



FAMILY MEMBER'S KNOWLEDGE OF TUBERCULOSE TRANSMISSION RISK BEHAVIOR IN WEST KALIMANTAN

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ABSTRACT

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The bacterium *Mycobacterium tuberculosis* is the cause of tuberculosis (TB), a crucial problem in a community nationally and globally. The development and evolution of the bacteria can cause an increase in cases. The active spread of TB is straightforward through the air contaminated with the bacteria until someone inhales it. Patients, their families, and healthcare workers are necessary to prevent tuberculosis. Family recognizing health problems also plays an important role in preventing tuberculosis. Educational interventions that are part of independent nursing actions are one of the solutions to increase prevention and treatment success on a family and community scale. The design of this study was a quantitative study with a cross-sectional approach. This study used primary data obtained through direct observation using a questionnaire of patient demographic data, knowledge level, and infectious risk behavior. Sampling was done using non-probability sampling using a purposive sampling technique with inclusion criteria, namely the nuclear family of patients diagnosed with TB with good communication skills. Meanwhile, the exclusion criteria were patients who were not accompanied by their families for treatment and were not part of the nuclear family of TB patients, MDR-TB patients. The number of samples in this study was 100 people. A variable in this study was family members' knowledge of TBC transmission risk behavior. Data were collected by questionnaire regarding the family's knowledge. Data analysis in this study used the bivariate chi-square test. The study results on family members of TB patients were mostly male (52%) with a high level of knowledge (65%) and low-risk behavior (59%). The statistical test results with chi-square showed that a high level of knowledge had a number of cases of family members with a low risk of infectious behavior (Asimp. Sig 0.005 <0.05). Most respondents had a high knowledge level and a low risk of infection. In essence, a good education can independently train training a person to change their behavior and attitude for the better.

Keywords:

Behavior, Family, Knowledge level, Tuberculosis

BACKGROUND

The bacterium *Mycobacterium tuberculosis* is the cause of tuberculosis (TB), a crucial problem in a community nationally and globally (Indah, 2018; Putra & Toonsiri, 2019). Tuberculosis is a disease of global concern, according to the provisions of the 2030 sustainable development (Kaka et al., 2021). TB cases also increase deaths as a single infectious agent, with at least 1.6 million deaths reported in 2016 and is the cause of death due to a single infection (Gagneux, 2018; Koch & Mizrahi, 2018). Even a quarter of the global human population is infected with latent TB, which can potentially become a reservoir of active TB cases (Houben & Dodd, 2016).

Reports of TB cases in Indonesia make it one of the 5 countries with the highest prevalence of tuberculosis. 2018 there were reportedly 1,017,290 cases, while West Kalimantan had 28,343 cases (Kemenkes RI, 2019b, 2019a). The development and evolution of the bacteria can cause an increase in cases. The active spread of TB is very easy through the air contaminated with the bacteria until it is inhaled by someone (Gopaldaswamy et al., 2020). It becomes difficult to control the spread of TB. Besides that, it is supported by an imbalance between the host's physical condition, nutritional status, and environment (Mokrousov et al., 2021; Silalahi et al., 2021).

Studies in Bangladesh and India, which have similar economic statuses as lower middle income, show that the level of knowledge regarding the causes and treatment of disease is in a good category, but there are still many misconceptions about the transmission of tuberculosis bacteria (Badane et al., 2018; World Bank, 2022). In fact, global TB control is hampered by several factors, such as the examination of specimens relying on microscopes that are hundreds of years old, low-sensitivity diagnostic techniques, limited use of the Calmette Guérin (BCG) vaccine, and use of drugs that have been used for 40-60 years (Dheda et al., 2016).

Efforts to combat tuberculosis must involve patients, families, and health workers in prevention activities (Kaka et al., 2021). There is a positive correlation between knowledge of attitudes toward diagnosis, acceptance of the results of the diagnosis and the decision to participate in treatment, adherence to treatment, and involvement in the community (Puspitasari et al., 2022). Educational interventions that are part of nursing independent actions are one of the solutions to improve prevention and treatment success at the family and community scale (Choi & Jeong, 2018). In order to validate this type of inter-

vention, a basic study of knowledge of preventive behavior against tuberculosis is needed.

METHODS

This research is a quantitative study with a cross-sectional approach. This study used primary data obtained through direct observation using a questionnaire consisting of gender, knowledge level, and level of infectious risk behavior. Sampling was done with non-probability sampling using a purposive sampling technique with inclusion criteria, which is the core family of patients diagnosed with TB with good communication skills. Meanwhile, the exclusion criteria were patients who were not accompanied by their families for treatment and were not part of the core family of TB patients, MDR-TB patients. Research with a sample of 100 people. The variable in this study was family members' knowledge of TBC transmission risk behavior. Data was collected by questionnaire regarding family knowledge about TBC transmission risk behavior adapted from Sasilia (2013). The questionnaire met the criteria of valid and reliable with total correlation $> 0,361$ and alpha Cronbach $> 0,979$. Data analysis in this study used the bivariate chi-square test. This research has passed the ethics review in the Faculty of Medicine Universitas Tanjungpura, number 3489/UN22.9/PG/2022

RESULTS

This study's results are presented as a frequency distribution table for each variable, such as gender, knowledge level, and infectious risk behavior. Data were taken from 100 respondents.

The characteristic of participants in this study was mostly 45-44 years old (21%), and 34% were a farmer.

Table 1 shows that the results of the study on family members with tuberculosis are predominantly male (52%), have a high knowledge level (65%) and have low-risk behavior (59%).

The statistical test result using chi-square showed that a low knowledge level had a high number of cases of family members with high-risk behavior. In contrast, family members who had high knowledge had low-risk behavior.

DISCUSSION

The study result of 100 respondents showed a relationship between the level of knowledge and the level of infectious risk behavior from family mem-

Table 1. Characteristic Respondent

| Variable | n (%) |
|-----------------------------------|----------|
| Sex | |
| Male | 52 (52%) |
| Female | 48 (48%) |
| Knowledge Level | |
| Low | 35 (35%) |
| High | 65 (65%) |
| Level of infectious risk behavior | |
| Low infectious risk | 59 (59%) |
| High infectious risk | 41 (41%) |

Table 2. Knowledge Level with Contagious Risk Behavior

| Knowledge Level | Infectious risk behavior | | Statistic Test | Sig |
|-----------------|--------------------------|-----------------|---------------------------|-------|
| | Low risk n (%) | High risk n (%) | | |
| Low | 14 (23.7%) | 21 (51.2%) | <i>Pearson Chi-square</i> | 0.005 |
| High | 45 (76.3%) | 20 (48.8%) | | |
| Total | 59 (100%) | 41 (100%) | | |

bers with tuberculosis. Most respondents had a high knowledge level and low infectious risk behavior. In essence, a good educational process can independently train a person to change their behavior and attitude for the better (Hasudungan & Wulandari, 2020).

Previous studies showed a positive correlation between knowledge level and behavior. Some factors that can support the level of education include education level, age, information/mass media, socio-culture, and economic level. Further information on the formation of attitudes can be influenced by personal experience, the influence of other people, culture, mass media, educational institutions, religious institutions, and emotional factors (Andriani & Sukardin, 2020).

The results of research conducted by Kassahun et al. (2020) show that respondents with a background as migrants and seasonal farm workers in Northeast Ethiopia have low knowledge, and exposure to mass media influences their knowledge (Gelaye et al., 2020). Family size is another important factor that can increase the knowledge level of migrant workers and seasonal farm workers (Gelaye et al., 2020; Pengpid et al., 2016). This is because the process of transmitting information to the extended family will have a broader impact within the scope of the community (Gelaye et al., 2020).

Knowledge is also the content of one's mind to understand various things. Knowledge about TB prevention includes ways of transmission, ways of prevention, and ways of proper treatment (Hardin,

2021). In this rapid development era, formal education and special knowledge are only some ways to decent knowledge. There are several ways to support a good knowledge level, for example, through mass media, experience, and an environment that provides information through a trusted person like family/close relatives. Health education is also the main program in health facilities (Andriani & Sukardin, 2020).

Knowledge level can also influence stigma within the scope of the community (Hasudungan & Wulandari, 2020). TBC patients with a high knowledge level might also feel shame. The study conducted by Peter et al. (2020) shows a high knowledge level in areas where TB increases over time (Rebeiro et al., 2020).

The knowledge level can influence the initiation of TB disease and its treatment. Based on the research review, it is known that several factors influence medication adherence, such as family support, positive self-esteem or self-efficacy, subjective norms, side effects of drugs, support for Medication Supervisors (PMO), use of medication reminder aids, the patient's desire to recover, the patient's way of thinking and knowledge about TB disease, and the use of drugs according to Ministry of Health's standards (Intani et al., 2022).

A high level of knowledge of this study may be caused by family companions to the treated patient. A spacious and open waiting room helps patients and families exchange experiences caring for TB patients. Discussions between family members

are often seen while waiting for a doctor's examination; situations like this provide time for the visiting families to discuss and exchange experiences and knowledge while treating to avoid TB transmission.

CONCLUSION

In general, most of the family members studied were male, had a high knowledge level, and low level of risk behavior. There is a relationship between the knowledge level and infectious risk behavior of family members with TB. Several factors that support the knowledge level include the spread of information through mass media, support and family size, educational level, and emotional level.

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