

Poverty and Lung Tuberculosis in Ponorogo

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Abstract

Lung Tuberculosis (TB) is an infectious disease directly affects the lungs caused by tuberculosis bacteria (*Mycobacterium Tuberculosis*). One of main causes of the increasing of burden of TB is poverty in various groups of people, such as in developing countries. This study aims to determine how the relationships of poverty and the incidence of lung tuberculosis in Ponorogo regency. This research method used observational of case control approach where the population and the sample were men and women who visited Health Centers in the region of Ponorogo Regency Health Office either outpatient or inpatient during the study period, adjusted to the criteria of the study. The results of the study showed that poor respondents had risk of lung tuberculosis infection were 2.2 times greater than non-poor respondents (OR = 2.2; CI = 95 %). Suggestions can be submitted are necessary effort and commitment of strong political support, by the support of broad public participation, including the private sector of the health in solving tuberculosis.

Key words: *Poverty, Lung Tuberculosis*

Introduction

Tuberculosis is an infectious disease directly caused by the bacteria of the *Mycobacterium* group named *Mycobacterium Tuberculosis* (Kemenkes RI, 2014), is that an acid-resistant aerobic bacillus transmitted through the air (airborne) (Asih & Effendy, 2004). Tuberculosis can affect all organs and all age groups. Nonetheless lung is the organ most frequently affected by Tuberculosis (Kemenkes RI, 2012).

Tuberculosis (TB) continues to be a health problem in the world, especially in developing countries. Although the anti-tuberculosis drugs (OAT) has been found and vaccination *Bacillus Calmette Guerin* (BCG) has been implemented, TB still not been eradicated all (Depkes, 2012).

In developing countries, the death of TB is 25 % of all deaths, actually it is preventable. An estimated 95 % of TB cases and 98 % of TB

deaths in the world occur in developing countries; with 75 % of TB patients are productive age group (15-50 years). WHO estimates that in 2011 there were 8.7 million new cases of tuberculosis (13 % are co-infected of HIV) and 1.4 million people died of tuberculosis (WHO, 2012). In a WHO report in 2013 estimated that there are 8.6 million cases of TB in 2012 where 1.1 million people (13 %) of whom were TB patients of HIV-positive (Kemenkes RI, 2014).

In Indonesia lung TB disease is a major problem of public health. Based on economic calculations using the indicator of DALY (Disability Adjusted Life Year) introduced by the World Bank, TB is 7.7 % of the total disease burden in Indonesia, this figure is higher than in other Asian countries that only 4 %. In 1995, the results of the Household Health Survey showed that tuberculosis is the third cause of death after cardiovascular diseases and respiratory infections in all age groups, and it is

number one of the group of infectious diseases.

In 1999, WHO estimated that each year 583,000 new cases of tuberculosis caused the deaths about 140,000. Roughly estimated per 100,000 population of Indonesia there are 130 new patients with BTA-positive tuberculosis. It is estimated that in 2004, every year there were 539,000 new cases and 101,000 deaths of people. Based on the data of World Health Organization (WHO) in 2007 stated that the number of tuberculosis patients in Indonesia about 528 thousand inhabitants and it was in the top three world after India and China.

The latest report of WHO in 2009 recorded that ranked Indonesia decreased into the fifth position with the number of tuberculosis patients were 429 thousand people. Indonesia is among of the top 10 countries of patients with lung tuberculosis cases in the world.

According to WHO (2012) in the report of the Global Report 2011 that the prevalence of tuberculosis was estimated 289 cases per 100,000 population, the incidence of tuberculosis 189 cases per 100,000 population and a mortality rate 27 cases per 100,000 population.

Patients with highest lung tuberculosis are in the productive age group (15-50 years), around 75 %. Adult tuberculosis patients are expected to lose an average of 3-4 months work, so it resulted in loss of household income about 20-30 %. If someone died of TB, he would lose revenue about 15 years.

In addition to adverse economic, tuberculosis is also having a devastating effect, namely ostracized by the society (stigma) (WHO, 2012).

Based on Riskesdas in 2010 in East Java, the prevalence of TB on ≥ 15 years was 0.628 % and suspected tuberculosis was 1,843 %. Lung tuberculosis patients used medical facilities through public health centers were 44.2 %.

While cases of lung TB in Ponorogo, based on data from the Health Center of Ponorogo in 2014 the discovery of new cases of tuberculosis with BTA (+) were 300 people, with the number of men was 202 people and women was 98 people (Dinkes Ponorogo, 2015). One of the main cause of the increasing of TB problem is poverty in various groups of people, such as in developing countries (Kemenkes RI, 2014). WHO (2003) mentioned 90 % of patients with lung tuberculosis in the world attacked weak or poor socio-economic groups. The mortality of lung tuberculosis is about 3 million people every year. This situation is largely or almost 75 % found in developing countries with low socio-economic (Alsagaff, H. & Mukty, A. 1995).

Based on the study above, researcher is interested in studying the relationships between poverty and the incidence of lung tuberculosis in Ponorogo.

The method of the study

This study is a type of observational study using case control design. Research was conducted in several health centers in the Health Center of Ponorogo. Samples were taken by using simple random sampling method. Data was collected by interview, to determine the amount of family income in 1 month. Data analysis used the chi -square test.

The Results and the Discussions

Table 1 Distributions of Respondents according to age, Sex, level of education, and occupation history

Variabel	Cases (suffered of lung TB)		Control (not suffered of lung TB)		Total	
	Total	%	Total	%	Total	%
Age						
15 - 55 years	22	73,33	18	60	40	66,7
56 - 80 years	8	26,67	12	40	20	33,3
Total	30	100	30	100	60	100
Sex						
Male	21	70	19	63,3	40	66,67
Female	9	30	11	36,7	20	33,33
Total	30	100	30	100	60	100
Level of education						
Low	20	66,67	18	60	38	63,33
High	10	33,33	12	40	22	36,67
Total	30	100	30	100	60	100
Occupation						
Employed	20	66,67	24	80	44	73,33
Unemployed	10	33,33	6	20	16	26,67
Total	30	100	30	100	60	100

Source: Primary data, 2014

Based on table 1 above it can be seen that the age of majority in the case group and the control is the age group 15-55 years where 22 people (73.33 %) are in the group of cases and 18 people (60 %) are in the control group. By sex showed that most sex is male, where in the case groups are 21 persons (70 %), while the control group are 19 people (63.3 %). Based on the level of

education can be seen that the highest level of education is low where in the case group are 20 people (66.67 %), while the control group are 18 people (60 %). Based on work history can be seen that the highest employment history is employed where in the case group are 20 people (66.67 %), while the control group are 24 people (80 %).

Table 2 Social Economic condition and the incident of lung tuberculosis

Variabel	Cases (TBC)		Control (not TBC)		OR	P
	N	%	N	%		
1						
. Social economic condition						
- Poor (< UMR)	21	70	17	56,7	2,2	0,038
- Not poor (≥ UMR)	9	30	13	43,3		
Total	30	100	30	100		

Source: Primary data, 2014

Based on the above results can be seen that the poor respondents (< UMR) have more increased risk of lung tuberculosis infection 2.2 times than not poor respondents (> UMR) (OR = 2.2; CI = 95 %).

The discussions and the results

Based on the results of the study showed that respondents with income levels of less (poor) have greater increased risk of lung tuberculosis infection 2.2 times than the respondents of higher income level (not poor) (OR = 2.2; CI = 95 %).

This is suited by research of Fitriany, E. (2012), it showed that there was a correlation study of family income level (p - value = 0.002, OR = 3.169), the incidence of tuberculosis in Health Center of Ketanggungan.

According to Prabu (2008), the heads of families who have incomes under the minimum wage will consume foods not fitted by nutrient levels, by the needs of every member of the family, so they have a poor nutritional status and it will make them easier for infectious diseases including lung tuberculosis.

In terms of the types of house constructions have just less income, so the construction of houses owned did not fulfill health requirements that will easily transmit lung tuberculosis.

As we know that the good house for patients with lung tuberculosis is a house has enough ventilation, which allows sunlight enters to the house so it can kill the bacteria of mycobacterium tuberculosis. This is caused the germs Micobacterium Tuberculosis is a very sensitive germ to heat, sunlight and ultraviolet rays. Direct exposure to the sun causes most of the bacteria will die within a few minutes (Kemenkes RI, 2014).

Economic status is one of the main factors causes the development of tuberculosis germs in Indonesia, it is due to low income of per capita family, lack of nutrition and housing environment and

sanitation does not fulfill health requirements.

One of factors not less important in the fight against tuberculosis is low socio - economic status and less earnings, because the treatment of lung tuberculosis requires continuity of treatment in the long term, so it requires a considerable cost (Tjiptoherijanto, P. & Soesetyo, B., 1994).

The conclusions and suggestions

The results of the study showed that there is relationships between poverty and the incidence of lung tuberculosis, poor respondents have a greater risk of lung tuberculosis infection 2.2 times than non-poor respondents (OR = 2.2; CI = 95 %). Lung tuberculosis is a threat of national problems, try letting the development of tuberculosis in a country as well as let the rampant poverty in the country.

To deal with lung tuberculosis and poverty impact required the commitment and strong political effort, by the support of broad public participation, including the private sector and health.

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