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Cultural factors and family behavior in preventing the transmission of TB in The Nusa Tenggara Region, Indonesia

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Abstract--Tuberculosis (TB) is still a global health problem due to the ease of transmission of this disease. Everybody can prevent this transmission if TB patients are treated thoroughly and do not have direct contact with healthy people without using personal protective equipment. Nusa Tenggara adheres to high cultural values and family values. These factors can be things that support prevention efforts as well as increase the occurrence of transmission. The study aimed to determine the cultural factors and family behavior to prevent the transmission of pulmonary TB disease in Nusa Tenggara, Indonesia. The method used is a literature review. The articles used as literature review materials come from Google Scholar. The articles were selected based on the research focus, namely TB transmission in the family, family behavior in TB prevention, and TB prevention health

promotion. The articles are then analyzed using PICO and Prisma chart. There were 11 articles analyzed with the results obtained on two themes, namely cultural factors and family behavior, where the level of knowledge influences cultural factors and family behavior. The results of this study show that cultural factors and family behavior affect efforts to prevent TB disease; namely, families or communities assume that TB is a disease caused by evil spirits or witchcraft and assume that pulmonary TB is a hereditary disease.

Keywords---culture, family behavior, family knowledge, Nusa Tenggara, TB prevention.

Introduction

Tuberculosis (TB) is still a global health problem and has become the thirteen cause of death worldwide. TB has also become the number two morbidity factor that causes death due to infectious diseases after Covid-19 (WHO, 2021). The World Health Organization (WHO) report in 2020 estimates that around 10 million people worldwide suffer from TB, of which 5.6 million sufferers are men, 3.3 million women, and 1.1 million children. The same report shows that around 1.5 million people died (WHO, 2021). In Indonesia, based on the 2018 Basic Health Research (Riskesmas) report, there were 1,017,290 cases of pulmonary TB based on a doctor's diagnosis history. Of this figure, Nusa Tenggara accounts for about 0.59% of cases where West Nusa Tenggara is 0.32% of cases and East Nusa Tenggara is 0.27% of cases (Kementerian Kesehatan Republik Indonesia, 2018).

Tuberculosis (TB) is an infectious disease that attacks various organs, especially the lungs, caused by the bacterium *Mycobacterium tuberculosis* (Kemenkes RI, 2019). The leading cause of the high morbidity of TB cases is basically due to the ease of transmission of this disease, namely through the air (Aja et al., 2022). When a person with smear-positive TB sneezes or coughs, *Mycobacterium tuberculosis* accidentally contaminates the air. The contaminated air can infect and cause around 10-15 new TB cases (Kristini & Hamidah, 2020). This condition is most likely to occur in healthy people in direct contact at an unsafe distance without the use of adequate personal protection.

Nusa Tenggara is a province in Indonesia that adheres to the Extended Family and Kin Network Family types, in which several family members being related by blood or not live together (Yosephina E. S. Gunawan, 2015a). This condition facilitates the transmission of TB. The large number of people occupying one house and the duration of contact with TB sufferers for a long time without adequate personal protection increase the chance of new TB cases due to transmission. In addition, TB patients who do not undergo or complete treatment are another cause of incomplete transmission prevention and new cases' emergence (Noviyani et al., 2021; Pradipta et al., 2022).

One of the reasons for not running and not completing the treatment program for TB patients is the terrible stigma in society about this disease. TB is considered a cursed disease in society and causes TB sufferers to become ostracized,

exacerbated by inadequate public knowledge about TB. The lack of motivation and support makes TB sufferers refuse to be tested and treated. Based on the description above, the researcher is interested in conducting a literature review on "cultural factors and family behavior in preventing TB disease transmission in the Nusa Tenggara region."

Method

This study uses a literature review method to identify the problems studied, namely cultural factors and family behavior in preventing TB disease transmission in the Nusa Tenggara Region. The next stage is a data search or literature search on the Google Scholar database using the keywords "Cultural factors," "Family behavior in TB prevention," "Family knowledge," and "Nusa Tenggara." The research problem analysis uses the PICO worksheet (see Table 1.1 PICO worksheet). There were 11 articles reviewed (see Table 1.2 Results of Journal Article Analysis) based on a selection process with inclusion and exclusion criteria so that the articles reviewed only discussed the implementation of malaria elimination programs in each region of Eastern Indonesia. The literature search was conducted from March to June 2022. The next step in this literature review is Quality assessment, which is not only looking for articles based on their titles but also looking at abstracts, content, and conclusions from previous articles for review.

Furthermore, the screening stage is carried out based on the inclusion criteria. These criteria were national articles accessed free and appropriate full-text about cultural factors and family behavior in preventing transmission of pulmonary TB disease in the Nusa Tenggara region of Indonesia in 2019-2021, published in the last three years, and exclusion criteria. Is the full text that does not match the search? The PRISMA chart in Figure 1 shows manuscripts' screening and selection process (see Figure 1 Prism Chart). Next is summarizing and analyzing the data (see Table 1.2 Results of Journal Article Analysis).

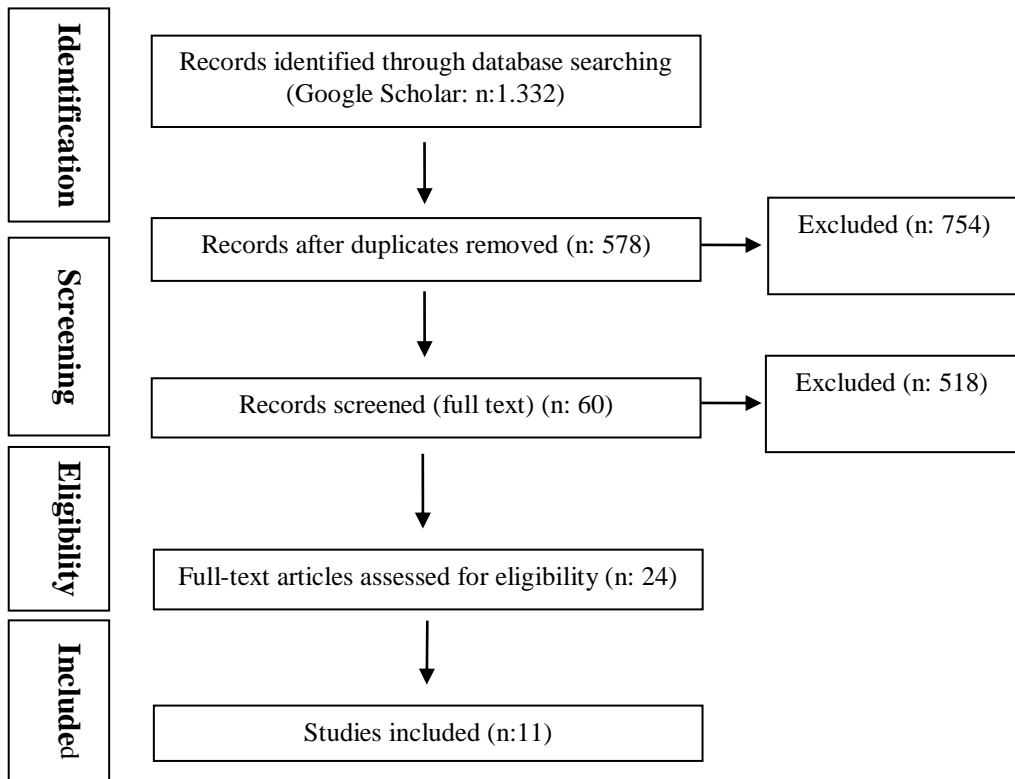


Figure 1. Prisma Chart Article Search Cultural Factors and Family Behavior in Prevention of TB Transmission in East Nusa

Discussion

Based on the results of the analysis of 11 articles (see table 1.1. Results of Journal Article Analysis) related to cultural factors and family behavior in preventing TB disease transmission in the Nusa Tenggara Region, the following results were obtained:

1. Cultural Factor

Cultural aspects in various public health empowerment efforts, both promotive, curative, and rehabilitative, are always involved and used as an approach and negotiation strategy to improve public health (Institute of Medicine, 2004; A. D. Napier et al., 2014). The reason is that culture in the context of health is not only limited to social attributes that distinguish one group from another but more than that. Culture, with all its values and beliefs, also influences all forms of individual and community health behavior (D. Napier et al., 2017). This is because every culture has a belief system that explains the causes of illness, healing and treatment, and the parties that need to be involved in the process (Institute of Medicine, 2004; Sarfo, 2015).

From the analysis of articles that meet the criteria, it is identified that the prevention of transmission by the community has not been maximized. This is especially emphasized in the failure of the treatment program undertaken by TB patients. Kristini and Hamidah (2020) revealed that the main cause of the high transmission rate by patients with Active TB is not environmental factors but the source of transmission itself, namely positive smear TB patients (Kristini & Hamidah, 2020). Treatment failure and/or not taking TB treatment at all, in addition to causing a negative impact on the sufferer, also increases the potential for positive smear TB patients to infect healthy individuals.

In the articles analyzed, it was identified that there were forms of inappropriate TB treatment practices. People prefer to self-medicate or traditional medicine compared than seek treatment in health facilities. Treatment in health facilities is only carried out when symptoms worsen and/or if self-medication and traditional medicine do not provide significant changes (Bukan et al., 2020; Fretes et al., 2021; Lay et al., 2020).

One of the causes of this condition is the negative perception in the family of TB sufferers in accordance with the cultural beliefs in the community. Families view TB disease as a disease caused by witchcraft or witchcraft. In addition, the family views TB as a hereditary disease passed down from generation to generation. The belief that connects TB disease with mystical things and genetic inheritance leads families to use traditional medicine (Maneze et al., 2015). This is further supported by the lack of knowledge identified in most articles (Andriani et al., 2020; Bukan et al., 2020; Fretes et al., 2021; Galyubi et al., 2021; Yosephina Elizabeth Sumartini Gunawan, 2019; Lay et al., 2020; Palele et al., 2022; Widiyasari et al., 2020).

In several articles, it was revealed that the community still lacks knowledge about TB, which then leads them to seek inappropriate treatment. The identified lack of knowledge covers several things related to TB disease and the concept of health and illness. This was mainly found in groups of individuals with low levels of education (Andriani et al., 2020; Bukan et al., 2020; Fretes et al., 2021; Galyubi et al., 2021; Lay et al., 2020; Nugroho et al., 2020; Palele et al., 2022). Regarding health illness, people view illness as when the conditions experienced cause them to be powerless to carry out activities. This negative perception underlies the public to prefer to treat their illness at home by buying over-the-counter drugs and waiting for the symptoms to disappear. Negative perceptions impact delaying treatment and negatively impact the continuity of the treatment being carried out (Fretes et al., 2021; Khadka et al., 2022).

2. Family Behavior

Behavior is a series of actions by a person or group responding to a given stimulus. Behavior, in this case, includes knowledge, attitudes, and actions taken by the family to prevent the transmission of TB disease. Knowledge related to TB disease includes the causes, levels of transmission, prevention, seeking treatment, and environmental modifications that support the treatment process and prevent transmission (Bukan et al., 2020).

Meuseburger et al. (2006) revealed that an action could not be carried out without knowledge because an action that is carried out logically implies a relationship to several background representations, usually referred to as knowledge (Meusburger et al., 2006). This knowledge then determines the attitude manifested in action when the individual is faced with a stimulus.

From the results of the analysis of the identified articles, various levels of knowledge were found in the articles analyzed, including poor knowledge (Bukan et al., 2020; Fretes et al., 2021; Galyubi et al., 2021; Palele et al., 2022; Widiyasari et al., 2020) and good knowledge (Andriani et al., 2020; Lay et al., 2020; Nugroho et al., 2020). Lack of knowledge in families, especially regarding symptoms and causes (Bukan et al., 2020; Fretes et al., 2021; Widiyasari et al., 2020), prevention of events, and transmission (Galyubi et al., 2021; Palele et al., 2022). As previously explained, knowledge is the basis for decision making; this is reflected in the analyzed articles where most families with knowledge more or less prefer to self-medicate or not take treatment at all when the symptoms they feel do not interfere with daily activities.

In several articles described, families with less knowledge often use existing cultural beliefs to explain TB disease, which is associated with mystical things (curses caused by ancestral sins, witchcraft, and evil spirits) (Bukan et al., 2020; Fretes et al., 2021; Tenorio et al., 2022). In addition, several other articles on families with less knowledge view TB disease as a hereditary disease based on experiences where most TB disease is experienced by most family members from the same ancestry (Galyubi et al., 2021; Palele et al., 2022).

Cultural values and beliefs are a form of subjective justification from individuals who are members of it based on their habits. This is passed down from generation to generation through daily life practices and teaching (Institute of Medicine, 2004; Sarfo, 2015). Furthermore, A. D. Napier et al. (2014) added that the system of cultural values and beliefs remains independently maintained by individuals and groups. However, there have been frequent changes due to cultural amalgamation due to population movement, technological advances, and the ease of disseminating and accessing information through the media (A. D. Napier et al., 2014).

The belief that the family owns TB disease causes misconceptions regarding the cause of the disease. This belief is then used to determine what treatment will be used medically or non-medically, traditional or self-medicating (Bukan et al., 2020). Most families with less knowledge who use cultural beliefs and view TB as a hereditary disease prefer to self-medicate, use traditional medicine, or with the help of traditional healers. In addition to determining the type of treatment, the lack of knowledge that occurs causes the family to be unable to modify a good environment and support the healing process of TB patients while preventing transmission, such as rarely opening windows of the house, spitting carelessly, not drying bedding, and not reminding patients to take medicine. Consequently, families cannot carry out their duties as supporters of TB patients in carrying out treatment and preventing transmission (Galyubi et al., 2021). Wrong perceptions about TB disease result in the emergence of bad habits in the family about TB

disease (Yosephina E. S. Gunawan, 2015b; Yosephina E. S. Gunawan & Ina, 2017; Yosephina Elizabeth Sumartini Gunawan, 2019; Widiyasari et al., 2020).

Several factors have been identified as the cause of the above conditions. One of the causes found in most articles is the low level of education (Andriani et al., 2020; Bukan et al., 2020; Fretes et al., 2021; Galyubi et al., 2021; Lay et al., 2020; Nugroho et al., 2020; Palele et al., 2022; Widiyasari et al., 2020). The level of education is associated with the ability to digest information, seek, and utilize existing resources to increase knowledge and readiness as a provider of advanced care for patients at home. In addition, several other factors are also associated with this condition, including economic conditions and exposure to information either through health education by health workers or information distributed through print and electronic media (Hossain et al., 2022; Lau et al., 2020).

Conclusion

Based on the discussion of the results of the analysis of 11 articles, it can be concluded that cultural factors and family behavior affect efforts to prevent TB disease transmission. Most families in Nusa Tenggara still have less knowledge about TB, including causes, symptoms, treatment, prevention of incidence, and transmission. The lack of knowledge in this family is related to their low education level, economic status, and exposure to information both through health education and mass media. As a result of this condition, families often use cultural beliefs and customary experiences in the community to explain TB disease experienced by their family members. This factor ultimately causes families to wait until TB sufferers recover on their own, self-medicate, use traditional medicine, seek help from traditional healers, and not practice proper prevention and care for TB patients. The consequences of this are delays in TB treatment, ineffective TB treatment, and inadequate prevention efforts, which are dangerous for sufferers and increase the potential for transmission to other family members. Further research suggests analyzing appropriate health education techniques, especially in families with low levels of education with limited access to information sources.

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Conflict of Interest

There is no conflict of interest in this study.

Table 1.1. Results of Analysis of Family Behavior and Cultural Factors in Prevention of TB Transmission in East Nusa Tenggara Indonesia

No	Title	Research design	Variable	Sampling technique	Population/s ample	Instrument	Analysis	Research place	Results
1	Description of the Behavior of Seeking Treatment for Tuberculosis (TB) in the Community in the Work Area of the Uitao Public Health Center, Semau District, Kupang Regency	Descriptive	Tuberculosis (TB) Treatment Seeking Behavior	Cluster Sampling	209 Respondents	Questionnaire Interview	Univariate Analysis	Uitao Health Center Working Area	Behavior seeking treatment to health facilities was 41.2%, other treatment was 58.8%, good knowledge about TB was 45.6%, poor knowledge was 54.4%, positive attitude towards seeking treatment was 38.2% less, negative attitude 61.8%, good trust 36.8%, bad trust 63.2%.

2	<p><i>Gambaran Tingkat Pengetahuan, Sikap, dan Keterampilan Keluarga Tentang Perawatan Penyakit Tuberkulosis Paru: Studi Deskriptif</i> (An Overview of Knowledge, Attitudes, and Skills Levels of Families About Treatment of Pulmonary Tuberculosis: A Descriptive Study)</p>	Deskriptive	Knowledge, Attitude, and Skills About Tuberculosis Treatment	Random Sampling	80 Respondents	Questionnaire	Univariate Analysis	Talau Islands District Health Center Working Area	Family knowledge is sufficient (50.0%), family attitudes are sufficient (55%) and most family skills are in the sufficient category (62.5%).
3	<p><i>Peran Pendamping Menelan Obat (PMO) dalam Mencegah Penularan TBC Pada Keluarga di Wilayah Kerja Puskesmas Karang Pule</i> (The Role of a Drug Swallowing Facilitator (PMO) in Preventing the Transmission of TB to Families in the Work Area of the Karang Pule Health Center)</p>	Analytical Descriptive	Medication Swallowing Assistance Role	Total Sampling	25 Respondents	Questionnaire Documentation	Univariate Bivariate	Work Area of Karang Pule Health Center	There was no significant relationship between the role of companions in swallowing drugs in preventing tuberculosis transmission in families in PKM Karang Pule (p-Value = 0.142).
4	<p><i>Analisa Peran Pengawas Minum Obat (PMO) dalam Mendampingi Pasien Tuberkulosis di Kota Kupang</i> (Analysis of the Role of Drug Taking Supervisors (PMO) in Assisting Tuberculosis Patients in Kupang City)</p>	Descriptive Qualitative	Medication Swallowing Assistance Role		6 Respondents	Semi-structured interview	Reduction technique with open code application Type 4.03, data display and drawing conclusions	Kupang city	The role of PMO in assisting TB patients with the theory of holistic care by Madeleine Leininger, namely: knowledge of PMO; the role of PMO as a companion for TB patients; the role of PMO in preventing transmission and treatment of TB patients; the role of PMO utilizing of health insurance; the role of PMOs in pursuing alternative medicine; the PMO's role in

									engaging with others to provide support; the role of the PMO in seeking spiritual support; the role of the PMO in finding reliable information sources; the role of health workers in facilitating OAT availability; the role of PMO in utilizing technology.
5	Descriptive Study: Level of Communities Knowledge And Perception About Tuberculosis (TB) in Denpasar, Bali	Cross Sectional	Knowledge and Perception About Tuberculosis	Concecut ive Sampling	100 Respondents	Questionnaire	Quantitative Statistical Software	Denpasar, Bali	Almost 62% of respondent had poor knowledge about TB and 67% respondent had right perception about TB.
6	<i>Pengetahuan dan Sikap Keluarga Dengan Pencegahan Penularan Penyakit Tuberculosis (TBC) di Wilayah Kerja Puskesmas Penana'e Kota Bima</i> (Knowledge and Attitude of Families with Prevention of Tuberculosis (TBC) Transmission in the Work Area of the Penana'e Health Center, Bima City)	Analytical with cross sectional approach	Knowledge, Attitude, and Prevention of TB Transmission	Total sampling	39 Responden	Questionnaire	Univariat Bivariat	The Working Area of the Penana'e Health Center in Bima City	Good family knowledge (76.9%), good transmission prevention (74.3%) with p-value = 0.000 (p <0.05) and r = 0.926. For the results of the analysis of positive family attitudes (92.3%), prevention of transmission is good (74.3%) with p-value = 0.001 (p <0.05) and r = 0.492. Which means Ha is accepted.
7	Stigma and Family Knowledge of Tuberculosis Patients at Naibonat and Oesao Health Center	Descriptive with cross sectional approach	Stigma and Family Knowledge of Tuberculosis	Total sampling	61 Respondents	Questionnaire	Deskriptive	Naibonat and Oesao Health Center	The stigma that occurs in the families of tuberculosis patients is that they still think that tuberculosis is a man-made disease so that if one of the families is sick, they first look for people to pray instead of checking themselves into health facilities such as health centers.

8	<p><i>Upaya Pencegahan Penularan Tuberkulosis Paru di Wilayah Kerja Puskesmas Sidoarjo Lor Kota Salatiga</i></p> <p>(Efforts to Prevent Pulmonary Tuberculosis Transmission in the Work Area of Sidoarjo Lor Health Center Salatiga City)</p>	Descriptive quantitative with a case study approach	Efforts to prevent transmission of pulmonary tuberculosis	Purposive sampling	20 Respondents	Unstructured Questionnaire and Interviews	univariate	Working Area of Sidoarjo Lor Health Center, Salatiga City	Respondents have a good level of knowledge in making efforts to prevent transmission of pulmonary TB
9	Family Efforts to Prevent TB Transmission in East Sumba, Indonesia	Qualitative Study with a phenomenological approach	Family Efforts to Prevent TB Transmission	Purposive sampling	16 Respondents	Interviewed using structured interview guidance.	Nine-step data interpretation method according to Collaizi	East Sumba, Indonesia	A total of 7 themes in a row are as follows: Concept of TB Disease, Maintaining Hygiene, Covering Mouth When Coughing Or Sneezing, Throwing Saliva in Place, Supporting TB Disease Treatment, Improving Nutritional Status and Placing Patients Separately. Although the family does not fully understand the concept of TB disease, various efforts have been made by the family to prevent the transmission of TB such as maintaining cleanliness, reminding patients to take care of themselves
10	The Autonomy of Family in Caring Its Member with TB at Kawangu's Health Center, East Sumba – An Ethnography Research	Qualitative with ethnographic approach	Family perception, family support, family abilities, socio-cultural values in the family, and family independence	Purposive sampling	21 Participants, namely 7 families of TB patients, 8 other informants (doctors, nurses, and the person in	Indepth interview, Focus Group Discussion field note and observation	Content analysis	Kawangu's Health Center, East Sumba – An Ethnography Research	7 themes such as frame of reference, frame of experience, source of support, kinds of support, stressor, coping mechanism and stigma.

					charge of the TB program)				
11	<p><i>Pengalaman Keluarga Dalam Melakukan Pencegahan Penularan TB di Kelurahan Matawai Wilayah Kerja Puskesmas Waingapu Kabupaten Sumba Timur</i></p> <p>(Family Experience in Preventing TB Transmission in Matawai Village, Waingapu Health Center Work Area, East Sumba Regency)</p>	Qualitative with a phenomenological approach	Family Experience in Preventing TB Transmission	Purposive sampling	5 Families of TB patients who are undergoing treatment	Interview Guide, Field Notes and Recorders	Content analysis	Matawai Village Working Area of Waingapu Health Center, East Sumba Regency	Three themes were found, namely the feelings of family members caring for/preventing TB transmission, the role of family members in caring for TB patients and family barriers in preventing TB transmission.

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