliance.

Method

Research Method

This quantitative descriptive study uses a correlational design, specifically a cross-sectional method [9]. On the other hand, the population involved in this study were Tuberculosis patients with positive BTA status. The sampling was carried out concurrently by using a purposive sampling technique. In selecting the samples, the researcher obtained two criteria, such as inclusion and exclusion criteria. Inclusion criteria are active Tuberculosis patients in the intensive and continuation phases, patients living with family members, and patients aged 15 years and over. Meanwhile, the exclusion criteria are patients who were not undergoing Tuberculosis treatment at the Public Health Center in Tasikmalaya City and patients who were not willing to be sampled in the study. By applying the inclusion criteria, samples were obtained from 52 Tuberculosis patients.

Research Instrument

The researcher used questionnaires as the research instrument to collect the data. This questionnaire was adopted from the research conducted by Tokan, 2022 [10], Ruspiana, 2022 [11]; and Febriyanti, 2020 [12], and it has been modified. So, the questionnaire is self-developed questionnaire that was adapted and modified from previous research questionnaires. In addition, the questionnaire has also been tested for validity and reliability by using Pearson product-moment, and the results show $\text{sig} < 0.05$. Therefore, the questionnaire is valid and can be used to test this study's sample. Besides that, the reliability of the questionnaire has also been tested by using Cronbach's alpha with results $\alpha = > 0.6$. Therefore, the questionnaire is reliable and suitable to be tested.

Research Procedure

This research began with ethical permission at Padjadjaran University with ethical number 443/UN6. KEP/EC/2023. The questionnaire that will be used will then be tested for validity and reliability first at a Public Professional Center. Finally, the researcher gave validated questionnaires to respondents who met the inclusion criteria.

Data Analysis

The data on Tuberculosis patient compliance is obtained from the questionnaire's several questions. The total of the results will then be scored and interpreted into 4 categories. Patient compliances are categorized into 4 grades: very good compliance with a questionnaire score

Table 1. Respondent characteristics based on age and last education

Characteristic	Total (n=52)	Percentage (%)
Age		
15-24	11	21.2%
25-34	11	21.2%
35-44	7	13.5%
45-54	13	25.0%
55-64	4	7.7%
<65	6	11.5%
Last Education		
SD	19	36.5%
SMP	10	19.2%
SMA	22	42.3%
S1	1	1.9%

Table 2. Respondent characteristics based on the treatment phase

Treatment Phase	Total (n=52)	Percentage (%)
Intensive	2	3.8%
Continuation	50	96.2%

of 27-32, good compliance with a questionnaire score of 21-26, fair compliance in the score range of 14-20, and poor compliance in the score of 8-13. Then, the results of the description of family support were categorized into very good (19-21), good (15-18), fair (11-14) and poor (7-10). The next category is health professional education with a range of very good (12-14), good (8-11), fair (4-7) and poor (0-3). The final data processing was obtained from the questionnaire results, which were processed and analyzed through the Spearman rho correlation test using SPSS with a p-value <0.05. Thus, the results show an influence or relation between the variables tested. The independent variable is family support and health professional education, while the dependent variable is patient compliance.

Results and Discussion

From July 2022 to April 2023, 85 cases of Tuberculosis sufferers were recorded at the public health center where

this research was conducted, but only 52 patients met the inclusion criteria. (Table 1) shows the characteristics of respondents based on the age of the most suffering from Tuberculosis, that is, 45-54 years (25%). This age is classified as productive because people are in active working conditions, so they are at greater risk [13]. In addition, based on patients' latest educational background, the largest number were in senior high school (42.3%). This aligns with data from the Statistics Department of Tasikmalaya City, which reports that the highest level of education in Tasikmalaya City is up to Senior High School or Vocational High School level [14]. Economic demands and the surrounding environment cause this, so they need more motivation to pursue further education. For those who have only studied up to junior high or senior high school, the cost is usually the main reason they do not continue their education. This problem becomes a factor in compliance with therapy, especially impacting people's knowledge. The more people are highly educated, the more they can be aware of the importance of health, so

Table 3. The results of family support, health professional and patient compliance characteristics

Characteristic	Total (n=52)	Percentage (%)
family support		
Very Good (19-21)	44	84.6%
Good (15-18)	8	15.4%
Fair (11-14)	0	0%
Poor (7-10)	0	0%
Health Professional Education		
Very Good (12-14)	24	46.2%
Good (8-11)	27	51.9%
Fair (4-7)	1	1.9%
Poor (0-3)	0	0%
Patient Compliance		
Very Good (27-32)	43	82.7%
Good (21-26)	9	17.3%
Fair (14-20)	0	0%
Poor (8-13)	0	0%

Table 4. The Results of correlation testing

Variable	P Value (Sig)
The relationship between family support and patient compliance	0.007
The relationship between health professional education and patient compliance	0.173

they will be more motivated to visit better health service centers [15].

The next characteristic is based on the patient treatment phase. The treatment phase for Tuberculosis patients is divided into 2 phases: intensive and continuation. The patient's intensive phase starts when the patient is declared positive for Tuberculosis until 2 months of therapy. Meanwhile, the continuation phase is calculated from 3 to 6 months or > 9 months of therapy [16]. "Based on Table 2", most Tuberculosis patients are in the advanced phase, that is, 96.2% of respondents, and in the intensive phase, only 3.8% of respondents. Patients in the intensive and advanced phases can be vulnerable to non-compliance because they feel bored and nauseous when taking medication daily; some also give reasons for feeling cured, and some experience side effects [17].

Then, "Table 3" shows the patient's family support for Tuberculosis patient therapy. The results show that 84.6% of respondents have received very good family support, and 15.4% have received good family support. Family support is essential because the people closest to the patient will pay more attention and love to the patient so that the patient will feel happy and comfortable [6]. Thus, it is hoped that the patient will be more obedient to the family so that they can achieve optimal therapy results and recover from their Tuberculosis. Family support can be in the form of informational support (information that can increase suggestions for individuals), assessment support (guidance to sufferers), instrumental support (helping attention to sufferers), and emotional support (attention to sufferers) [18]. Family support, especially informational support, cannot be separated from the support and health professional's education regarding Tuberculosis therapy. Health professionals who have a role as the front guard are aware of health problems and have the duty to educate society, including patients and their families [19].

Another factor that influences patient compliance is health professional education. "Based on Table 3", health professional education shows very good in 46.2% and good in 51.9%. Knowledge will greatly influence the implementation of therapy to achieve therapeutic success [20]. According to Cucu et al., in 2020, patients who did not frequently seek treatment were due to several factors,

such as not receiving counseling, not having home visits by officers, and economic problems or not working. Moreover, the side effects of tuberculosis drugs and the long duration of treatment cause an increase in non-compliance with treatment in tuberculosis patients. In terms of health services, this is partly caused by health professionals who are less effective in counseling patients [19]. Health professionals are important in educating the public about health problems and appropriate therapy. Pharmacists also play an important role in helping patients with their therapy, including compliance in undergoing therapy, because compliance will influence therapy success [19].

"Furthermore, the compliance level of Tuberculosis patients in Table 3" shows that the compliance level of Tuberculosis patients is 82.7%; to be precise, the respondents are very good. Good family support and education from health professionals also influence this excellent compliance. It can be seen from the questionnaire results describing family support and health professional education, which, according to respondents, is very good. One of the determinants of the success of Tuberculosis therapy is patient compliance with medication. These results align with Humaidi et al. 2020 who stated that the compliance level for Tuberculosis patients at the Palengaan Health Center reached 87%, which means that these results have been achieved properly. Compliance with treatment can be drawn in the patients' behavior who can comply with all advice and instructions given by medical personnel such as doctors and pharmacists. In order to achieve optimal treatment, one of them is compliance with taking OAT, which is the main condition for successful treatment [18].

In order to examine the effect of family support and health professional education on Tuberculosis patient compliance on "Table 4". The Spearman rho correlation test was carried out in, regarding the correlation between family support and patient compliance, the results show a p-value = 0.007 ($p < 0.05$). It means that direct family support greatly influences patient compliance in undergoing Tuberculosis therapy. Family support as the person closest to the patient is meaningful because it will influence the patient's motivation to comply with therapy. Based on

research conducted by Maulidan et al. 2021, regarding the relationship between family support and the level of compliance of tuberculosis patients in taking medication, it was highlighted that some patients do not comply with taking medication because the family does not care, which then causes patients to feel hopeless and stop treatment individually [21]. Other research from Hendesa A. et al. 2018 also emphasized that the proportion of treatment compliance who received good family support was greater at 89.5% compared to that of respondents who received low-income family support at 8.3% [22]. Family provides very important support to help someone resolve their problems. Family support will increase self-confidence and the desire to overcome problems [23]. “In addition, [Table 4](#)” also shows the effect of health professional education on patient compliance with a p-value = 0.173 ($p > 0.05$), which means that health professionals education to patients indirectly affects patient compliance. However, it does not mean that health professionals do not play an important role as educators because the questionnaire results show that the health professional education is good, even very good. Education is also given to the patient's family as a bridge of information for the patient because the family is the person closest to the patient, so they are expected to be more able to receive information and comply. At the same time, health professionals can be considered outsiders, making the patient more reluctant. This shows that health professionals indirectly influence patient compliance, but the influence of family support is greater on patient compliance [23].

Conclusion

Based on this research, the correlation test results showed a direct influence between family support on patients compliance p value < 0.05 and an indirect influence between health professional education on patients compliance p value > 0.05 . Therefore, this shows that family support has a greater direct influence than health professionals education on tuberculosis patients compliance.

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