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## 15 Correlation Between Self-Reliance of Its Patients and Their Medication Adherence in Magelang Pulmonary Health Center, Indonesia

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**Background:** The current programs for controlling pulmonary tuberculosis have not been able to increase the level of self-care of patients to medication; while in fact it brings more advantages to patients. The purpose of this study was to determine the correlation between the level of self-reliance and medication adherence of pulmonary Tuberculosis patients. **Method:** This study represented a quantitative research design with cross sectional approach and involved 30 patients. The questionnaires used were, self-reliance health card, medication knowledge scale, and medication adherence scale. **Results:** The patients who were already self-reliant were 10 (33%), started to be self-reliant were 15 (50%) and dependent were 5 (5%). The patients with high level of knowledge were 27%, with medium level of knowledge were 20 (67%) and with low level of knowledge were 2 (6%). The patients who had high level of adherence were 23 (77%) and who had moderate level of adherence were 7 (23%). A correlation test was in the form of interval scale and all data were abnormally distributed. The Spearman rank correlation test obtained a significance level of 0.071 with  $p$  value > 0.05. **Conclusion:** There was no correlation between the level of self-reliance patients and the adherence to medication. It was because at the stage of the second meeting, the families were not involved in the treatment program of the patients.

**Keywords:** Self-Reliance, Medication Adherence, Tuberculosis.

### 1. INTRODUCTION

Tuberculosis is the second-leading cause of death from infectious diseases globally, with nine million people infected and 1.5 million deaths in 2013.<sup>1</sup> Tuberculosis (TB) requires long medication regimens.<sup>2</sup> Treatment for drug-susceptible TB consists of a two-month intensive phase of daily medication followed by a four-month continuation phase of varying frequency, while treatment for multidrug-resistant TB (MDR-TB) can take substantially longer.<sup>3</sup> Low adherence to anti-TB medication is common and can lead to death, drug resistance, continued transmission in the community, and increased health system costs.<sup>4,5</sup>

Medication adherence is critical in Tuberculosis (TB) treatment success, but patients did not always take medication as prescribed and direct observation of treatment began to be considered as a strategy for enforcing medication adherence for the duration of a treatment regimen.<sup>6</sup> Previous quantitative studies in a systematic review of qualitative research found that reasons for default generally fit into 8 specific categories: "organization of treatment and care; interpretations of illness and wellness; the financial burden of treatment; knowledge, attitudes, and beliefs

about treatment; law and immigration; personal characteristics and adherence behavior; side effects; and family, community, and household support."<sup>7,8</sup>

Tuberculosis (TB) treatment non-adherence is one of challenging conditions, because its risk of prolonged disease transmission, treatment failure and occurrence of drug resistance. Studies show that a number of factors are influencing TB-treatment adherence. Among these factors, knowledge about TB and its treatment, distance to nearest health facility, perceived stigma, perception about disease and its treatment, psychological distress, change of residential place, and economic status are some.<sup>9,10</sup> In order to decrease non-adherence level, various interventions designed and implemented across the world.<sup>10</sup> For instance, an intervention that carried out based on enhanced TB adherence model, which focused on patient and professional empowerment, proved to positively impact TB treatment adherence.

Good adherence to tuberculosis (TB) treatment is crucial to cure patients, to limit the development of drug resistance and to reduce TB transmission in the community.<sup>11</sup> The World Health Organization recommends directly observed therapy to promote adherence, where a pre-assigned treatment supporter watches each patient take his/her daily medication. There are many ways

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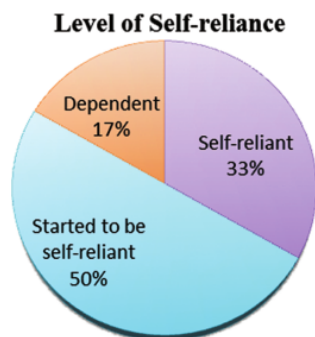


Fig. 1. Patients' level of self-reliance (n = 30).

to assess patient adherence, such as pharmacy record review and pill counts, but they are not feasible for routine clinical practice because they require excessive physician or patient time and resources.<sup>12</sup>

The current programs for controlling pulmonary TB have not been able to increase the level of self-reliance of the patients to undergo medication. While in fact, patients will have many advantages when they are being self-reliant. For examples, patients will feel satisfied with the treatment as they actively make decisions about their treatment. In addition, they also will find it easier to avoid stress and embarrassment, and participate in the health care system existing within the environment. Moreover, the government will also receive assistance as so far there is limited number of health workers. Therefore, active participation from the patients is really required.<sup>13</sup>

Self-reliance of the patients to do self-care is mostly affected by self-awareness and attention to oneself. It is influenced by the ability of the patients in all facets of their life including social, psychological, spiritual and physical aspects.<sup>14</sup> A good self-awareness will be reflected on the level of adherence to medication. It is therefore important to know whether there is a correlation between the level of self-reliance that the patients achieve and their adherence to medication.

The study aimed to determine the relationship between self-reliance of TB patients and medication adherence. The specific goal are to know the level of self-reliance of TB patients, to know the level of knowledge about medication adherence of TB patients, to know the level of knowledge about treatment of TB patients, and to analyze the relationship between the level of self-reliance of TB patients and their adherence to medication.

## 2. METHOD

Patients were recruited through the pulmonary health center of Magelang in the period of June–July 2016. Patients were eligible to participate in the study if they were diagnosed as having tuberculosis, undergoing medicine treatment, and had signed informed consent. Patients with insufficient of understanding or lack of communication, having psychiatric problems and refusing to involve in the study were excluded. Of the 62 patients who met the criteria, 30 agreed to participate in the study. The sampling method used was purposive sampling which was based on some criteria developed by the researchers.

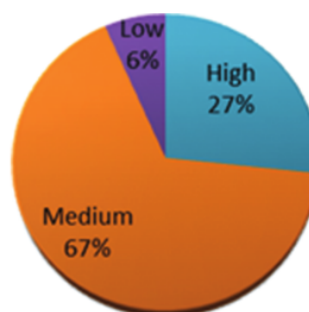


Fig. 2. Level of knowledge of TB treatment (n = 30).

The study used a cross-sectional questionnaire survey design. Questionnaires were completed by the participants in pulmonary health center of Magelang. Participants were informed that there were no right or wrong answers and that their answers would be kept confidential. Participation was voluntary and no incentive was offered to take part in the study. After signing an informed consent form, participants were asked to complete a questionnaire including basic demographic questions, as well as the scales below. Each participant took 15–20 min to complete the questionnaire.

The data collection was accomplished through the use of 3 separate questionnaires.

- (1) Self-reliant health card had score validity test more than  $r$  table,  $r > 0,361$
- (2) Medication knowledge scale had score validity have score 0,361
- (3) medication adherence had score 0.361. This score showed that instrument was valid.

Data were double-entered for verification using Statistical Package for the Social Sciences (SPSS) 20.0 for windows statistical software. Descriptive statistics were used to establish the frequency, range, mean and standard deviation (SD) of demographic and illness characteristics of the sample. Spearman rank correlation was undertaken to examine relationships between self-reliance and medication adherence. Before the correlation test was performed, the normality of the data was tested using the Kolmogorov-Smirnov test.

The study was approved by the Medicine Research Ethics Committee of Diponegoro University. Participants were given detailed information about study procedures and written consent was obtained. All participation in this study was voluntary and participants were allowed to withdraw from the project during the period of the study without penalty.

## 3. RESULTS

### 3.1. Level of Self-Reliance of the Patients

The results of Self-reliance showed that 10 patients (33%) were self-reliant and only 15 (50%) were starting to be self-reliant and 5 patients (17%) were still dependent.

### 3.2. Level of Knowledge of TB Treatment

The results of data analysis on knowledge of TB treatment indicated that 20 patients (67%) had moderate knowledge, 8 (27%)

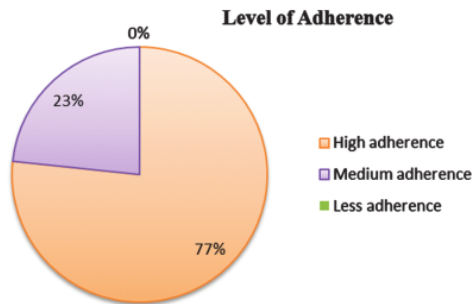


Fig. 3. Level of medication adherence (n = 30).

had a high level of knowledge and only 2 (6%) had low knowledge.

The results of adherence to medication indicated that 23 patients (77%) had high level of adherence, and 7 patients (23%) had moderate level of adherence.

### 3.3. Level of Adherence to Medication

The level of self-reliance and medication adherence showed a significant level of 0.00. This showed the  $p$  value  $<0.05$ , indicating abnormal data distribution. This showed that  $p$  value  $>0.05$ , indicating no relationship between the level of self-reliance and medication adherence of TB patients.

## 4. DISCUSSION

The findings of the present study on knowledge of TB treatment showed that 67% had moderate knowledge, 27% had a high level of knowledge and 6% had low level of TB treatment knowledge. Other study findings on knowledge of TB treatment showed that 49% had average level of TB treatment knowledge while only 17% had high level of knowledge. This demonstrated that the level of TB treatment knowledge was medium to low. This was not the picture expected in a context where most of the respondents had secondary level of education as education is perceived to enhance receptivity of information given. There is need to evaluate the teaching strategies used to determine how they influence assimilation of information given to tuberculosis patients.<sup>15</sup> Orem stated that if an individual lacks of knowledge about self-care, he/she would also lack of self-care practices; in this case, lack of TB treatment knowledge would lead to non-adherence with TB treatment.<sup>16</sup> The other study showed different findings with the current study, which found no direct relationship between knowledge and adherence.<sup>17</sup> They concluded that major factors contributing to high rates of defaulting were lack of family support, inadequate knowledge about treatment and medication side effects. They also argued that default reduction maybe successful if control programs consider these factors.

Adherence was measured as a continuous from adherence to non-adherence. Most of the respondents 77% had high level of adherence and 23% respondents had moderate level of adherence. There were varying levels of adherence. A retrospective study found that there were varying degrees of non-adherence in 24% of the patients.<sup>18</sup> Other studies examined the adherence to appointments and medication taking. They found that appointment keeping ranged from 81% on the first visit to 59% by the

sixth visit. Medication adherence dropped from 89% in the first month to 64% at six months.<sup>15</sup>

The present study found 23% had moderate level of adherence of the respondents did not comply with TB treatment. This indicated that they are likely to have treatment failure or treatment resistance leading to further spread of the disease. Tuberculosis is a droplet infectious disease, where very high treatment adherence is the goal. The global targets for WHO are 70% for their therapy progresses and are generally not infectious after one month of appropriate treatment.<sup>19, 20</sup> Left untreated, each person with active tuberculosis will infect on average between 10 and 5 persons every year.<sup>19</sup> To reverse this situation, there is need for adherence TB treatment. The high rate of patient non-adherence has been identified as a major factor contributing to treatment failure; consequently, an extensive number of infectious people are spreading the disease rapidly in the global village.<sup>15</sup>

The present study showed that as many as 10 patients were already self-reliant on their medication, 15 patients were starting to be self-reliant and 5 were still dependent. In case of medication, most patients had high levels of adherence as many as 23, and 6 patients showed moderate level of adherence. The correlation test showed no relationship between the level of self-reliant and medication adherence. This result is in contrary to the existing theories. Adherence to medication will reflect in an active role of TB patients in their self-management and interactions with health care providers. High level of adherence will help the success of TB treatment and minimize the risk of drug resistance.<sup>21</sup>

In this study, self-reliance was measured at the second meeting in which the patients were still self-reliant without any full support of the family. In addition, the level of self-reliance at the second meeting was not fully developed. The majority of them were just starting to be self-reliant. This is just the opposite with the result of the high adherence. In addition to family support, the level of adherence is also influenced by some aspects: trustworthiness, attitudes, cultures, norms, emotional changes, and depression.<sup>22</sup>

The present study was subject to a number of limitations. First, the data were collected from only one place and therefore the results might not generalize to other healthcare settings. Second limitations were the small sample size and the nature of the safety performance data.

## 5. CONCLUSION

There was no significant correlation between the patients' level of self-reliance and the adherence to medication. It was because at the stage of the second meeting, the families were not involved in the treatment program of the patients.

The trend of an increased prevalence of TB leading to increased incidence of infection needs to be broken in Indonesia and over world. There is great need to understand the problem of non-adherence with TB treatment. Adherence with TB treatment is one of the great determinant of TB control. To improve adherence, there is need to adopt a very systematic and comprehensive view of patient adherence. The Study revealed a very important aspect that self-reliance is not a direct determinant of adherence.

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