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Home contact support in prevention of transmission of tuberculosis in west Lombok based on the theory of the health belief model

Apoyo del hogar en la prevención de la transmisión de la tuberculosis en el oeste de Lombok basado en la teoría del modelo de creencias sobre la salud

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SUMMARY

Introduction: *The high incidence of infectious Tuberculosis in the community is closely related to family and community participation. Prevention of transmission is an essential factor in controlling the spread of Tuberculosis. The purpose of this study was to find out the knowledge of household contacts in preventing tuberculosis transmission in West Lombok.*
Methods: *This type of research is descriptive exploratory with a cross-sectional study design and sampling technique using purposive sampling. Data collection was carried out from July to September 2019 with 165 respondents. Data analysis was carried out descriptively using licensed SPSS software to identify respondents' knowledge and prevention efforts.*
Results: *The research found that most of the support for household contacts in the prevention of transmission of Tuberculosis among respondents was 48.96 % with well-perceived susceptibility, 55.86 % with well-perceived seriousness, 57.59 % with good perceived benefits, 54.83 % with well-perceived barriers, 55.52 % with good cues to action.*
Conclusion: *It is necessary to increase the knowledge of family members about the prevention of Tuberculosis and implement a healthy lifestyle. Home contact support is needed to prevent the transmission of Tuberculosis based on the theory of health belief model.*

Keywords: *Home contact, knowledge, prevention, tuberculosis*

RESUMEN

Introducción: *La alta incidencia de la tuberculosis infecciosa en la comunidad está íntimamente relacionada con la participación familiar y comunitaria. La prevención de la transmisión es un factor esencial para controlar la propagación de la tuberculosis. El propósito de este estudio fue evaluar*

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el conocimiento de los contactos domésticos en la prevención de la transmisión de la tuberculosis en West Lombok.
Métodos: *Este tipo de investigación es de tipo exploratorio descriptivo con un diseño de estudio transversal y técnica de muestreo mediante muestreo intencional. La recolección de datos se llevó a cabo de julio a septiembre de 2019 con 165 encuestados. El análisis de datos se llevó a cabo de forma descriptiva utilizando el software SPSS con licencia para identificar el conocimiento y los esfuerzos de prevención de los encuestados.*
Resultados: *La investigación encontró que la mayor parte del apoyo a los contactos domiciliarios en la prevención de la transmisión de la Tuberculosis entre los encuestados fue 48,96 % con buena susceptibilidad percibida, 55,86 % con buena seriedad percibida, 57,59 % con buenos beneficios percibidos, 54,83 % con buenas barreras percibidas, 55,52 % con buenas señales de acción.*
Conclusión: *Es necesario incrementar el conocimiento de los familiares sobre la prevención de la Tuberculosis e implementar un estilo de vida saludable. Se necesita apoyo de contacto domiciliario para prevenir la transmisión de la tuberculosis según el modelo de creencias de la teoría de la salud.*

Palabras clave: *Contacto domiciliario, conocimiento, prevención, tuberculosis*

INTRODUCTION

Tuberculosis (TB) is a lung infection caused by the bacteria of mycobacterium tuberculosis. Tuberculosis is the leading cause of death due to infection (1). The prevalence of TB in the world in 2004 was 8.9 million, and in 2009 there were 9.4 million new cases due to TB (2-4). In 2018, Indonesia was one of the countries that accounted for 66 % of new TB cases, apart from India and China (5,6). Based on the results of basic health research in 2018, the prevalence of TB in West Nusa Tenggara Province is 0.32 %, with the proportion of patients who consume routine drugs in NTB Province at 54.9 % (7), while according to data from the Gunungsari Health Center, West Lombok, there were 58 tuberculosis patients in 2019 (8).

The main source of transmission is coughing or sneezing from smear-positive TB patients, where the patient spreads germs into the air in the form of droplet nuclei, as well as environmental factors related to the concentration of germs in the air such as ventilation, ultraviolet light and air filtering (9-12). Therefore, the house contact is the best person, being close to TB sufferers, to support the prevention of TB disease transmission. The results of previous studies show the incidence of TB in families who are known to have close contact with TB patients. However, apart from being the individual most at risk for TB, the family also has an important role in curing TB sufferers. The role of household contacts is shown in preventing TB transmission, including the supervision of taking medication, which this program is considered effective in curing TB sufferers (13-16).

The global TB report on prevention of transmission by involving the community is critical so that the targets set in the final TB strategy include a 90 % reduction in TB deaths and an 80 % reduction in TB incidence (new cases per year) by 2030 (17). Therefore, prevention of disease transmission by household contacts is essential in controlling TB disease transmission in the family and the community. Home contact support in preventing tuberculosis transmission is closely related to behaviour. The Health Belief Model (HBM) theory can be used to identify transmission prevention efforts carried out by household contacts of TB sufferers, given that the household contact is the closest community in efforts to control TB disease transmission. HBM theory explains why individuals take preventive measures based on individual perceptions of the disease they suffer. Based on the theory, the individual will feel threatened by the symptoms of the disease, so the individual will be quicker to seek help.

The amount of threat felt by the individual to the symptoms of the disease that occurs depends on the following factors: first, perceived susceptibility, that is, the individual feels at risk of disease, so the individual will perceive it as a threat and will take treatment action. Second, the perceived seriousness is how bad the individual perceives the consequences to be if they do not take treatment action. Third, perceived benefits, where individuals assess the benefits obtained if individuals take treatment. The fourth is perceived barriers, where the individual will assess himself whether taking medication causes unpleasant side effects, high costs, and whether it is difficult to obtain them. Next are cues to action,

which is a signal to take medical or preventive action (18,19).

The purpose of this study is to determine support for household contacts in the prevention of transmission of Tuberculosis through the HBM theory approach in West Lombok regencies.

METHODS

The type of research used was descriptive exploratory, which was to describe a situation or phenomenon, with a cross-sectional study design, which was a way of collecting data through questionnaires and measuring variables of age, ethnicity, latest education, occupation, type of family, perceived susceptibility, perceived severity, perceived benefits, perceived barriers and cues to action are carried out on one occasion. Therefore, each research object is observed only once. The population in this study were all household contacts of tuberculosis patients who were in West Lombok in 2019, as many as 290 people. The sampling technique used a non-probability sample with a purposive sampling method with the criterion for inclusion of household contacts for tuberculosis patients aged 18 years and over. Furthermore, this research has been approved by the Research Ethics Committee of Stikes Yarsi Mataram, West Nusa Tenggara, with Ethics Permit No: 7/KEP/STIKES/Y.III/VI/2019. The data collection tool for this study used a questionnaire that included statements about perceived susceptibility, perceived severity, perceived benefits, perceived barriers, and cues to action regarding household contact support in preventing tuberculosis transmission. This questionnaire was adapted from previous standardized research. Questions about perceived susceptibility, perceived seriousness, perceived benefits, perceived barriers, and cues to action are each 10 statement items with alternative answers choosing answers using a 4-point Likert scale, namely strongly agree (score 4), agree (score 3), disagree (score 2) and strongly disagree (score 1). Furthermore, it is categorized as good if the score is 10-20, sufficient if the score is 20-30, and less if the score is 30-40. Data analysis was done descriptively by using licensed SPSS software.

RESULTS

Demographic data measured in this study include age, ethnicity, latest education, occupation, and type of family. The frequency distribution can be seen in Table 1 below:

Table 1

Demographic Frequency Distribution of Household Contacts of Tuberculosis Patients

Demographic Data	Frequency	Percentage
Age		
Young Adults	92	31.72
Middle Adult	156	53.79
Advanced Adults	42	14.49
Last education		
Low	112	38.62
Intermediate	173	59.65
High	5	1.73
Occupation		
Unemployed	20	6.89
Farm workers	172	59.31
Traders	56	19.31
Driver	9	3.10
Indonesian workers	1	0.34
Army/Police	1	0.34
Teachers / Educators	21	7.24
Tribes		
Sasak	281	96.89
Non-sasak	9	3.11
Family Type		
Nuclear family	180	62.06
Extended family	76	26.20
Single parent family	17	5.86
Single adult	17	5.86

Source: Primary Data (Processed 2019)

Table 1 shows that the highest age is in the middle adult age group (41-60 years) 156 people (53.79 %), the highest last education is secondary education as many as 173 people (59.65 %), the highest frequency of work is farm labour as many as 172 people (59.31 %), the biggest ethnic groups are Sasak as many as 281 people (96.89 %) and the largest type of family is nuclear family as many as 180 people (62.06 %).

Home contact support in the prevention of tuberculosis transmission was measured according to the mean value of each HBM variable. Each respondent was categorized as doing prevention of transmission and not taking prevention. The results of each variable in the questionnaire are as follows. In Table 2 can be seen that, of the 290 respondents, it was found that 142 respondents (48.98 %) supported the prevention of tuberculosis transmission. Meanwhile, 30 (10.34 %) did not provide support for the prevention of tuberculosis transmission.

Table 2

Frequency Distribution of Home Contact Support in The Prevention of Tuberculosis Transmission in West Lombok in 2019 (n = 290)

Variables	Frequency	Percentage
Prevention		
Good	142	48.96
Enough	118	40.68
Less	30	10.34
Perceived Susceptibility		
Good	162	55.86
Enough	114	39.31
Less	14	4.83
Perceived Seriousness		
Good	167	57.59
Enough	113	38.97
Less	10	3.45
Perceived Benefits		
Good	159	54.83
Enough	116	40.00
Less	15	5.17
Perceived Barriers		
Good	161	55.52
Enough	112	38.62
Less	17	5.86
Cues to Action		
Good	160	55.17
Enough	111	38.28
Less	19	6.55
Total	290	100.0

Source: Primary Data (Processed 2019)

Home contact support in preventing tuberculosis transmission in terms of perceived susceptibility found most of them in the good category to prevent transmission (55.86 %). For support for household contacts in preventing tuberculosis transmission in terms of perceived seriousness, most of the patients in West Lombok were in a good category (57.59 %). Home contact support in preventing tuberculosis transmission in terms of perceived benefits had the majority in the good category to support transmission prevention (54.83 %). In-home contact support in preventing tuberculosis transmission in terms of perceived barriers, most were in a good category to support transmission prevention (55.52 %). Finally, home contact support in preventing tuberculosis transmission in terms of cues to action found most the good category to support infection prevention (55.17 %).

DISCUSSION

Most of the respondents are in a good category, namely 55.86 %. This means that more than half of the respondents have a good perception of the susceptibility of the disease, thereby increasing their efforts to prevent tuberculosis transmission. Research conducted in Iran on self-efficacy education based on the Health Belief Model (HBM) in patients with type-2 diabetes found that, through tailored self-efficacy education, the quality of life and metabolic profile of diabetic patients can be improved (20). Individual perceptions in the behaviour of taking health measures are strongly influenced by perceived susceptibility. It appears to be the most significant factor in determining adherence (21,22). It was conveyed that the vulnerability felt by each individual in feeling how likely the tuberculosis disease they suffered would infect other people would affect their actions to prevent transmission so that, if the individual did not feel that Tuberculosis is a risk and a threat to him, so the individual will not seek treatment and take prevention. Regarding respondents in providing support for the prevention of tuberculosis transmission based on their perceived vulnerability, some of the actions are by recommending expelling phlegm in the bathroom toilet, always drying the mattress and opening the window every morning and knowing how to cough effectively. Most of the respondents know how to cough effectively, so

if they come across someone with a cough, they always recommend covering it with a sleeve or with a handkerchief. Doing the correct cough is the most effective way to reduce tuberculosis transmission to other people because respondents felt that the transmission of Tuberculosis could be prevented by being able to cough effectively in the family and the community. Therefore, respondents' perceived susceptibility perceptions affect the respondent's actions to support the prevention of tuberculosis transmission.

Home contact support in preventing tuberculosis transmission in terms of perceived seriousness in most respondents was in the good category with 57.59 %. This means that more than half of the respondents have a good perception of the severity of Tuberculosis. A study conducted on high school students in Shanghai, China, through community-based school health education had the greatest impact on perceived seriousness related to injuries among high school students after the intervention (23). Respondents, who were mostly men and young adults, felt that healing and reducing the transmission of family members are their concerns. Based on HBM theory, a systematic review was conducted to identify study interventions that used HBM as the theoretical basis for the intervention design. Out of 18 eligible studies, 14 (78 %) reported a significant increase in adherence (24).

According to the study results, most of the respondents were in a good category, namely 54.83 % support for household contacts in preventing tuberculosis transmission in terms of perceived benefits. These results indicate that more than half of the respondents have a good perception of the benefits they offer in supporting the prevention of tuberculosis transmission, affecting respondents in receiving and taking preventive measures. Officers who have run the TB program in West Lombok for more than five years can provide information to respondents about the impact of transmission on the family, leading respondents to be increasingly aware of the importance of supporting transmission prevention programs in the family and the community. The ability of officers to increase respondents' knowledge is following a study that found that officers still of productive age will always carry out promotions in the community (25). From the description above, it can be concluded that the perception of perceived benefits in preventing tuberculosis recurrence is one factor that can influence respondents to prevent tuberculosis transmission. Conversely, the low perception of perceived benefits can also be an inhibiting factor in choosing preventive measures.

Support for household contacts in preventing tuberculosis transmission in terms of perceived barriers in most respondents was in a good category, namely 55.52 %. This means that more than half of the respondents have a good perception of the obstacles in supporting the prevention of tuberculosis transmission, thus motivating individuals to prevent transmission in the family environment and the community. The HBM theory states that a high perception of perceived barriers to taking preventive action can significantly affect the low willingness of individuals to take such measures. This is because several studies have shown that the extent of perceived barriers significantly impacts the HBM dimension in explaining or predicting a lack of health-maintaining behaviour. Based on the description above, it can be concluded that the higher the perception of perceived barriers, the less likely the individual is to take action to prevent tuberculosis recurrence. Conversely, if individuals have a low perception of perceived barriers, the individual is more likely to take prevention.

In-home contact support in preventing tuberculosis transmission in terms of cues to action, most respondents were in a good category, 55.17 %. This means that more than half of the respondents have good signals regarding support for preventing tuberculosis transmission. Cues to action are stimuli that motivate individuals to take action following health behaviours (26). Cues to action are triggering factors in deciding whether to accept or reject alternative preventive measures. These cues can be internal, namely, from within the individual, for example, the symptoms that are felt, and externally from interpersonal interactions such as mass media, messages, advice, suggestions, or consultations with health workers. To get the correct level of acceptance regarding the vulnerability, gravity, and benefits of action, signals in the form of external factors are needed. The encouragement that comes continuously from the people concerned will likely have a big influence in deciding to take

measures to prevent tuberculosis transmission. External factors influencing respondents in initiating transmission prevention measures consist of suggestions from health workers, family recommendations, and information from the mass media. These factors influence respondents' perceptions of the importance of preventing tuberculosis transmission through consideration of the susceptibility and severity of Tuberculosis and the benefits and threats that arise if prevention is not carried out. Furthermore, the existing external factors are influenced by education, marital status, and knowledge. This refers to a person's perception as influenced by the frame of reference, which is the framework of knowledge obtained from education, observation, or reading and is also influenced by the information or stimulation that is first obtained.

CONCLUSION

Home contact support in preventing tuberculosis transmission in terms of perceived susceptibility is mostly in the good category. Regarding perceived seriousness, most are in a good category, the same for perceived benefits, perceived barriers, and cues to action. In relation to this research, the writer recommends that public health centers in West Lombok, especially health workers, be able to fully involve the role of religious leaders, community leaders, and groups in the community in providing education about the prevention of tuberculosis transmission.

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