

IJMTER_healthy_housing.pdf

by

Submission date: 19-Nov-2021 10:30AM (UTC+0700)

Submission ID: 1707241130

File name: IJMTER_healthy_housing.pdf (327.19K)

Word count: 5789

Character count: 30845

THE IMPLEMENTATION OF HEALTHY HOUSING DEVELOPMENT PROGRAMS FOR THE ACCELERATION OF CHILDREN'S TUBERCULOSIS HEALTH STATUS

Syamsul Arifin ¹, Lenie Marlinae ², Husaini ³, Laily Khairiyati ⁴, Agung Waskito ⁵, Tien Zubaedah ⁶, Sherly Theana ⁷, Maman Saputra ⁸

¹Department of Health Policy Administration, Public Health Study Program, Faculty of Medicine, ⁴Lambung Mangkurat University

^{2,4,5}Department of Environmental Health, Public Health Study Program, Faculty of Medicine, Lambung ⁴Mangkurat University

³Department of Occupational Health, Public Health Study Program, Faculty of Medicine, Lambung Mangkurat University

⁶Environmental Health Study Program, Banjarmasin Health Polytechnic, Ministry of Health

⁷Students of the Public Health Study Program, Faculty of Medicine, Lambung Mangkurat University

⁸Master Program in Public Health, Faculty of Medicine, Lambung Mangkurat University

⁵**Abstract** - Tuberculosis in the world continues to increase, especially countries that are grouped in 22 countries with big tuberculosis problem ⁵(high burden counts). Indonesia was ranked 4th after India. The prevalence of TB in children in Indonesia in 2011 was reported at 8.8% of the total TB cases and 2-16% at the provincial level. Data on TB of children in South Kalimantan Province from 2009-2011 found as many as 28 cases with BTA+ at age 0-14 years. In 2014 and 2015, the proportion of TB on children found in Banjarbaru City was 10.84% and 8.5% compared to all TB patients and dropped to 1,455 (0.13%). Risk factors closely related to ⁴the incidence of TB were population factors which include sources of transmission, contact history of the patient, socioeconomic level, level of exposure, virulence of bacilli, low endurance related to genetics, nutritional conditions, physiology, age, nutrition, immunization, and environmental factors including physical ⁴environment housing (temperature, ventilation, lighting, humidity, density of occupants and the environment around the house) and work. The Healthy House Development Program is a program to improve the health status of children with TB. This program is to reduce the number of TB in children. Result of this research were knowledge ²on the elderly increased with the difference that p-value = 0.033. Attitude variable statistical ⁶test p-value = 0.027, which means there is a difference in ²attitude between the average pre-test and post-test. Family support in the case group with p-value = 0.023, which means there is an average difference between family support before and after the intervention. Health workers' support provided by health workers is not significantly different. There are still many housing sanitation conditions that have not yet fulfilled the requirements, so it has been improved in the activities of building a healthy house to accelerate the health status of children with TB.

Keywords – healthy house development, knowledge, attitude, family support

I. INTRODUCTION

⁵Tuberculosis (TB) in the world continues to increase, especially countries that are grouped in 22 countries with large problems of TB (high burden countries) so that in 1993 WHO declared TB as one of the world's emergencies (global emergency) and as an emerging disease. Indonesia ranks 4th after India (2.0-2.5 million), China (0.9-1.1 million), South Africa (0.40-0.6 million) and Indonesia 0.4-0.5 million cases, 155-222 cases/10,000 population/year. The prevalence of TB in children aged less than 15 years from the national survey of England and Wales in 1983 was 452 cases, in America based on an 11-year survey (1983-1993), 171 cases of children with TB were obtained. Children with TB were 15% of all TB cases, whereas in developed countries, it is 5-7%. The prevalence of TB in children in Indonesia in 2011 was reported at 8.8% of the total TB cases and 2-16% at the provincial level [1].

³The discovery of cases of TB in children in Indonesia still has not received adequate attention. This is reflected in the surveillance system that has not been able to get data on actual pediatric TB, because not all cases treated are recorded in the Health Department and the quality of the diagnosis is still in doubt. The TB rate for children is 8.8% out of 3,153 cases, the incidence of children with TB in South Kalimantan Province is 241 cases/year. Data on South Kalimantan Province from 2009-2011 found as many as 28 cases with BTA+ age 0-14 years. In 2014 and 2015, the proportion of children with TB found in Banjarbaru City was 10.84% and 8.5% compared to all TB patients. From the survey results in Banjarmasin City (neighboring Banjarbaru City), only 28.6% reported TB cases handled by TB program managers at the Health Office [2, 3].

According to the Head of Environmental Sanitation and Infection Disease Management of the Banjarbaru City Health Office (2015), the tuberculosis incidence in the Banjarbaru City area is like an iceberg phenomenon because the number of cases that appear from the surface is not much, but the possibility of the number of cases that occur therein is greater. This is because the community does not know that they have Tuberculosis or because tuberculosis in children is difficult to detect, so the Public Health Center does not have complete data on tuberculosis cases, including in the working area of Banjarbaru City.

Risk factors that are closely related to the incidence of TB are population factors which include sources of transmission, patient contact history, socioeconomic level, exposure level, bacilli virulence, low body resistance related to genetics, nutritional status, physiology, age, nutrition, immunization, and environmental factors which include the state of the physical environment of housing (temperature, ventilation, lighting, humidity, density of occupants and the environment around the house) and work [4].

Healthy House Development Program is a program to improve the health status of children with TB and reduce the number of children with TB. A healthy house is a residential building that meets health requirements, that is a house that has a healthy sanitation, clean water facilities, landfills, waste water disposal facilities, good ventilation, suitable residential density and a house floor that is not made of soil [1,5].

³Muhyi et al's research results (2017), there is a relationship between house density and the incidence of pulmonary TB in children (p-value = 0.006) There is a significant influence between the floor area of the house and the incidence of pulmonary TB in children (sig. 0.37). There is a significant influence between the density of house occupants and the incidence of pulmonary TB in children (sig. 0.37) [6].

II. METHOD OF IMPLEMENTATION

Implementation of a healthy house development program to accelerate the health status of TB children. It can not be separated from the participation of the community. In implementing this program the community has the role of implementing the program that has been implemented. Aside from being the implementer, the community also acts as the main target in the use of the results of the programs that have been carried out. In general, the methods for implementing this community service program are as follows:

2.1 Preparation

The strategy used in this program is the community approach to ABG (Advocacy, Community Development, and Community Movement). First of all, advocacy is carried out to educational institutions, and the local village government. Advocacy is continued to the village heads to support this program so that it can run according to goals, objectives and plans. Community development is carried out with the community and with the support of relevant agency officials to encourage the community to build their houses.

2.2 Implementation

The implementation of this activity is

- a. Finding children with TB (+) premises n way Diagnosis of TB disease in children can be made from the history, physical examination, laboratory, bacteriological examination and other investigations.
- b. Approach and promote health to parents of children with positive TB to support and supervise the consumption of Anti Tuberculosis Drugs (OAT) completely and regularly in children until recovery.
- c. Health workers carry out health promotion for parents of children with positive TB regarding environmental factors that can worsen the health status of positive TB children. Conducting healthy house development to accelerate the health status of TB children. Healthy house development must pay attention to the requirements of the healthy house itself. According to the American Public Health Association (APHA) a house is said to be healthy if: (1) Fulfills basic physical needs such as lower temperatures than outside air, adequate lighting, comfortable ventilation, and noise from 45-55 dB.A .; (2) Meeting psychiatric needs; (3) Protect its inhabitants from transmitting infectious diseases that is having clean water supply, waste disposal facilities and sanitary sewerage channels and fulfilling health requirements; and (4) Protecting the occupants from possible accidents and fire hazards, such as sturdy house foundations, steep stairs, fire hazards due to short electrical current, poisoning, even from the threat of traffic accidents (Sanropie, 1992; Azwar, 1996)
- d. The components that must be owned by a healthy house (DG PPM, 2002) are: (1) A strong foundation to carry the burden of the building to the subgrade, provide stability to the building, and constitute a connecting construction between bagunan and soil; (2) The floor is waterproof and not damp, the minimum height is 10 cm from the yard and 25 cm from the road body, waterproof material, for stilt houses can be made of planks or woven bamboo; (3) Has windows and doors that function as ventilation and entry of sunlight with a minimum area of 10% floor area; (4) Waterproof walls of houses that support or support the roof, hold wind and rain, protect from heat and dust from the outside, and maintain the privacy of its inhabitants; (5) ceilings to resist and absorb heat

from the sun, a minimum of 2.4 m from the floor, can be made of planks, woven bamboo, plywood or gypsum; and (6) The roof of the house which functions as a barrier to the sun's heat and protects the entry of dust, wind and rain water.

- e. After the family's awareness was awakened, local health policy makers advocated the village government to build healthy houses according to health standards for children with positive TB who were less able.

2.3. Evaluation

Assessment of the success of this program can be seen from the short-term and long-term evaluations. Short-term evaluation is assessed to determine community knowledge about the management of healthy house, the importance of managing house hygiene by using a pretest and posttest questionnaire which is then compared to the results. Long-term evaluation is carried out to see changes in community behavior to manage healthy houses and community participation in the healthy house development program.

III. RESULTS AND OUTSIDE

The activities were providing counseling related to the healthy house development program to accelerate the health status of TB on children through increased knowledge, attitudes, and behavior of parents of children with positive TB and environmental development efforts from health workers in the family environment to children with positive TB so that the increase in the number of healthy houses could increase. Following are the results of community service activities based on aspects of knowledge, attitudes, support of health workers, family support, and house sanitation environment:

3.1 Knowledge

Based on primary data collection conducted on 30 respondents obtained the knowledge of respondents as in the following table:

Table 1. Respondent's Knowledge Before and After Intervention

Knowledge	Mean	p-value
Pre test	16.91	0.033
Post test	18.55	

Source: Primary Data

Based on the table above, the statistical test results obtained from the knowledge variable in parents an increase that is with a different p-value = 0.033. Increased knowledge in 11 cases is that when the pre-test did not know the signs and symptoms of tuberculosis in children such as fever, cough and weight loss or difficulty rising, and sputum removal behavior. But in the post test everything can be answered properly.

Knowledge is the result of knowing and occurs after someone senses a certain object. Sensing occurs through the five human senses, namely the sense of sight, hearing, smell, taste, and touch. Most of the knowledge is obtained through the eyes and ears. Knowledge or cognitive is a very important domain in shaping one's behavior. Based on experience and research it is proven that behavior based on knowledge will last longer than behavior that is not based on knowledge. Many ways you can do to increase the level of knowledge of one's

health. One of the methods used to increase the level of one's health knowledge is health education. One method of health promotion carried out is health education [7].

Knowledge is considered very important for the success of TB treatment because patients will get information about the mode of transmission, stages of treatment, treatment goals, drug side effects, and complications of the disease. The knowledge possessed by a person can influence attitudes, plans, and decisions that will be taken [8].

Parents who have good knowledge about their health will influence their behavior to live healthy. Parents who do not have good knowledge about TB, then do not directly have consideration in determining attitudes and behavior in preventing TB transmission [9].

Mother's knowledge is one of the factors associated with the incidence of pulmonary TB in children. Mothers who have less knowledge about pulmonary TB are at greater risk of developing pulmonary TB in children aged 1-12 years. The results of this study are in accordance with the theory which states that health education or education can increase one's knowledge in the behavior of PHBS and know the signs and symptoms of TB in children [10].

3.2 Attitude

Based on primary data collection conducted on 30 respondents obtained the attitude of respondents as in the following table:

Table 2. Respondents' Attitudes Before and After Intervention

Attitude	Mean	p-value
Pre test	49.45	0.027
Post test	53.00	

Source: Primary Data

Based on the table above, the statistical test results obtained attitude variable p-value 0.027 which means there is a difference in the average attitude between pre-test and post-test. Attitudes unknown to the respondents are related to the attitudes of fulfilling their own eating utensils, and ethics of speaking but after the post-test there was an increase.

Attitude is a response that appears when someone is confronted with a stimulus that requires an individual response. The response expressed as an attitude is based on the existence of an evaluation process in a person that gives a conclusion of the value of the stimulus in the form of good or bad, positive or negative, pleasant or unpleasant. Attitude as a form of evaluation or feeling reaction. Attitude statements or attitude statements are a series of sentences that state something you want to express, sentences can support or favor the object of attitude or favorability and do not support or unfavorable [10].

Attitude plays a role in determining behavior and decisions taken by someone in the process of healing the disease. The positive attitude possessed by a person towards his illness will lead to positive health seeking behavior, so that the presence of a positive attitude will further encourage a person in his efforts to complete treatment [8].

The results showed that health education was proven to be able to improve one's attitude about children's pulmonary TB towards more specifically in their clean and healthy behaviors. Attitudes can be influenced by one's education. The higher the education of parents, the easier it will be to understand health [4].

3.3 Family Support

Based on primary data collection conducted on 30 respondents obtained the family support as in the following table:

Table 3. Family Support Before and After Intervention

Family support	Mean	p-value
Pre-test	93.63	0.023
Post-test	97.27	

Source: Primary Data

Based on the table above, the statistical test results obtained family support variables in the case group with $p\text{-value} = 0.023$ which means there is a difference in the average family support between before the intervention and after the intervention.

Based on the table above, it can be seen that the support that has not been done is related to the family telling about how to prevent transmission of TB, the family does not allow the use of PPE that is a mask, the family does not want to eat together with TB sufferers, the family does not allow sufferers to socialize with friends their age. But in terms of environmental health and how family support in improving the health of their houses by opening windows every day, cleaning the house from dust, wearing masks and not throwing out phlegm carelessly, healthy food and nutrition, and doing environmental cleaning is good and done to improve TB child health. Mycobacterium tuberculosis is found in respondents' houses of pulmonary tuberculosis (TB) due to coughing, sneezing or talking, spitting saliva or sputum that comes out of the mouth of patients with pulmonary tuberculosis (TB) spreading into the air [4].

Family support is very important because it can play a role in healing children and reducing the rate of TB. The family support received by TB sufferers is influenced by their assessment of the family's role in encouraging healing, even as a Drugs Drinking Supervisor (PMO) to supervise healthy houses and sanitation facilities at house. Perception of the role of the family as PMO is the perspective and assessment of TB sufferers towards interactions with the family, namely in the form of information, attention, encouragement, and assistance from PMO so that it will bring up the quality of relationships that can affect the patient's recovery [11].

The form of family support that can be done in the process of preventing transmission is to always remind patients to wear masks, provide a private bed, become a PMO, not borrow each other's toiletries and do not use eating utensils together. Support from a good and positive family is to participate full of the treatment process where prevention of transmission is included, such things as: regulating a healthy diet, adequate rest, personal and environmental hygiene, taking drugs and accompanying family [12].

Family support influences health and good behavior. Family support is part of social support. Functionally, support includes emotional support by encouraging the expression of feelings, giving advice or information, and providing material assistance. With the support of a good family, TB sufferers will be more motivated to adhere to medical treatment regularly and behave well. This is supported by Wahyuni's research (2008), which explains that there is a significant influence or relationship between the level of education and behavioral prevention of pulmonary TB disease transmission [13].

3.4 Health Officer Support

Support Health workers provided health workers for patients with pulmonary TB only regarding matters relating to healing after exposure to pulmonary TB disease, but matters or information about knowledge of pulmonary TB disease are not well conveyed. Preventive and

promotive efforts in dealing with the spread of a disease is an absolute effort to do. Knowledge about a disease and how to sanitize a house and its environment, in this case especially pulmonary TB must be clearly conveyed to respondents and the wider community [12,13].

Based on the above table, is that the support of officers to the community. Support of health workers is a support system for TB sufferers by providing assistance in the form of information or advice, tangible assistance or actions that are emotionally beneficial or affect the recipient's behavior. Health workers can play a role in monitoring their health status and sanitation conditions. In addition, health workers must always carry out checks and actively ask for patient complaints when they come to health services to take medicines and provide information related to how the house sanitation and environmental conditions. Health workers must also provide a motivational boost to TB sufferers to seek treatment regularly and improve their sanitary conditions such as ventilation area, occupancy density [13].

Based on observations of the occupancy density of patients with positive smear TB and smear negative TB have fulfilled the minimum adequacy area, which is between 7.2 m²/person - 12 m²/person in accordance with the State Minister of Public Housing Regulation Number 22 Year 2008. Andani (2006), explains that occupant density is not a risk factor for pulmonary TB. There is 1 (12.5%) positive ventilation area of patients with smear positive TB that has not met the requirements for a healthy house and negative smear TB has fulfilled the requirement for a healthy house, which is at least 10% of the floor area. Most of the TB ventilation area has fulfilled the requirements of a healthy house [14].

This study is in line with Ayomi's research (2012) which explains that the area of ventilation of houses that meet the requirements of > 10% floor area, is not a risk factor for the incidence of pulmonary tuberculosis, but it becomes a protective factor against the incidence of pulmonary tuberculosis. According to research by Paul et al (2015), 99% of respondents have heard about TB and know that TB is a contagious disease. The majority of respondents knew that TB could be transmitted during treatment and some stated that malnutrition, an unhealthy environment and unconsciousness were risk factors for TB. The analysis results obtained OR value = 2.667, 95% CI = 0.212-33.448, it means that the physical condition of the house that is not eligible has a risk for the occurrence of pulmonary TB 3 times greater than the physical condition of the house that meets the requirements [15].

Health worker support is another factor that influences patient compliance behavior in treatment and improves the sanitary conditions of the house and the environment of the house. Support of health workers is useful when patients do treatment. Health worker performance element has an influence on the quality of health services, including health care to TB patients, either directly or indirectly affect patient compliance in the treatment and compliance in improving sanitary conditions and environmental houses. In the supervision of treatment, health workers must include the family as a treatment supervisor so that patients can be treated continuously [13, 16].

3.5 Housing Sanitation Conditions

3.5.1 Temperature

The results of temperature measurements on the respondents still obtained temperatures that are not appropriate, namely between 31-35°C. Even though by heating at 60°C for 15-20 minutes the bacteria will die. Bacteria in dried sputum which is attached to dust can survive longer, namely for 8-10 days. Likewise, tuberculosis bacteria can be killed in 20 minutes at 60°C and can be turned off in 5 minutes at 70°C. This is consistent with the research conducted by

Mudiyono in 2015 in Yani et al. (2018), room temperature that does not qualify has a risk of 2 times the occurrence of pulmonary TB compared with room temperature that meets the requirements [17].

Based on these activities, it is known that the tendency of temperature does not meet more terms at house of pulmonary tuberculosis patients. This happens because the ambient temperature is affected by the weather at the time of measurement. According to Gould and Brooker (2003), there is a temperature range favored by the Mycobacterium tuberculosis bacteria. Mycobacterium tuberculosis is a mesophylic bacterium that grows rapidly in the range of 25-40 ° C, but the bacteria will grow optimally at a temperature of 31-37°C [14, 17].

3.5.2 Humidity

The results of the measurement of humidity on the respondents have met the humidity requirements that are between 44-56 when the conditions are 40-70. The results of the analysis found that humidity that does not meet the requirements. It has a risk for pulmonary TB 6 times greater than the humidity that meets the requirements. Humidity is a risk factor for the occurrence of pulmonary tuberculosis due to lack of sunlight entering the house will create a dark and humid atmosphere so that germs including pulmonary TB bacteria can hold up for days to months in the house. This study is in line with research conducted by Anggraeni et al (2015), found that people who live in houses with humidity that do not meet health requirements have a 6 times greater risk of developing pulmonary TB compared to people who live in houses with humidity that meet health requirements [18].

3.6 Ventilation

Research conducted by Izzati et al (2015) found that the ventilation of houses that did not meet the requirement has 1.8 times more likely to suffer from pulmonary TB compared with those who have ventilated houses. Another study conducted by Anggraeni et al in 2018 found that someone who lives in a house with ventilation area that does not meet the risk requirements is 15 times greater than someone who lives in a house with ventilation area that meets health requirements [5].

In this study, it is unknown the risk of ventilation that is not eligible to suffer from pulmonary TB, but ventilation still plays a role in the transmission of pulmonary TB disease. Ventilation of houses that meet the requirements based on the Decree of the Minister of Health of the Republic of Indonesia Number 829/MENKES/KES/SK/VII/1999, namely permanent ventilation area >10% floor area. When people with smear positive TB cough or sneeze, then in the form of sputum bacteria spread into the surrounding air. One cough can produce about 3000 sputum splashes. Therefore, it is highly recommended that coughing or sneezing should be covered with tissue, handkerchiefs or hands [5, 18].

3.7 Occupancy density

Respondent which has a population density houses that do not qualify have 1.6 times greater risk of suffering from pulmonary tuberculosis than those who have a density. Although it can not be calculated the risk that residential density is not eligible to the occurrence of pulmonary tuberculosis, but the result showed that respondents with pulmonary TB tend to have occupancy densities that do not meet the requirements [5].

Factors that can affect residential density are the area of the house and the number of residents. Based on the Decree of the Minister of Health of the Republic of Indonesia Number

829/MENKES/KES/SK/VII/1999 namely humidity meets the requirements if the bedroom area is $>8 \text{ m}^2$ for 2 occupants. The more dense, the number of people who are in one room, the higher the humidity is caused by sweating humans and when breathing humans expel water vapor. In a closed room where there are many people, humidity will be higher when compared to the outdoors. Because humidity has a role for the growth of microorganisms including tuberculosis bacteria, with overcrowded residential density also indirectly results in pulmonary tuberculosis. The number of dense inhabitants also allows more frequent contact between pulmonary TB sufferers and other family members thus accelerating the transmission of the disease [5,18].

3.8 Walls

The results showed that the walls of respondent houses both pulmonary TB patients and non-pulmonary TB sufferers all met the requirements. Research by Adnani and Mahastuti (2006), from the analysis, it was found that the risk of suffering from pulmonary tuberculosis was 6-7 times higher among residents living in houses whose walls did not meet the house health requirements. The walls of the house must be equipped with adequate ventilation, because less extensive ventilation can cause the walls of the house to become damp. A good wall with a smooth or flat surface, easy to clean and can't absorb water. Based on observational results, all of the respondent's houses met the requirements, namely waterproof and easy to clean [14].

3.9 Physical Condition of House

The results of the study of the houses of respondents with house pulmonary TB have not meet the requirements. It can be seen from the results of the assessment that pulmonary TB sufferers tend to have houses that do not meet the requirements. The physical condition of a house that is not eligible has a risk for pulmonary TB 3 times greater than the physical condition of a house that meets the requirements [5, 14].

The results of the assessment that pulmonary TB sufferers tend to have houses that do not meet the requirements. The physical condition of the house plays an important role in the transmission of pulmonary TB due to the components of the house such as ventilation, temperature, humidity, residential density, lighting, floors and walls that are part of the physical condition of the house as described above has a role in the transmission of pulmonary TB disease.

The physical condition of many respondent houses did not meet the requirements due to the assessment results of each component of many respondent houses that did not meet the requirements, such as too small the ventilation of the house when compared to the floor area, the temperature of the house did not meet the requirements, the house was too humid, the density of the residence did not qualify natural lighting because sunlight cannot enter the house [18].

IV. CONCLUSION

The Healthy House Development Program is a program to improve the health status of children with TB. This program is to reduce the number of TB in children with the following outcomes:

- a. A healthy community development program has been implemented to accelerate the health status of TB children through counseling activities and direct examination of the physical condition of the pulmonary TB respondent's house.

- b. Increased case finding of children with positive TB through the collaboration of cadres, staff and patients' families.
- c. Increased knowledge, attitudes, and behavior of parents of children with positive TB in an effort to accelerate the recovery of children with positive TB. Knowledge p-value (0.033), attitude p-value (0.027), family support p-value (0.023).
- d. The creation of environmental development efforts from health workers in the family environment of children with positive TB.
- e. The increasing number of healthy house in order to improve the health status of children with a positive TB.

REFERENCES

- [1] Daim. Study of Hygiene Practices, Environmental Sanitation and Family Support of Patients with Positive BTA TB and Negative BTA TB in the Work Area of Ngemplak Health Center in Boyolali Regency, Scientific Articles. 2013
- [2] South Kalimantan Provincial Health Office. South Kalimantan Province Health Profile 2015. Banjarmasin; 2015.
- [3] Data of the Banjarbaru City Health Service in 2015
- [4] Apriliasari R, Retno H, Martini, Ari U. Factors related to the incidence of pulmonary TB in children. *Journal of Public Health (e-Journal)*. 2018; 6 (1): 298-307.
- [5] Anggraeni, SK, Raharjo M., Nurjazuli. Relationship between the Quality of Physical House Environment and Health Behavior with the Occurrence of Pulmonary TB in the Gondanglegi Health Center Work Area, Gondanglegi District, Malang Regency. *Jurnal Public Health [e-journal]* 2015 : 3 (1): 564. <http://ejournal-s1.undip.ac.id/index.php/jkm> [accessed on 29 November 2019].
- [6] Muhyi R, Parahiyangani R, Lenie M, Rahman F. Infection Control Risk Assessment of Tuberculosis on Children based in the City of Banjarbaru. *Indian Journal of Public Health Research and Development*, 2018; 9 (1): 427-431.
- [7] Widyastuti Elementary School, Ridad A, Dadi SA. The effect of counseling about pulmonary TB disease on household contact with early detection of pulmonary TB disease in the Indramayu Ex Kawedanan Region Health Center. *Indra Husada Health Journal*. 2018; 6 (1): 46-54.
- [8] Mientarini EI, Yohanes S, Muhammad H. Relationship of knowledge and attitudes towards adherence to take medicine for patients with advanced phase pulmonary tuberculosis in Umbulsari District, Jember. *IKESMA Journal*. 2015; 14 (1): 11-18.
- [9] Setiyadi D, Muhammad SA. Knowledge, prevention practices and house conditions on household contact with pulmonary TB sufferers in Demak Regency. *Visikes Journal of Public Health*. 2019; 18 (1): 36-45.
- [10] Sumiyati, Puji H, Anita W. Effectiveness of health education on the knowledge and attitudes of mothers of toddlers about pulmonary TB in children in Banyumas Regency. *Journal Link*. 2018; 14 (1): 9-13.
- [11] Dary, Dhanang P, Silvi KCM. The role of the family in caring for children suffering from pulmonary TB in the work area of the Getasan Health Center. *Journal Link*. 2017; 13 (2): 5-11.
- [12] Septia A, Rahmalia S, Sabrian F. Relationship between Family Support and Compliance with Taking Medication in Patients with Pulmonary TB. *Jom PSIK* . 2014; 1 (2): 1-10.
- [13] Rumimpunu R, Franckie RRM, Febi KK. Relationship between family support and encouragement of health workers with compliance with treatment of patients with pulmonary tuberculosis in Likupang Health Center, North Minahasa Regency. *Journal of Public Health* 2019. 7 (4): 1-15.
- [14] Adnani, H., Mahastuti A. Relationship between House Conditions and Pulmonary Tuberculosis in the Work Area of Karangmojo II Health Center, Gunung Kidul Regency. *Journal of Health*. [e-journal]. 2006. 1 (1) pp. 18. <https://skripsistikes.files.wordpress.com/2009/08/21.pdf> [citation 30 October 2019].
- [15] Ayomi AC. Risk Factors for Physical House Environment and Regional Characteristics as Determinants of Lung Tuberculosis in the Work Area of Sentani Health Center, Jayapura Regency, Papua Province. *Indonesian Environmental Health Journal*. 2012; 1 (11).
- [16] Yuliawati, Hayatul R, Wely Y, Rizky YP. The relationship of knowledge of patients with pulmonary TB, health services and supervision of swallowing drugs to the level of patient compliance. *Health Information Research*. 2018; 7 (1): 31-38.

- [17] Yani DI, Nuris AF, Witdiawati. Factors related to TB in children in Garut Regency. Journal of Nursing BSI. 2018; 7 (2): 105-114
- [18] Regulation of the Minister of Health of the Republic of Indonesia Number 1077 / MENKES / PER / V / 2011 Concerning Air Conditioning Guidelines in House Spaces. Jakarta.

IJMTER_healthy_housing.pdf

ORIGINALITY REPORT

15%

SIMILARITY INDEX

12%

INTERNET SOURCES

8%

PUBLICATIONS

4%

STUDENT PAPERS

PRIMARY SOURCES

1	Submitted to Mansoura University Student Paper	4%
2	"1st Annual Conference of Midwifery", Walter de Gruyter GmbH, 2020 Publication	3%
3	eprints.ulm.ac.id Internet Source	3%
4	www.ijsrp.org Internet Source	2%
5	www.i-scholar.in Internet Source	2%
6	ichaa.almaata.ac.id Internet Source	2%

Exclude quotes On

Exclude bibliography On

Exclude matches < 2%