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THE RELATIONSHIP OF HOUSE PHYSICAL ENVIRONMENT WITH TUBERCULOSIS IN THE JATEN II HEALTH CENTER OF KARANGANYAR DISTRICT

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Article Info

ABSTRACT

Tuberculosis is a major health problem worldwide. Tuberculosis in Indonesia is number three cause of death after cardiovascular disease and respiratory disease that attacks all age groups. To determine the relationship between the physical environment with the incidence of Tuberculosis in Jaten II District Health Center, Karanganyar District.

Analytical, cross sectional, total respondent population, purposive sampling, questionnaire sheet, frequency distribution table, cross tabulation and chy square test a = 0.05

Most of the houses of respondents who had poor ventilation were 33 people (86.84%), houses with bad temperatures 27 (71.05%) people, respondents with poor housing density 31 (81.57%) people, house construction bad 30 (78.94%) people. The test results of chy square P <α = 0.010 <(0.05) with an odds ratio of 10.8.

There is a sanitation relationship in the home environment with the incidence of Tuberculosis in the Jaten II Public Health Center of Karanganyar Regency. P <α = 0.010 <(0.05) with an odds ratio of 10.8.

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PRELIMINARY

Background

Pediatric *tuberculosis* is an important factor in developing countries because the number of children aged less than 15 years is 40-50% of the total population. At least 500,000 children suffer from *Tuberculosis* each year, and 20 children die every day from *Tuberculosis* . It is estimated that many children suffering from *tuberculosis* do not get proper and correct management according to the DOTS program so that morbidity and mortality in children is increasing. Besides that, the burden of *TB* cases in children in the world is unknown due to the lack of *child-friendly* diagnostic tools and the lack of a strong recording and reporting system for child *tuberculosis* cases (Kemenkes RI, 2013).

The pathogenesis of environmental based diseases can be drawn into a model or paradigm. The paradigm describes the interaction relationship between environmental components that have potential dangers to human disease. This interaction relationship is essentially a paradigm of environmental health (Achmadi, 2012).

The increase in *tuberculosis* cases can be influenced by several factors, including the physical condition of the home environment. Unhealthy physical quality of the house plays an important role in the transmission and *reproduction* of *Mycobacterium Tuberculosis* .

Lack of light entering the house, poor ventilation tends to create a damp and dark atmosphere, this condition causes germs to last for days to months in the house (Erwin Ulinnuha Fahreza, 2012). The risk factors for the home environment that play a role in the incidence of *tuberculosis* are occupant density, floor type, ventilation, air temperature, lighting, and humidity.

Based on the research background and problem identification that has been described, the formulation of the problem is as follows "Is there a relationship between the physical environment of the house and the incidence of *tuberculosis* at the Jaten II Karanganyar Community Health Center in 2019 ?

RESEARCH METHODOLOGY

1.   Home Ventilation Condition in Puskesmas Jaten II Karanganyar

Frequency distribution of the state of home ventilation at Puskesmas Jaten II, Karanganyar Regency in July 2019 .

No.	Home Ventilation	Frequency (F)	Percentage (%)
1	Good	5	13.15
2	Bad	33	86.84
	amount	38	100

Based on the table above, 33 houses of the respondents have poor ventilation (86.84%).

2.   Home temperature conditions at Puskesmas Jaten II Karanganyar

Frequency distribution of house temperature conditions at the Jaten II Karanganyar health center in July 2019 .

No.	House Temperature	Frequency (F)	Percentage (%)
1	Good	11	28.94
2	Bad	27	71.05
	amount	38	100

Based on the table above, it is known that most of the respondent's houses have bad temperatures as many as 27 houses (71.05%).

3.   The condition of the density of the house at the Puskesmas Jaten II Karanganyar

Frequency distribution of house density at Puskesmas Jaten II Karanganyar in July 2019 .

No.	Home Density	Frequency (F)	Percentage (%)
1	Good	7	18.42
2	Bad	31	81.57
	amount	38	100

Based on the table, it is known that almost all of the respondent's houses have a bad residential density as many as 31 houses (81.57%).

4. The state of house construction at the Jaten II Karanganyar Community Health Center

Frequency Distribution of house construction at the Jaten II Karanganyar Community Health Center in July 2019 .

No.	Home Construction	Frequency (F)	Percentage (%)
1	Good	8	21.05
2	Bad	30	78.94
	amount	38	100

Based on the table, it is known that almost all of the respondent's houses have poor construction, as many as 30 houses (78.94%).

5. Incidence of Tuberculosis in Jaten II Karanganyar Health Center

Distribution of *Tuberculosis* Frequency at Puskesmas Jaten II Karanganyar in July 2019 .

No.	*Tuberculosis*	Frequency (F)	Percentage (%)
1	Negative	7	18.42
2	Positive	31	81.57
	amount	38	100

According to the table in mind that almost all respondents from patients suspected of terjngkit *Tuberculosis* there are 33 respondents (81.57%).

6. Relationship between Home Ventilation and Incidence of Tuberculosis

Cross tabulation of the relationship between home ventilation and the incidence of *tuberculosis* at the Jaten II Karanganyar Community Health Center in July 2019 .

No.	Home Ventilation	*Tuberculosis* incidence				Total	
		Not		Yes			
		N	%	N	%	N	%
1	Good	3	60	2	40	5	100
2	Bad	4	12.1	29	87.9	33	100
	Total	7	18.4	31	81.6	38	100

Based on the table data, the results show that most of the respondents who had good home ventilation did not experience tuberculosis, namely 60% (3 people), greater than 40% (2 people) who experienced *tuberculosis* . Meanwhile, almost all respondents with poor home ventilation experienced *tuberculosis,* which was 87.9% (29 people), greater than the incidence of *tuberculosis,* not 12.1% (4 people).

7. Relationship between House Temperature and Tuberculosis

The cross- correlation of the relationship between house temperature and the incidence of *tuberculosis* at the Jaten II Karanganyar Community Health Center in July 2019 .

No.	House Temperature	*Tuberculosis* incidence				Total	
		Not		Yes			
		N	%	N	%	N	%
1	Good	5	45.5	6	54.5	11	100
2	Bad	2	7.4	25	92.6	27	100
	Total	7	18.4	31	81.6	38	100

Based on the table, the results show that most respondents who had a good house temperature experienced tuberculosis by 54.5% (6 people), greater than those who did not experience *tuberculosis* incidence of 45.5% (5 people). Meanwhile, almost all respondents who had a bad house temperature experienced *Tuberculosis* incidence of 92.6% (25 people), greater than those who did not experience the incidence of *Tuberculosis* 7.4% (2 people).

8. Relationship state of home density with the incidence of tuberculosis

Tabulation of the relationship between house density and the incidence of *tuberculosis* at the Jaten II Karanganyar Community Health Center in July 2019 .

No.	Home Density	*Tuberculosis* incidence				Total	
		Not		Yes			
		N	%	N	%	N	%
1	Good	6	85.7	1	14.3	7	100
2	Bad	1	3,2	30	96.8	31	100
	Total	7	18.4	31	81.6	38	100

Based on the table, the results show that almost all respondents who had a good density of houses did not experience *tuberculosis* incidence of 85.7% (6 people), greater than the small proportion who experienced *tuberculosis* incidence of 14.3% (1 person). Meanwhile, almost all respondents who had a poor density of houses experienced *tuberculosis* by 96.8% (30 people), greater than the small proportion who did not experience *tuberculosis* , which was 3.2% (1 person).

9.   Relationship condition of house construction with Tuberculosis

Tabulation relationship construction home with the incidence of *tuberculosis* in Puskesmas Jaten II Karanganyar in July 2019 .

No.	Home Construction	*Tuberculosis* incidence				Total	
		Not		Yes			
		N	%	N	%	N	%
1	Good	4	50.0	4	50.0	8	100
2	Bad	3	10.0	27	90.0	30	100
	Total	7	18.4	31	81.6	38	100

Based on the table, the results show that half of the respondents who had a good house construction experienced tuberculosis were 50% (4 people). Meanwhile, almost all respondents who had poor housing construction experienced *tuberculosis,* 90% (27 people), more than 10.0% (3 people) who did not have *tuberculosis* .

DISCUSSION

1. Home ventilation at Jaten II Karanganyar Health Center

Based on the results of the research that has been conducted, most of the houses in the Jaten II Karanganyar Health Center that have poor house ventilation, almost all houses that are poorly ventilated and are exposed to *tuberculosis* are 33 houses (86.85%) of the total 38 houses compared to houses that have ventilation both those affected by *Tuberculosis were* only 5 households (13, 15%).

2. Home temperature at Puskesmas Jaten II Karanganyar

Based on the results of the research that has been carried out, most of the houses in the Jaten II Karanganyar Health Center that have a bad house temperature are 71.05% (27 houses) of the total 38 houses compared to houses that have a bad house temperature affected by tuberculosis 28, 94% (11 House).

3. House Density at Puskesmas Jaten II Karanganyar

Based on the results of the research that has been conducted, almost all houses in Puskesmas Jaten II Karanganyar which have a bad house density are 81.05% (31 houses) of the total 38 houses compared to houses that have a good house density of 18.42% (7 houses).).

4. House construction at the Jaten II Karanganyar Community Health Center

Based on the results of the research that has been carried out, almost all houses in the Jaten II Karanganyar Health Center that have bad house construction are 78.94% (30 houses) of the total 38 houses compared to houses that have good house construction 21, 05% (8 houses) .

5. Incidence of Tuberculosis in Jaten II Karanganyar Health Center

Based on the results of the research that has been done, almost all of the people in the Jaten II Karanganyar Health Center are suspected of having contracted tuberculosis, there are 33 people (81.57%).

6. **Analysis of the relationship between home ventilation and the incidence of tuberculosis at the Jaten II Karanganyar Community Health Center**
   Based on the results of the analysis of the relationship between home ventilation and the incidence of *tuberculosis* at the Jaten II Karanganyar Public Health Center, most of the respondents who had good home ventilation did not experience tuberculosis by 60% (3 people), greater than those who experienced *tuberculosis* by 40% person). Meanwhile, almost all respondents with poor house ventilation experienced *Tuberculosis as much* as 87.9% (29 people), greater than the incidence of *Tuberculosis* not by 12.1% (4 people).

7. **Analysis of the relationship between house temperature and the incidence of tuberculosis at the Jaten II Karanganyar Health Center**
   Based on the analysis of the relationship between the house temperature and the incidence of *tuberculosis* at the Jaten II Karanganyar Community Health Center, the results showed that most respondents who had a good house temperature experienced tuberculosis incidence of 54.5% (6 people), greater than those who did not experience *Tuberculosis* incidence of 45. , 5% (5 people). Meanwhile, respondents who had a bad house temperature almost all experienced *tuberculosis* incidence of 92.6% (25 people), greater than that of a small proportion who did not experience *Tuberculosis,* 7.4% (2 people).

8. **Analysis of the relationship between occupancy density and the incidence of tuberculosis at the Jaten II Karanganyar Community Health Center**
   Based on the analysis of the relationship between occupancy density and the incidence of *tuberculosis* at the Jaten II Karanganyar Public Health Center, it was found that almost all respondents who had good housing density did not experience *tuberculosis* incidence of 85.7% (6 people), greater than the small proportion who experienced *Tuberculosis.* by 14.3% (1 person).

9. **Analysis of the relationship between house construction and the incidence of tuberculosis in Puskesmas Jaten II Karanganyar**
   Based on the results of the Chi-square analysis, the significant value of ρ is $0.010 < \alpha$ (0.05), it can be concluded that Ho is rejected and H₁ is accepted, which means that there is a relationship between house construction and the incidence of *tuberculosis* . Meanwhile, the *odds ratio* of the construction of the physical environment of the house with the incidence of *tuberculosis* in the Jaten II Karanganyar Community Health Center is 9, so people who have poor construction of houses have a 9 times greater chance of suffering from *tuberculosis* than those with good construction.

TO CONCLUDE
1. Respondents' houses that had good ventilation were only 5 (13.5 %) people, while those with poor ventilation were 33 (86.84 %) people.
2. Respondents' houses that had a good temperature were only 11 (28.94 %) people while those who had a bad temperature were 27 (71.05 %) people.
3. Respondents' houses with good occupancy density were only 7 (18.42 %) people, while those with poor occupancy density were 31 (81.57 %) people.
4. Respondents' houses that had good house construction were only 8 (21.05 %) people while those who had bad house construction were 30 (78.94 %) people.
5. Respondents infected with *TB* AFB positive as many as 31 respondents (81.57 %) and those infected with TB AFB negative were 7 respondents (18.42 %) .
6. There is a relationship between home environmental sanitation and the incidence of *tuberculosis* at the Jaten II Karanganyar Health Center *P < α = 0.010 <(0.05)* with an *odds ratio of 10.8.*
7. There is a relationship between home environmental sanitation and the incidence of tuberculosis at the Jaten II Karanganyar Health Center $P < \alpha = 0.006 < (0.05)$ with an odds ratio of 10.4.

8. There is a relationship between occupancy density and the incidence of *tuberculosis* at the Jaten II Karanganyar Health Center ρ <α = 0.010 <(00.05) with an odds ratio of 18.4.

9. There is a relationship between house construction and the incidence of *tuberculosis* at the Jaten II Karanganyar Health Center P <α = 0.010 <(0.05) with an odds ratio of 9.

SUGGESTION
1. For the Community
   a) It is hoped that the community can provide support to *tuberculosis* sufferers so that patients are obedient in carrying out treatment .
   b) The community can improve environmental sanitation in order to prevent pulmonary TB disease. increase public insight about *Tuberculosis* and the prevention of *Tuberculosis* .
2. For respondents
   a) It is expected to improve environmental sanitation to prevent *tuberculosis* , so that respondents can avoid *tuberculosis* .
   b) Respondents can improve personal hygiene and liver to avoid *tuberculosis* .

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