Analysis factors of direct contact by tuberculosis sufferers to higher incidence risk factor in district of Sumberjambe Region of Jember, Indonesia

Ida Srisurani Wiji Astuti¹ *, Hirdes Harlan Yuanto²; Karina Stankevica³

¹Department of Public Health, Faculty of Medical, Jember University, Indonesia.
²Department of Medical and Surgical Nursing of Institute of Health Nursing Sciences Banyuwangi, Indonesia.
³Department of Environmental Science, University of Latvia, Riga, Latvia

*Corresponding author: (Ida Srisurani Wiji Astuti)
Email: ranifkui@gmail.com

Abstract.
Context: Tuberculosis in a Basic Research of Health 2018 has shown the program to reduce the growing of Tuberculosis in 2013 to 2018 has the same value (0.4 %). One of the Tuberculosis transmission depend on the contagious level. On adult sufferer with positive acid resistant bacilli, more infectious than the negative one even still can transmit the disease. Tuberculosis sufferer with negative culture and rongent positive is 17 %. Aims: To know the factors of spreading in higher incidence of tuberculosis, which mean the duration of direct contact with the TB’s sufferer; the density of home occupancy; the history of roommate; and the behavior of ejection sputum. Settings and Design: Cross sectional approach. Methods and Material: Used questionnaires to find out the data of direct contact factors of tuberculosis on 30 people who had been infected by tuberculosis. Statistical analysis used: Chi square. Results: Bivariate analysis from duration of direct contact with TB’s sufferer performed the significant level or p value 0.464. The density of home occupancy showed p value 0.04. Based on the history of roommate, p value 0.06. Behavior ejection sputum was examined with p value 0.00. Conclusions: Factors that influenced higher incidence risk in tuberculosis direct contact are the behavior of ejection sputum and the density of home occupancy. Conversely, the history of roommate and the duration of direct contact with the TB’s sufferer did not prove any relation about it.

Keywords: Higher incidence, spreading, tuberculosis

How to cite this article: Astuti, Yuanto, Stankevica (2020): Analysis factors of direct contact by tuberculosis sufferers to higher incidence risk factor in district of Sumberjambe Region of Jember, Indonesia, Ann Trop & Public Health; S462 Vol.23 Issue 3(A): 53–59.
DOI: http://doi.org/10.36295/ASRO.2020.23315
Introduction

Basic research of health 2018 has shown the authentic data about tuberculosis (TB) prevalence. In fact, as long as the program to reduce the growing of TB in 2013 to 2018 has the same value (0.4 %). One of the TB transmission depend on the contagious level. On adult sufferer with positive acid resistant bacilli (BTA), more infectious than the negative one even still can transmit the disease. In BTA positive, the contagious level is 65 %. In BTA negative but the culture positive is 26 %. TB sufferer with negative culture and rongent positive is 17 %\textsuperscript{[5]}. In the world, the spreading of TB from 304 childrens who had contact with adult sufferers showed 48 % had positive TB\textsuperscript{[8]}. World Health Organization (WHO) also estimated there is 1 300 000 new cases a year\textsuperscript{[9]}.

This study conducted to know the factors that affected the spreading in higher incidence of tuberculosis, which mean the duration of direct contact with the TB’s sufferer; the density of home occupancy; the history of roommate; and the behavior of ejection sputum.

Materials and Methods

This study used cross sectional approach to observe the sample in district of Sumberjambe region of Jember, Indonesia and using chi square method to analyze the data of direct contact factors that affected higher incidence risk in tuberculosis sufferer.

The sample size was 30 people who had been infected by tuberculosis. Inclusion criteria: TB sufferer with BTA ± adult people cooperative people Exclusion criteria: people with severe illness people with mental disease Independent variable: the direct contact with TB sufferer Dependent variable: contagious TB to the family The tools of this study used questionnaire. The questionnaire was arranged by: duration of direct contact with the TB’s sufferer, the density of home occupancy, the history of roommate, and the behavior of sputum ejection.

Statistic analysis

Chi square

Result

Univariate analysis

Age

The most respondent is 35 yr to 54 yr (15 people from 30 people). It means much respondent are productive age (Figure 1).
Figure 1. Age of respondent

Education

Amounts 18 respondents (60 %) showed in elementary school for their education. The second level is in junior high school (six people) (Figure 2).

Figure 2. Education of respondent

Job

The table about job of respondent performed that most of respondent is a farmer (12 people or 40 %). Worker is in the second place (eight people or 26.7 %).

Figure 3. Job of respondent
Nutritional status

The nutritional status showed that many respondent have normal nutritional status (16 people or 53.3 %). Amount 40 people or 46.7 % have bad condition in nutritional status.

Figure 4. Nutritional status of respondent

Bivariate analysis

Direct contact

Bivariate analysis from duration of direct contact with TB’s sufferer performed p value 0.464.

Table 1. Direct contact of TB

<table>
<thead>
<tr>
<th>TB positive</th>
<th>Long of contact</th>
<th>Total</th>
<th>p</th>
<th>OR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&lt; 6 mo</td>
<td>&gt; 6 mo</td>
<td></td>
<td>(95 % Confident interval)</td>
</tr>
<tr>
<td>Yes</td>
<td>10</td>
<td>6</td>
<td>16</td>
<td>0.765</td>
</tr>
<tr>
<td>No</td>
<td>8</td>
<td>6</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>18</td>
<td>12</td>
<td>30</td>
<td></td>
</tr>
</tbody>
</table>

Home density of occupancy

The density of home occupancy showed p value 0.04.

Table 2. History density of occupancy

<table>
<thead>
<tr>
<th>TB Positive</th>
<th>Density of occupancy</th>
<th>Total</th>
<th>p</th>
<th>OR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&lt; 10 m² people⁻¹</td>
<td>&gt; 10 m² people⁻¹</td>
<td></td>
<td>(95 % CI)</td>
</tr>
<tr>
<td>Yes</td>
<td>15</td>
<td>1</td>
<td>16</td>
<td>0.04</td>
</tr>
<tr>
<td>No</td>
<td>9</td>
<td>5</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
<td>6</td>
<td>30</td>
<td></td>
</tr>
</tbody>
</table>

Based on the history of roommate, p value showed 0.06.
**Table 3. Home density of occupancy**

<table>
<thead>
<tr>
<th>Positive Roommate</th>
<th>Total</th>
<th>( p )</th>
<th>OR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TB</td>
<td>Yes</td>
<td>No</td>
<td>n</td>
</tr>
<tr>
<td>Yes</td>
<td>10</td>
<td>6</td>
<td>16</td>
</tr>
<tr>
<td>No</td>
<td>13</td>
<td>1</td>
<td>14</td>
</tr>
<tr>
<td>Total</td>
<td>23</td>
<td>7</td>
<td>30</td>
</tr>
</tbody>
</table>

Based on the history of roommate, \( p \) value showed 0.06.

**Behavior of sputum ejection**

Behavior ejection sputum is the latest factor was examined with \( p \) value 0.00. It enabled occurrence of dangerous tuberculosis spreading.

**Table 4. Home density of occupancy**

<table>
<thead>
<tr>
<th>Positive TB</th>
<th>Sputum ejection Good</th>
<th>Total N</th>
<th>( p ) Value</th>
<th>OR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>1</td>
<td>15</td>
<td>16</td>
<td>0.00</td>
</tr>
<tr>
<td>No</td>
<td>12</td>
<td>2</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>13</td>
<td>17</td>
<td>30</td>
<td></td>
</tr>
</tbody>
</table>

**Discussion**

Factors that influenced higher incidence risk in tuberculosis direct contact are the behavior of ejection sputum and the density of home occupancy. It could happen because the bad behavior of ejection sputum affected wider distribution of germs [Mycobacterial tuberculosis (Zopf. 1883)]. The density of home occupancy also contributed when the sufferer TB’s living together with the healthy people in densely population, it could make easier in spreading the diseases. Conversely, the history of roommate and the duration of direct contact with the TB’s sufferer did not prove any relation about it.

So, it is better for next research is adding quantity of respondent to make more reliable and valid of the result.

**Conclusion**

Factors that influenced higher incidence risk in tuberculosis direct contact are the behavior of ejection sputum and the density of home occupancy. Conversely, the history of roommate and the duration of direct contact with the TB’s sufferer did not prove any relation about it.
References


https://www.ingentaconnect.com/content/iuatld/ijtld/2012/00000016/00000012/art00008


http://repository.usu.ac.id/handle/123456789/14637