International Journal Of Health, Engineering And Technology (IJHET) *E-ISSN 2829 – 8683*
Volume 4, Number 3, September 2025, *Page. 681 – 693*
Email : editorijhess@gmail.com

The relationship between physical conditions of the house and the presence of people in the same house with the incidence of pulmonary TB In the Working Area of Putri Ayu Community Health Center, Jambi City in 2024

Zulhayati[1], Dwi Noerjoedianto[2], Fajrina Hidayati[3], Ummi Kalsum[4], Helmi Suryani Nasution[5]
[1,2,3,4,5)] Program Studies Knowledge Health Community, Faculty Medical and Knowledge Health, University of Jambi Indonesia
*Corresponding Author Email: zulhayati233@gmailn.com, dwi_noerjoedianto@unja.ac.id

Abstract
Background Behind: Tuberculosis (TB) is one of the 10 leading causes of death globally and is a contagious disease. Pulmonary tuberculosis is caused by Mycobacterium tuberculosis, which spreads when people... Which suffer tuberculosis lungs cough with ethics cough that no true so that other people can be infected through the droplets released. This study aims to determine the relationship between residential density, temperature, humidity, floor type, family income, Education level, smoking status, and presence of household contacts with incident Pulmonary TB in region Putri Ayu Community Health Center, Jambi City in 2024. Method: This type of research is quantitative research with a case control study design. Population in study This is all over Pulmonary TB sufferers Which is at in region Work Putri Community Health Center Ayu City Jambi. Sample in research This as much as 62. Technique sampling with use random example. Collection data using questionnaires and observations, univariate and bivariate data using the chi- square test. Results: There is an income relationship OR 0.238> 1(95% CI, 0.084 -0.677) and the presence of a box in the same house OR 68,200> 1 (95% CI, 8,129 -572,176) with the incidence of pulmonary TB. There is no relationship between residential density, temperature, humidity, floor type, education level, smoking status, Conclusion: Variables Which relate that is the emergence and presence of household contacts. Therefore, it is recommended to improve socioeconomic conditions and early detection of pulmonary TB.

Keywords: Physical Condition of the House, Pulmonary TB, Environment

INTRODUCTION

Tuberculosis (TB) is one of the 10 leading causes of death globally and is a contagious disease. Pulmonary tuberculosis is caused by *Mycobacterium tuberculosis,* which spreads when people... Which suffer tuberculosis lungs cough with ethics cough that No true so that other people can be infected through the droplets released. Approximately a quarter of the world's total population has been infected by *Mycobacterium tuberculosis.*

The global number of new people diagnosed with TB reported is 8.2 million. on year 2024. This figure is amount highest since WHO start global TB monitoring in 1995, above the pre-COVID baseline (and previous historical peak) of 7.1 million in 2019, and up from 5.8 million in 2020 and 6.4 million in 2021. 1

Based on a report from the Section for Prevention and Control of Infectious Diseases, the year 2022 show number incident TB in Province Jambi as big as 425 per 100,000 population, up from 382 per 100,000 population in 2021. Figures death consequence TB on year 2022 Also increase become 6 per 100,000 population, compared to 5 per 100,000 population in the previous year. Amount case TB which found on 2022 reach 5,308 cases, up from 3,682 cases in 2021. The most cases were reported from City Jambi, Which give contribution as big as 24.38% from total case TB in Jambi Province. Number case tuberculosis lungs experience improvement from 20 health centers spread across Jambi City In 2023, Putri Ayu Health Center was in first place with a Working Area that recorded cases of Pulmonary Tuberculosis in Jambi City. that is as big as 82 cases. 2

This study aims to analyze the relationship between the physical condition of the house and the presence of household contacts with the incidence of pulmonary TB in the working area of the Putri Ayu Community Health Center, Jambi City.

RESEARCH METHODS

This research is a quantitative study with Case Control. The study was conducted in the area Work Community Health Center Daughter Ayu, City Jambi on month April until May 2025. The population of this study was all pulmonary TB sufferers in the working area of Putri Ayu Health Center with a total of 64 respondents consisting of 32 cases and 32 controls .

The independent variables in this study are Residential density, temperature, humidity, floor type, family income, education level, smoking status, and presence of household contacts were analyzed. The dependent variable for this study was the incidence of pulmonary TB. Data were obtained through interviews with respondents using questionnaires and observations. Data analysis using the Chi-square test .

RESULTS AND DISCUSSION

Univariate Analysis

Distribution Frequency Respondent Characteristics

Table 1. Distribution of Respondent Characteristics in the Working Area of Putri Ayu Community Health Center, Jambi City, 2024

Variables	Case		Control	
	N	%	N	%
Age				
15-25	8	25.0	2	6.3
26-35	11	34.4	14	43.8
36-45	4	12.5	6	18.8
46-55	7	21.9	7	21.9
56-65	2	6.3	3	9.4
Gender				
Man	25	78.1	20	62.5
Woman	7	21.9	12	37.5
Work				
Civil	0	0	1	3.1
Servants/TNI/Polri/BUMN	3	9.4	4	12.5
Private employee	13	40.6	2	6.3
self-employed	3	9.4	1	3.1
Farmer	0	0	0	0
Fisherman	6	18.8	8	25.0
Laborer	7	21.9	15	46.9
Doesn't work	0	0	1	3.1
Other				

From table 1. Distribution of respondent characteristics, it is known that the age of the majority of the case group is 26-35 years (34.4%) and the same thing is also seen in the control group,

the majority are 26-35 years (43.8%). Judging from the gender of the case group, the highest are men (78.1%) and women 21.9% in the control group, men (62.5%) and women (37.5%) the proportion of men is higher in both groups. Judging from the occupation, most of the respondents in the case group are self-employed (40.6%) and unemployed (21.9%), while the control group is unemployed (46.9%) and laborers 25.0%).

Frequency distribution of research variables

Table 2. Distribution table of respondents based on pulmonary TB variables in the working area of Putri Ayu Community Health Center, Jambi City in 2024

Variables	Category	Case		Control	
		N	%	N	%
Density Residential Language	Not eligible	10	31.3	7	21.9
	qualify	22	68.8	25	78.1
Temperature	Not eligible	21	65.6	19	59.4
	qualify	11	34.4	13	40.6
Humidity	Not eligible	21	65.6	21	65.6
	qualify	11	34.4	11	34.4
Floor type	Not eligible	11	34.4	4	12.
	qualify				
		21	65.6	28	87.5
Income	Low	11	34.4	22	68.8
	tall	21	65.6	10	31.3
Level of education	Low	8	25.0	13	40.6
	tall	24	75.0	19	59.4
Smoking stat	At risk	25	78.1	21	65.6
	No risk	7	21.9	11	34.4
existence household contact	At risk	32	100	9	28.1
	No resolution	0	0	23	71.9

Univariate analysis showed that there were differences in environmental and social characteristics between the case group and the control group in this study. The residential density factor shows that most respondents in the case group lived in eligible neighborhoods (68.8%), while 31.3% lived in ineligible neighborhoods. Meanwhile, in the control group, most also lived in eligible neighborhoods (78.1%), and only 21.9% lived in ineligible neighborhoods. This indicates that ineligible residential density was more common in the case group.

Regarding room temperature, 65.6% of respondents in the case group lived in homes with temperatures that did not meet the standards, compared to 59.4% in the control group. This indicates that exposure to inappropriate temperatures was more prevalent in the case group.

Unsuitable home humidity was found in 65.6% of respondents from both the case and control groups. This indicates that the prevalence of unsuitable humidity was relatively equal in both groups. Regarding the floor type variable, 34.4% of the case group lived in homes with substandard floors, higher than the control group (12.5%). The majority of the control group lived in homes with floors that met environmental health standards (87.5%).

In terms of income, only 34.4% of respondents in the case group had low incomes, while in the control group the figure was higher, at 68.8%. This indicates that economically, more respondents in the control group came from low-income families than those in the case group.

The educational level of respondents in the case group was dominated by high education (75%), while in the control group it was 59.4%. Respondents with low education were more common in the control group (40.6%) compared to the case group (25%).

In terms of smoking status in the residential environment, the case group of respondents was predominantly exposed to cigarette smoke (78.1%) compared to the control group (65.6%). The proportion of respondents not exposed to cigarette smoke was higher in the control group (34.4%) than in the case group (21.9%).

Finally, the variable of the existence of at-risk household contacts showed very significant results, where all respondents in the case group (100%) had at-risk household members, while in the control group only 28.1%, and the majority (71.9%) did not have at-risk household contacts.

Bivariate analysis

The Relationship Between Residential Density and the Incidence of Pulmonary TB

Table 3. Table of Relationship between Residential Density and the Incident of Pulmonary TB

Density Residential Language	TB				OR 95% CI	*P value*
	Case		Control			
	N	%	N	%		
Not eligible	11	34.4	7	21.9	1871 (0.616 – 5.683)	0. 266
Qualify	21	65.6	25	78.1		

shows respondents who have residential density that does not meet the requirements more in the case group (34.4%) compared to the control group (21.9). With a p-value of 0.266, it means there is no significant relationship between residential density and the incidence of pulmonary TB. OR 1.871 > 1 (95% CI; 0.616-5.683) means that residential density that does not meet the requirements has a 1.871 times greater risk of increasing the incidence of pulmonary TB.

Relationship between temperature and the incidence of pulmonary TB

Table of Relationship between Temperature and the incidence of Pulmonary TB

Temperature	TB				OR 95% CI	*P value*
	Case		Control			
	N	%	N	%		

Not eligible	20	62.5	20	62.5	1000 (0.363 – 2.751)	1,000
Qualify	12	37.5	25	37.5		

shows respondents who have a house temperature that does not meet the requirements for each case group (62.5) and the control group (62.5). With a p-value of 1,000, it means there is no significant relationship between temperature and the incidence of pulmonary TB. OR 1,000 > 1 (95% CI; 0.363 – 2.751) means that temperatures that do not meet the requirements have a 1,000-fold greater risk of increasing the incidence of pulmonary TB.

The relationship between humidity and the incidence of pulmonary TB

Table of Relationship between Humidity and TB Incidents

humidity	**TB**				**OR 95% CI**	***P value***
	Case		**Control**			
	N	**%**	**N**	**%**		
Not eligible	20	62.5	22	68.8	0.758 (0.269 – 2.132)	0.792
Qualify	12	37.5	10	31.3		

shows respondents who have home humidity that does not meet the requirements more in the control group (68.8%) compared to the case group (62.5). With a p-value of 0.792, it means there is no significant relationship between humidity and the incidence of pulmonary TB. OR 0.758 < 1 (95% CI; 0.269 – 2.132) means that substandard home humidity has a 1.871 lower risk of increasing the incidence of pulmonary TB.

Relationship between Floor Type and the Incidence of Pulmonary TB

Table of Relationship between floor type and incidence of pulmonary TB

floor type	**TB**				**OR 95% CI**	***P value***
	Case		**Control**			
	N	**%**	**N**	**%**		
Not eligible	11	34.4	6	18.8	2,270 (0.719 – 7.161)	0.258
Qualify	21	65.6	26	81.3		

shows respondents who have a type of house floor that does not meet the requirements more in the case group (34.4%) compared to the control group (18.8%). With a p-value of 0.258, it means there is no significant relationship between floor type and the incidence of pulmonary TB. OR 2.270 > 1 (95% CI; 0.719 – 0.258)) means that inadequate housing density has a 2.270 times greater risk of increasing the incidence of pulmonary TB.

Relationship between Income and Pulmonary TB

Table of Relationship between Income and TB Incidence

Income	TB				OR 95% CI	*P value*
	Case		Control			
	N	%	N	%		
low	11	34.4	22	68.8	0.238 (0.084 – 0.677)	0.012
tall	21	65.6	10	31.3		

shows respondents who have low income more in the control group (68.6%) compared to the case group (34.4%). With a p-value of 0.012, there is a significant relationship between income and the incidence of pulmonary TB. OR 0.238 < 1 (95% CI; 0.084 – 0.677) means that inadequate housing density has a 0.238 times lower risk of increasing the incidence of pulmonary TB.

Relationship between education level and the incidence of pulmonary TB

Table of Relationship between Education Level and the Incidence of Pulmonary TB

Level of education	TB				OR 95% CI	*P value*
	Case		Control			
	N	%	N	%		
Low	8	25.0	13	40.6	0.487 (0.168 – 1.416)	0.287
	24	75.0	19	59.4		

It can be seen that in the case group (pulmonary TB sufferers), the majority of respondents had a high level of education, namely 75.0% , while in the control group 59.4% also have a higher education, the results of the statistical analysis show a p-value sebe sar , 0.287 which means that there is no statistically significant relationship between education level and **,** because the p value is 0.487 (0.168 – 1.416)

Relationship between smoking status and TB incidence

Table of Relationship between Smoking Status and TB Incidents

smoking status	TB				OR 95% CI	*P value*
	Case		Control			
	N	%	N	%		
risky	24	75.0	21	65.6	1.571 (0.532 – 4.640)	0.584
No risk	8	25.0	11	34.4		

Respondents in the case group (pulmonary TB patients), as many as **75.0%** had a risky smoking status , and 65.6% were also at risk in the control category . The results of the statistical test

showed a **p-value** , which was There is no statistically significant relationship between smoking status and TB incidence (because the Odds Ratio (OR) value of 1.571 with a 95% confidence interval (0.532 – 4.640) shows no relationship , so the relationship is not significant

The relationship between the presence of household contacts and the incidence of pulmonary TB

Table of Relationships of Living in the Same House with the incidence of pulmonary TB

presence of household contacts	TB				OR 95% CI	*P value*
	Case		Control			
	N	%	N	%		
risky	31	96.9	10	31.3	68,200 (8,129–	0.000
No risk	1	3.1	22	68.8	572,176)	

The results of the statistical test, obtained **a p-value** , which shows a very significant relationship between the existence of household contact statistics with the incidence of pulmonary TB . The Odds Ratio value with a 95% Confidence Interval (CI): 8.129 – 572 shows that household contact with TB sufferers has a risk of infection. Biologically and epidemiologically, this is very logical because pulmonary TB is transmitted through droplets when the sufferer coughs or sneezes. If someone lives in the same house as a TB sufferer, especially in an environment with poor ventilation and high density, then the risk of exposure to *My* I germs is the strongest risk factor .

Discussion

Relationship between Residential Density and the Incidence of Pulmonary Tuberculosis

The results of the bivariate analysis obtained a p-value of 0.266 > 0.05, meaning there is no relationship between residential density and the incidence of pulmonary TB in the working area of the Putri Ayu Community Health Center in Jambi City in 2024. With an OR value of 1.871> 1 (95% CI , 0.616 – 5.683). This means that needs that do not meet the requirements have a 1,871 times greater risk of contracting pulmonary TB compared to respondents who live in houses with qualified housing and because the confidence interval includes the number 1, this relationship is stated to be statistically insignificant. In theory, high residential density can increase the risk of transmission of infectious diseases such as pulmonary TB, especially through droplets and close contact. [3]

This is in line with research by Hasan et al. that there is no relationship between residential density and the incidence of pulmonary TB, with a p-value of 0.506 (p>0.05). Other research also states that residential density has no relationship with the incidence of pulmonary TB in the Pegiran Surabaya Community Health Center work area, with a p-value of 0.442 (p>0.05). [5] Meanwhile, according to research by Prakosa Housing density is a risk factor for pulmonary TB. In this study, residential density in respondents' homes was not associated with the incidence of pulmonary TB **.** [5]

Relationship between temperature and the incidence of pulmonary tuberculosis

The results of the bivariate analysis obtained a p-value of 1,000>0.05, meaning that there is no relationship between temperature and the incidence of pulmonary TB in the working area of the Putri Ayu Community Health Center in Jambi City in 2024. with an OR value of 1,000> 1 (95% CI , 0.363-2.132) This means that temperatures that do not meet the requirements have a 1,000 times greater risk of contracting pulmonary TB compared to respondents who live in houses with adequate temperatures and because the confidence interval includes the number 1, this relationship is stated to be statistically insignificant. In theory, environmental temperature does play a role in the growth and spread of Mycobacterium tuberculosis, the bacteria that causes pulmonary TB. The optimal temperature for the growth of this bacteria is around 31–37°C. However, temperature is not the only factor that influences TB transmission. Other factors such as ventilation, humidity, occupancy, and the behavior of home occupants also play a significant role in the risk of pulmonary TB transmission. in line with the research of mathrofani on the results of research in the working area of the UPTD Cigeureung Health Center, Tasikmalaya City, which did not find a significant relationship between temperature and the incidence of pulmonary TB with a p-value of >0.05, as well as research at the Serang City Health Center which reported a p-value of 0.778, indicating that there was no significant relationship between temperature and the incidence of pulmonary TB. [6]

Thus, the results of research on the relationship between temperature and the incidence of pulmonary TB still vary and are influenced by environmental factors and the research methods used. In contrast to research According to research by the Mahesatya Health Student Journal (2024), temperatures that do not meet the risk requirements are 2.7 times greater for causing pulmonary tuberculosis with a p-value of 0.005, indicating a significant relationship. A similar finding was also found by Dewi and Juniyarti (2021) who reported a significant relationship between house temperature and the incidence of pulmonary TB in productive age groups with a p-value of 0.024.

The relationship between humidity and the incidence of pulmonary tuberculosis

The results of the bivariate analysis obtained a p-value of 0.792>0.05, meaning that there was no relationship between humidity and the incidence of pulmonary TB in the working area of the Putri Ayu Community Health Center in Jambi City in 2024. with an OR value of 0.758> 1 (95% CI , 0.269-2.132). This means that temperatures that do not meet the requirements have a 0.758 times greater risk of contracting pulmonary TB compared to respondents who live in houses with adequate humidity and because the confidence interval includes the number 1, this relationship is stated to be statistically insignificant. This is in line with Putri's research that there is no relationship between humidity and the incidence of pulmonary TB in the Karya Jaya Palembang Community Health Center work area with a p-value of 0.107. [8] This is in line with Dhiu et al.'s research in 2022 that there is no relationship between humidity and the incidence of TB with a p-value of 0.816 (p>0.05). [9] Humidity is defined as the amount of air vapor in the air, expressed as a percentage of the amount needed for saturation at the same temperature. The humidity in a house that meets the requirements is a minimum of 40%-60%. [9]

The humidity level of the house was measured using a thermohygrometer at 10:00 WIB - 14:00 WIB at a temperature of 26°C-36°C and sunny weather conditions. However, in this study, some measurements were not taken at the desired time, which allows for differences and affects the results of the humidity measurements. Another possible influence is seen in terms of unstable weather conditions so that in the research process it resulted in the respondents' humidity conditions being undemanding and causing the air in the house to change. House humidity that meets the requirements will reduce the proliferation of tuberculosis bacteria

because these bacteria only thrive in humid environmental conditions. High humidity in the house will facilitate the proliferation of microorganisms among other TB bacteria. These microorganisms can enter the body through inhaled droplets. Houses with inadequate ventilation will affect the humidity in the house, if the ventilation in the house is small, it can cause little or no sunlight to enter the house, causing the room to be stuffy or high humidity. Sunlight entering the house will increase the temperature, the higher the temperature, the lower the humidity and vice versa, the lower the temperature, the higher the humidity in the house [11] .

The relationship between floor type and the incidence of pulmonary tuberculosis

The results of the bivariate analysis obtained a p-value of 0.258>0.05, meaning there is no relationship between floor type and the incidence of pulmonary TB in the working area of the Putri Ayu Community Health Center in Jambi City in 2024. with an OR value of 2.270> 1 (95% CI , 0.719-7.161). This means that temperatures that do not meet the requirements have a 2,270 times greater risk of contracting pulmonary TB compared to respondents who live in houses with qualified floor types and because the confidence interval includes the number 1, this relationship is stated to be statistically insignificant.

`From the results of observations by measuring the respondents' houses regarding the type of floor that most of them have met the requirements, namely airtight ceramic type. According to Permenkes No. 829 of 1999, the type of floor that meets health requirements is the type of floor that is airtight such as ceramic, tile, cement, while the type of floor that does not meet the requirements is the type of floor that is not airtight such as floors made of soil, boards or stages that can cause high levels of humidity. If you have a type of plank floor in your house to be airtight and not damp, the board needs to be covered with a rubber mat as an airtight base so that it can protect from air seepage and damp conditions. The type of floor that meets the requirements will not experience humidity in the room of the house, this can prevent because Mycobacterium tuberculosis cannot survive in rooms with low humidity.

Relationship between income and the incidence of pulmonary tuberculosis

The results of the bivariate analysis obtained a p-value of 0.012>0.05, meaning there is a relationship between income and the incidence of pulmonary TB in the working area of the Putri Ayu Community Health Center, Jambi City in 2024. with an OR value of 0.238> 1 (95% CI , 0.084 -0.677). This means that respondents with low income have a 0.238 times greater risk of contracting pulmonary TB than respondents who describe high income and the confidence interval is below 1, so this relationship is stated statistically significantly. According to the theory developed by Tjiptoherijanto in the economics of providing for needs, low income makes it difficult to meet basic needs, including health care. Low income is associated with low socioeconomic status, which can affect nutritional intake, access to health services, and the living environment, thus increasing the risk of infectious diseases such as pulmonary tuberculosis.

This is in line with Haryanto's research which states that low socioeconomic levels contribute to an increase in the incidence of pulmonary tuberculosis due to limitations in maintaining cleanliness and meeting health needs [12] . In line with the research on the significant relationship between income and the incidence of pulmonary TB is the research by Ristyo Sari et al. who found a significant relationship with an OR value of 4.421 (CI -1.638-11.930) and p-value =

0.005 [12] as well as research by Susilowati et al. (2023) who reported a p-value = 0.000 with the conclusion that income has a significant effect on the risk of TB transmission. [13]

The Relationship **Between Education and the Incidence of Pulmonary Tuberculosis**

The results of the bivariate analysis obtained a p-value of 0.287>0.05, meaning there was no relationship between floor type and the incidence of pulmonary TB in the working area of the Putri Ayu Community Health Center, Jambi City, in 2024. with an OR value of 0.487> 1 (95% CI , 0.168-1.416). This means that low levels of education have a 0.487 times greater risk of contracting pulmonary TB than respondents with high levels of education and because the confidence interval includes the number 1, this relationship is declared statistically insignificant. This is in line with research by Ignasius et al., which showed no significant relationship between education level and the incidence of pulmonary TB, with a p-value of 0.133 (>0.05). This study also suggests that patients with low education levels can still be compliant with TB treatment, and that low education levels do not always lead to a lack of adequate knowledge about TB ·

Relationship between smoking status and the incidence of pulmonary tuberculosis

The results of the bivariate analysis obtained a p-value of 0.584>0.05, meaning there is no relationship between smoking status and the incidence of pulmonary TB in the working area of the Putri Ayu Community Health Center in Jambi City in 2024. with an OR value of 1.571> 1 (95% CI , 0.532-4.640). This means that smoking status is at risk of 1.571 times greater for contracting pulmonary TB than respondents who are not at risk and because the confidence interval includes the number 1, this relationship is declared statistically insignificant.

According to theory, smoking can damage the respiratory tract defense system, especially lung macrophages that play a role in fighting Mycobacterium tuberculosis infection. This damage can increase a person's susceptibility to pulmonary TB infection. However, other environmental and behavioral factors also influence the risk, so the relationship between smoking and the incidence of pulmonary TB is not always statistically consistent. in line with the research of Atira et al. who reported a p-value of 0.748 and concluded that there was no relationship between smoking habits and the incidence of pulmonary TB 15 , as well as the research of Merlina et al. who showed a p-value of 0.471 and stated that there was no significant relationship between smoking behavior and the incidence of pulmonary TB 16 .

. The relationship between the presence of household contacts and the incidence of pulmonary tuberculosis

The results of the bivariate analysis obtained a p-value of 0.000>0.05, meaning there is a relationship between the existence of household contacts and the incidence of pulmonary TB in the working area of the Putri Ayu Community Health Center, Jambi City in 2024. with an OR value of 68,200> 1 (95% CI , 8.129 -572.176). This means that contacts have a risk of 68,200 times greater for contracting pulmonary TB than respondents who are not at risk and because the confidence interval is below 1, this relationship is stated to be statistically significant.

This is in line with the research of Wardani et al., who found a relationship between the presence of household contact and the incidence of TB with a p-value of 0.001. 17 This is in

line with the research of Stevany et al. (2021) who found a relationship between the presence of contact with TB sufferers with a p-value of 0.000 (p<0.05) with an OR value of 5.735. 18 This can occur because this bacteria can spread in the air when a TB sufferer is coughing or sneezing so that the droplets released can be touched together by people in the same house which facilitates the transmission of bacteria 19 . According to Nurhayati's research, a person who experiences TB is determined by the concentration of droplets containing Mycobacterium tuberculosis bacteria in the air and the length of time the person inhales the air in that area. Therefore, the longer a person is with a high concentration of droplets, the more bacteria will enter the lung tissue 20 .

CONCLUSION

The results of the study at the Putri Ayu Community Health Center in Jambi City showed that there was a significant relationship between income and the presence of household contacts, indicating that socioeconomic factors play a crucial role in influencing health conditions and disease transmission risks within families. Higher or lower income levels may determine access to better living conditions, nutrition, and healthcare facilities, which in turn affect the vulnerability of household members. The finding highlights the importance of considering economic capacity as a determinant in community health interventions.

On the other hand, the study revealed that there was no significant relationship between housing density, temperature, humidity, floor type, education level, and smoking status with the presence of household contacts. This suggests that, at least in this research context, these environmental and lifestyle factors did not have a direct or measurable effect on the incidence of household contact cases. Nevertheless, it is important to note that the absence of a statistical relationship does not necessarily eliminate their potential role; instead, it may indicate the need for more comprehensive research with larger sample sizes or different methodological approaches.

Overall, these findings emphasize that socioeconomic status, particularly income, is a key factor to be addressed in public health strategies. Meanwhile, non-significant variables should not be disregarded entirely, as they might interact with other determinants in more complex ways. Therefore, future studies are encouraged to explore these aspects further, integrating both socioeconomic and environmental determinants to develop more holistic and effective prevention and intervention programs in community health centers.

REFERENCES

WHO. 2024 Global tuberculosis report. 2024.

Indonesian health profile. Indonesian Health Profile 2023. 2023 Indonesian health profile, editor. JAMBI; 2023.

WHO. Global Tuberculosis Report 2021: Supplementary Material. [Internet]. Global tuberculosis report 2021: supplementary material. 2021. 153p.Availablefrom:https://www.who.int/publications/i/item/9789240037021

Hasan FA, Nurmaladewi N, Saktiansyah LOA. The Influence of Home Physical Environment and Behavior on the Incidence of Positive Bta Pulmonary Tuberculosis: A Case

Control Study. Ikesma. 2023;19(1):38.

Prakosa ZOL. The Relationship between the Quality of the Physical Environment of the House and the Risk of Pulmonary TB in the Work Area of the Pegirian Community Health Center, Surabaya. Prev J Kesehat Masy. 2022;13(4):511–25.

Mathofani PE, Febriyanti R. Factors Associated with the Incidence of Pulmonary Tuberculosis (TB) in the Serang City Community Health Center Working Area in 2019. J Ilm Kesehat Masy Media Komun Komunitas Kesehat Masy. 2020;12(1):1–10.

KENIA DESTRIA PUTRT. The relationship between residential density and the incidence of pulmonary tuberculosis. J Kesehat Masy. 2019;

Dhiu ME, Adu AA DS. Factors Associated Between House Sanitation Conditions and Incidence of Tuberculosis in Waepana Village Soa District Ngada Regency. Timorese Journal of Public Health. 2022.

Health M, Indonesia R. Regulation of the Minister of Health of Indonesia No. 1077/Menkes/PER/2011. 2011;

Romanda I. The Relationship between Humidity Levels and Home Lighting and the Incidence of Childhood Tuberculosis in Five Districts of Jember Regency. RepositoryUnejAcId [Internet]. 2019;1–97. Available from: https://repository.unej.ac.id/handle/123456789/89958

Kusumaningrum A, Wulandari G, Kautsar A. Tuberculosis in Indonesia: Do Socioeconomic Status and Environmental Factors Matter? J Econ and Pembangkit Indones. 2023;23(1):1–14.

Yuniar I, Lestari SD. The Relationship between Nutritional Status and Income to the Incidence of Pulmonary Tuberculosis Number 1, Volume 1, Issue 1 of 2017 The Relationship between Nutritional Status and Income to the Incidence of Pulmonary Tuberculosis Number 1, Volume 1, Issue 1 of 2017. 2017;1(1).

Susilowati S, Tini T, Purwanto E. The Relationship Between Knowledge and Family Socioeconomics with the Risk of TB Disease Transmission in the Tanjung Selor Community Health Center Work Area, Bulungan Regency. SAINTEKES J Science, Technology and Health. 2023;2(3):299–311.

Ignasius Bima Priambada, Ika Febianti Buntoro DR. The relationship between social support and education level with the quality of life of pulmonary tuberculosis patients in Kupang City. 2019;17:178–85.

Atira A. The Relationship between Smoking Habits and Preventive Behavior with the Incidence of Pulmonary Tuberculosis in Tuberculosis Patients. J Kesehat Budi Luhur J Ilmu-Ilmu Kesehatan Masyarakat, Keperawatan, dan Kemidani. 2020;13(243):221–9.

Elfa Lubis M, Lukito A, Dianitha E, Yuridzaky A, YKiram G. The Relationship between Smoking Behavior and the Incidence of Pulmonary Tuberculosis in the Work Area of the Medan Teladan Health Center UPT for the Period December 2024-January 2025.

Health Deli Sumatera. 2025;3(1):1–7.

Nurjannah A, Rahmalia FY, Paramesti HR, Laily LA, Pradani FK, Nisa AA, et al. Social Determinants of Tuberculosis in Indonesia. J Indonesian Public Health Research and Development [Internet]. 2022;3(1):65–76. Available from: https://journal.unnes.ac.id/sju/index.php/jppkmi

Avy AH, Hutami BP, Alfalah MZ, Febriyanti S. Risk Factors for Tuberculosis Incidence in Indonesia. J Biostat Population, and Health Inform. 2021;2(1):61–5.

Diagnosis P, Indonesia DI. Tuberculosis Guidelines for diagnosis and management in Indonesia. 2021.

Nurhayati E, Rahmawati E, Tumpuk S, Triana L. Household Contacts and Tuberculosis Transmission Incidents in West Pontianak. J Lab Khatulistiwa. 2025;8(2):263–9.