Proceedings of the International Conference on Nursing and Health Sciences, Volume 7 No 1, January - June 2026
e-ISSN 2774 – 5104, Global Health Science Group
http://jurnal.globalhealthsciencegroup.com/index.php/PICNHS

ANALYSIS OF FACTORS ASSOCIATED WITH THE INCIDENCE OF PEDIACTRIC PULMONARY TUBERCULOSIS BHAYANGKARA HOSPITAL BANDAR LAMPUNG

Arini Meronica, Aila Karyus, Dian Utama Pratiwi Putri* , Sugeng Eko Irianto, Bambang Setiaji
Magister of Public Health, Universitas Mitra Indonesia, Jl. ZA. Pagar Alam No.7, Gedong Meneng, Kec. Rajabasa, Kota Bandar Lampung, Lampung
*dian@umitra.ac.id

ABSTRACT

Tuberculosis (TB) remains a global health problem. According to data from the Indonesian Ministry of Health in 2024, the case detection rate of childhood TB in Indonesia was 15.9%, which is still below the target of >90%. Therefore, childhood TB has not yet met the national target. Children infected with TB are at risk of developing severe TB disease, which can lead to death or long-term disability. The researcher is interested in analyzing the factors associated with the incidence of pediatric pulmonary tuberculosis at Bhayangkara Hospital, Bandar Lampung, in 2025. This study is quantitative research using a case-control design. A minimum sample size of 60 respondents was selected using random sampling techniques. Data were collected using a childhood TB risk factor questionnaire and then analyzed through univariate, bivariate, and multivariate analyses using chi-square tests and multiple logistic regression. The analysis results showed that factors associated with childhood pulmonary tuberculosis were : child's age (p = 0,019, OR = 4,12), child's gender (p = 1,000, OR = 0,85), BCG immunization history (p = 0,003, OR = 10,7), history of contact with TB patients (p = 0,000, OR = 11,22), parental knowledge (p = 0,002, OR = 6,57), family smoking history (p = 0,011, OR = 5,88), and housing density (p = 0,001, OR = 8,5) The most dominant factor associated with the incidence of childhood pulmonary TB was a history of contact with TB patiets. The conclusion showed that there were significant associantions between the child's age, BCG immunization history, history of contact TB patients, parental knowledge, family smoking history, and housing density, whereas the child's gener was not significantly associated.

Keywords: childhood tuberculosis; history of contact with tb patients; risk factors

INTRODUCTION

Tuberculosis (TB) remains a major global health problem. WHO reported that in 2022 there were 10.6 million TB cases worldwide with 1.3 million deaths, making TB the second leading cause of death from infectious diseases after COVID-19 (WHO, 2023). Indonesia ranks second after India in terms of the highest number of TB cases globally, contributing around 10% of the total global burden. In Lampung Province, the trend of TB case detection has fluctuated. In 2022, the TB case detection rate was recorded at 54%, while in Bandar Lampung City in 2024 it was only 39%, far below the national target of 70% (Ministry of Health, 2024). Specifically for pediatric TB, Indonesia's case detection in 2024 reached only 15.9% compared to the target of >90%. In Lampung Province, the detection rate of pediatric TB was 58%, while in Bandar Lampung City, 698 pediatric TB cases were reported in 2024 (Bandar Lampung Health Office, 2024).

Several factors are known to be associated with pediatric pulmonary TB, including a history of contact with TB patients, household crowding, parental knowledge, BCG immunization status, and smoking habits of family members (Tantri Muharam, 2023; Muhammad S. D., 2021; Simanjuntak & Iskandar, 2023). These factors highlight the importance of prevention and early detection of pediatric TB to reduce its incidence. The Government of Indonesia has set the target of eliminating TB by

2030 through the *End TB* strategy, which is aligned with the Sustainable Development Goals (SDGs). Various efforts have been implemented, including strengthening the health system, increasing access to quality TB services, and utilizing research and technology for diagnosis and treatment (Ministry of Health RI, 2022).

RS Bhayangkara Bandar Lampung, as one of the referral hospitals, has also sought to improve TB control outcomes. Following supervision and mentoring by the Ministry of Health in mid-2024, pediatric pulmonary TB cases at the hospital continued to rise, with a total of 102 patients in 2024. Based on this phenomenon, it is important to conduct a study analyzing the factors associated with the incidence of pediatric pulmonary tuberculosis at RS Bhayangkara Bandar Lampung in 2025.

METHODS

This study was conducted using a quantitative approach. Data collection was carried out using questionnaires. The research design employed a case-control study, aiming to identify the risk factors associated with the incidence of pediatric pulmonary tuberculosis at RS Bhayangkara Bandar Lampung in 2025. The study population consisted of all outpatient pediatric pulmonary tuberculosis patients at RS Bhayangkara Bandar Lampung, totaling 102 children, with a sample of 60 respondents selected through simple random sampling. The study will be conducted from March 20 to April 20, 2025, and variable measurement will be performed using a questionnaire. Data analysis will be carried out using univariate, bivariate, and multivariate methods.

RESULTS AND DISSCUSION

Based on the analysis in Table 1, the results showed a significant association between the child's age and the incidence of pediatric pulmonary tuberculosis, as indicated by a p-value of 0.019 ($p < 0.05$). The Odds Ratio was 4.12, indicating that children under 5 years of age were 4.12 times more likely to develop pulmonary tuberculosis compared to children over 5 years of age.

Table 1.
Association Between Child Age and Incidence of Pediatric Pulmonary Tuberculosis at RS Bhayangkara Bandar Lampung, 2025

Child's Age	Incidence of Pediatric Pulmonary Tuberculosis				*p value*	*OR CI 95% (Low- Upper)*
	Case		Control			
	n	%	n	%		
<5 years	22	73,3	12	40		
>5 years	8	26,7	18	60	0,019	4,12; 1,38 -12,27
Total	30	100	30	100		

This study showed that children under five years old were more likely to be diagnosed with TB (73.3%) compared to controls (40%), with a chi-square test yielding $p = 0.019$ ($p < 0.05$). This indicates a significant association between age and the incidence of pediatric pulmonary tuberculosis. Biologically, younger children have an immature immune system, making them more vulnerable to severe TB, as also emphasized by WHO (2023). In addition, frequent close contact with adults, including active TB patients, increases their risk of infection. Previous studies (Wijaya et al., 2021; Fitria & Rita, 2021) similarly identified age under five years as a key risk factor. These findings highlight the importance of prioritizing early screening and preventive TB therapy (TPT) for children under five, particularly those with close household contact with TB patients.

Based on the analysis in Table 2, the chi-square test showed a p-value of 1.000, where $p \geq 0.05$, indicating that there was no significant association between the child's gender and the incidence of pediatric pulmonary tuberculosis at RS Bhayangkara Bandar Lampung in 2025. Thus, gender was not identified as a factor associated with the incidence of pediatric pulmonary tuberculosis.

Table 2.
Association Between Child's Gender and Incidence of Pediatric Pulmonary Tuberculosis at RS Bhayangkara Bandar Lampung, 2025

Child's Gender	Incidence of Pediatric Pulmonary Tuberculosis				*p value*	*OR CI 95% (Low- Upper)*
	Case		Control			
	n	%	n	%		
Male	21	70	20	66,7		
Female	9	30	10	33,3	1,000	-
Total	30	100	30	100		

The study found that the proportion of male children was slightly higher in TB cases (70%) compared to controls (66.7%), with a chi-square test yielding $p = 1.000$ ($p \geq 0.05$), indicating no significant association between gender and pediatric pulmonary tuberculosis. Although biological differences in immune response may render boys somewhat more vulnerable, the risk of transmission is more strongly influenced by household contact and environmental factors. Consistent with previous studies, these findings suggest that TB prevention strategies in children should adopt a gender-neutral approach and prioritize environmental, social, and family health determinants

Table 3.
Association Between Immunization History and Incidence of Pediatric Pulmonary Tuberculosis at RS Bhayangkara Bandar Lampung, 2025

Immunization History	Incidence of Pediatric Pulmonary Tuberculosis				*p value*	*OR CI 95% (Low- Upper)*
	Case		Control			
	n	%	n	%		
No BCG Immunization	13	43,3	2	6,7		
With BCG Immunization	17	56,7	28	93,3	0,003	10,7; 2,14 – 53,34
Total	30	100	30	100		

Based on the analysis in Table 3, the chi-square test showed a p-value of 0.003, where $p < 0.05$, indicating a significant association between BCG immunization history and the incidence of pediatric pulmonary tuberculosis at RS Bhayangkara Bandar Lampung in 2025. Thus, BCG immunization history was identified as a factor associated with the incidence of pediatric pulmonary tuberculosis. The Odds Ratio was 10.7, indicating that children without BCG immunization were 10.7 times more likely to develop pulmonary tuberculosis compared to those who had received the immunization.

The study showed a significant association between BCG immunization and pediatric pulmonary tuberculosis ($p = 0.003$). Children without BCG immunization were found to have a 6.87 times higher risk of developing TB compared to those vaccinated. BCG, although variably effective, is well-documented to provide strong protection against severe forms of TB such as meningitis and miliary TB. These findings are consistent with previous studies, highlighting the importance of increasing BCG coverage and strengthening immunization monitoring systems to ensure optimal protection in children.

Table 4.

Association Between History of Contact with TB Patient and Incidence of Pediatric Pulmonary Tuberculosis at RS Bhayangkara Bandar Lampung, 2025

History of Contact with TB Patient	Incidence of Pediatric Pulmonary Tuberculosis				*p value*	*OR CI 95% (Low-Upper)*
	Case		Control			
	n	%	n	%		
With Contact	26	86,7	11	36,7		
No. Contact	4	13,3	19	63,3	0,000	11,2; 3,09 – 40,71
Total	30	100	30	100		

Based on the analysis in Table 4, the chi-square test showed a p-value of 0.000, where $p < 0.05$, indicating a significant association between history of contact with TB patients and the incidence of pediatric pulmonary tuberculosis at RS Bhayangkara Bandar Lampung in 2025. Thus, a history of contact with TB patients was identified as a factor associated with the incidence of pediatric pulmonary tuberculosis. The Odds Ratio was 11.2, indicating that children with a history of contact with TB patients were 11.2 times more likely to develop pulmonary tuberculosis compared to those without such contact.

This study showed that a history of contact with TB patients was more prevalent in the case group (86.7%) compared to the control group (36.7%), with a p-value of 0.000 ($p < 0.05$), indicating a significant association. Children living in the same household with TB patients are at a much higher risk of infection due to repeated exposure to droplets containing *Mycobacterium tuberculosis*. This finding is consistent with previous studies reporting increased transmission risk among children with close contact, particularly within the family environment. Therefore, a history of contact is a dominant factor that should be considered in early detection and prevention efforts for childhood TB.

Table 5.
Association Between Parental Knowledge and Incidence of Pediatric Pulmonary Tuberculosis at RS Bhayangkara Bandar Lampung, 2025

Parental Knowledge	Incidence of Pediatric Pulmonary Tuberculosis				*p value*	*OR CI 95% (Low- Upper)*
	Case		Control			
	n	%	n	%		
Poor	**20**	**66,7**	**7**	**23,3**		
Good	**10**	**33,7**	**23**	**76,7**	**0,002**	**6,57; 2,1 – 20,47**
Total	**30**	**100**	**30**	**100**		

Based on the analysis in Table 5, the chi-square test showed a p-value of 0.002, where $p < 0.05$, indicating a significant association between parental knowledge and the incidence of pediatric pulmonary tuberculosis at RS Bhayangkara Bandar Lampung in 2025. Thus, parental knowledge was identified as a factor associated with the incidence of pediatric pulmonary tuberculosis. The Odds Ratio was 6.57, indicating that children whose parents had poor knowledge were 6.57 times more likely to develop pulmonary tuberculosis compared to children whose parents had good knowledge.

The study revealed that poor parental knowledge was more common in the case group (66.7%) compared to the control group (30%), while good knowledge was more prevalent among controls. The chi-square test showed a p-value of 0.002 ($p < 0.05$), indicating a significant association between parental knowledge and childhood TB. Adequate knowledge plays a crucial role in recognizing symptoms, seeking timely medical care, and adopting preventive measures, whereas lack of

knowledge may delay diagnosis and increase transmission risk. These findings align with previous studies reporting that limited parental understanding, particularly of TB signs in children, often leads to late healthcare visits. Strengthening parental knowledge through health education is therefore essential for early detection and prevention of childhood TB.

Table 6.
Association Between Family Smoking History and Incidence of Pediatric Pulmonary Tuberculosis at RS Bhayangkara Bandar Lampung, 2025

Family Smoking History	Incidence of Pediatric Pulmonary Tuberculosis				*p value*	*OR CI 95% (Low- Upper)*
	Case		Control			
	n	%	n	%		
Smoking	26	86,7	16	53,3		
Non Smoking	4	13,3	14	46,7	0,011	5,68; 1,59 – 20,33
Total	30	100	30	100		

Based on the analysis in Table 6, the chi-square test showed a p-value of 0.011, where $p < 0.05$, indicating that there is a significant association between family smoking history and the incidence of pediatric pulmonary tuberculosis at RS Bhayangkara Bandar Lampung in 2025. Thus, family smoking history is a factor associated with the incidence of pediatric pulmonary tuberculosis. The Odds Ratio was 5.68, indicating that children with a family smoking history are 5.68 times more likely to develop pulmonary tuberculosis compared to children without a family smoking history.

The study found that family smoking history was more prevalent in the case group (86.7%) compared to controls (57%), with a chi-square test showing $p = 0.011$ ($p < 0.05$), indicating a significant association. Exposure to cigarette smoke weakens immunity and damages the respiratory system, making children more vulnerable to TB infection. Passive smoking within households further increases the risk by facilitating TB transmission and exacerbating latent infections. Previous studies also support that smoking in the household contributes significantly to childhood TB. Strengthening smoke-free home regulations and promoting community-based education are therefore essential in TB prevention efforts.

The study found that crowded housing was more prevalent in the case group (43.3%) compared to the control group (35%), with a chi-square test showing $p = 0.001$ ($p < 0.05$), indicating a significant association. Overcrowded housing increases the risk of TB transmission, as *Mycobacterium tuberculosis* can remain airborne for hours, particularly in poorly ventilated environments. Previous studies also confirm that high residential density contributes to TB incidence among children. Improving housing standards by ensuring adequate living space, natural ventilation, and lighting is essential to reduce the risk of TB transmission in densely populated areas.

Table 7.
Association Between Housing Density and Incidence of Pediatric Pulmonary Tuberculosis at RS Bhayangkara Bandar Lampung, 2025

Family Smoking History	Incidence of Pediatric Pulmonary Tuberculosis				*p value*	*OR CI 95% (Low- Upper)*
	Case		Control			
	n	%	n	%		
Dense	17	56,7	4	13,3		
Non Dense	13	43,3	26	86,7	0,001	8,6; 2,37 – 30,46
Total	30	100	30	100		

Based on the analysis in Table 7,, the chi-square test results show a p-value of 0.001, where $p < 0.05$,

indicating a significant association between housing density and the incidence of Pediatric Pulmonary Tuberculosis at RS Bhayangkara Bandar Lampung in 2025. Thus, housing density is a factor associated with the incidence of Pediatric Pulmonary Tuberculosis. The Odds Ratio was 8.5, indicating that children living in densely populated housing are 8.5 times more likely to develop Pulmonary Tuberculosis compared to those living in less crowded housing.

Based on these results, the most dominant variable associated with the incidence of Pediatric Pulmonary Tuberculosis is the history of contact with TB patients, with an Odds Ratio (OR) of 7.94. This indicates that children with a history of contact with TB patients are 7.94 times more likely to develop Pulmonary Tuberculosis compared to those without such contact. Therefore, it can be concluded that a history of contact with TB patients is the most dominant factor associated with the incidence of Pediatric Pulmonary Tuberculosis.

The multivariate logistic regression analysis identified a history of contact with TB patients as the most dominant factor associated with childhood pulmonary tuberculosis ($p = 0.011$; OR = 7.94). Children with such contact were nearly eight times more likely to develop TB compared to those without contact. This risk is exacerbated by the reliance on referral systems for early detection, the nonspecific nature of TB symptoms in children, and the lack of preventive measures within households. Strengthening contact tracing, expanding the coverage of Tuberculosis Preventive Therapy (TPT), and promoting family education on healthy housing, ventilation, cough etiquette, and hygiene are crucial. Furthermore, the implementation of the standardized management protocol for childhood TB at Bhayangkara Hospital emphasizes systematic diagnosis, appropriate treatment, regular monitoring, and family counseling as integral strategies for TB prevention and control in children.

CONCLUSIONS

Based on the findings and discussion regarding the factors associated with the incidence of childhood pulmonary tuberculosis at Bhayangkara Hospital Bandar Lampung, the following conclusions can be drawn: Most respondents in the case group were under 5 years old (73.3%) and male (70%), while the control group was predominantly over 5 years old (60%) and male (68.3%). In the case group, the majority had received BCG immunization (56.7%) and had contact with TB patients (86.7%), while in the control group most had received BCG immunization (61.7%) but had no history of contact with TB patients (61.7%). Furthermore, in the case group, most respondents had parents with poor knowledge (66.7%) and smoking family members (86.7%), whereas in the control group the figures were 70% and 57%, respectively. Housing density in the case group was mostly crowded (56.7%), while in the control group it was mostly uncrowded (65%). There is a significant association between the child's age and the incidence of childhood pulmonary tuberculosis at Bhayangkara Hospital Bandar Lampung in 2025. There is no significant association between the child's sex and the incidence of childhood pulmonary tuberculosis at Bhayangkara Hospital Bandar Lampung in 2025. There is a significant association between BCG immunization history and the incidence of childhood pulmonary tuberculosis at Bhayangkara Hospital Bandar Lampung in 2025. There is a significant association between a history of contact with TB patients and the incidence of childhood pulmonary tuberculosis at Bhayangkara Hospital Bandar Lampung in 2025. There is a significant association between parental knowledge and the incidence of childhood pulmonary tuberculosis at Bhayangkara Hospital Bandar Lampung in 2025. There is a significant association between family smoking history and the incidence of childhood pulmonary

tuberculosis at Bhayangkara Hospital Bandar Lampung in 2025. There is a significant association between housing density and the incidence of childhood pulmonary tuberculosis at Bhayangkara Hospital Bandar Lampung in 2025. A history of contact with TB patients was identified as the most dominant factor associated with the increased incidence of childhood pulmonary tuberculosis.

REFERENCES

Abimulyani, Yumi., Kainde Yuliana Yacinta., Mansyur, Tri Novianty., Siregar, Neny San Agustina. 2023. Analisis Faktor Risiko TB Paru Anak yang Tinggal Serumah dengan Penderita TB Paru Dewasa. Journal of Pharmaceutical and Health Research. Vol 4(2).

Adigun R, Singh R. 2023. Tuberculosis. In StatPearls. Treasure Island (FL): StatPearls Publishing.

Almira, F.N. Rakhmawati, W. Hendrawati, S., Maryam, N.N.A. 2023. Pengetahuan orang Tua dengan Anak Tuberkulosis di RSUD dr. Soeselo Tegal. Jurnal Surya Medika (jsm), 9(2), 161-167.

Amin, Nur Fadilah., Garancang, Sabarudin., Abunawas, Kamaluddin. 2023. Konsep Umum Populasi dan Sampel dalam Penelitin. Jurnal Kajian Islam Kontemporer. Vol 14(1).

Arikunto, S. 2013. Prosedur Penelitian : Suatu Pendekatan Praktik (Revised ed). Jakarta : Rineka Cipta

Bagaskara, Dwiki., S Agus Samsudrajat., Hariani Eka., Hapasari, Dian Indahwati. 2024. Analisis Faktor-Faktor yang Berhubungan dengan Kejadian TB Paru pada Anak di Indonesia (Studi Data Riskesda 2018). Jurnal Mahasiswa dan Penelitian Kesehatan. Vol 1, N0. 01.

Balaputra, Ishana. 2021. Dukungan Keluarga dan Perilaku Membuang Dahak pada Penderita TB Paru di Kabupaten Jember. Jurnal Keperawatan dan Kebidanan. Vol 6 No.1.

Baun, AH., Picauly, I., & Paun R. 2023. Analisis Faktor Risiko Kejadian Tuberkulosis pada Anak Di Wilayah Kota Kupang. Public Health Risk Assesment journal. 1(1). 56-73.

Dinas Kesehatan Provinsi Lampung. 2020. Profil Kesehatan Provinsi Lampung Tahun 2019. Lampung: Dinas Kesehatan Provinsi Lampung.

Farsida., Kencana, Ratu Mani., 2020. Gambaran Karakteristik Anak dengan Tuberkulosis di Puskesmas Tangerang Selatan. Muhamadiyah Journal of Midwifery. Vol 1, No.1.

Ferenkie, A. 2020. Pencegahan dan Penindakan Penyakit Menular Tuberkulosis terhadap Narapidana di Lembaga Permasyarakatan Kelas II A Selemba. Jurnal Ilmu Hukum dan Humaniora. Vo. 7, No.2.

Fitria, P.A., & Rita, E. (2021). Karakteristik Skrining yang Berhubungan dengan Kejadian Tuberkulosis (TB) Paru Pada Anak. Indonesia Journal of Nursing Sciences and Practices, 4(2), 85-92.

Fransiska, Mellia & Hartati, Eyis. 2019. Faktor Resiko Kejadian Tuberculosis. Jurnal Kesehtan Vo. 10 No.3.

Handayani, Rini; Adnan, Nurhayati Prihartono. 2019. Faktor Risiko Tuberkulosisi Paru pada Narapidana di Lembaga Permasyrakatan Narkotika Jakarta. Jurnal Ilmiah Kesehatan Masyarakat. Vol 11 Edisi 2.

Hastono.2016. Analisis Data Pada Bidang Kesehatan. Jakarta: Rajawali Press PT RajaGrafindo Persada.

Herchline TE. 2022. Tuberculosis (TB). Medscape.

Irwan, I. 2017. Epidemiologi Penyakit Menular. Yogyakarta:Absolute Media.

Kemenkes RI. Hasil Riset Kesehatan Dasar Tahun 2018. Kementrian Kesehat RI.

Kementerian Kesehatan Republik Indonesia. 2020. Pedoman Nasional Pelayanan Kedokteran Tata Laksana Tuberkulosis. Jakarta: Kementerian Kesehatan Republik Indonesia.

Kementerian Kesehatan Republik Indonesia. 2020. Strategi Nasional Penanggulangan Tuberkulosis di Indonesia 2020-2024. Pertemuan Konsolidasi Nasional Penyusunan STRANAS TB, 135.

Kementerian Kesehatan Republik Indonesia. 2023. Cakupan Program TB Indonesia Tahun 2022. Tersedia di https://tbindonesia.or.id/

Kementerian Kesehatan Republik Indonesia. 2024. Buku Saku Tatalaksana Tuberkulosis Anak dan Remaja Jakarta: Kementerian Kesehatan Republik Indonesia.

Kementerian Kesehatan Republik Indonesia. 2023. Petunjuk Teknis Tatalaksana Tuberkulossis Anak dan Remaja. Jakarta: Kementerian Kesehatan Republik Indonesia.

La Ranki & Arfiyan Sukmadi. 2021. Hubungan Perilaku dengan Kejadian Tuberkulosisi Paru Di Kabupaten Muna. Health Care: Jurnal Kesehatan, 10(2), 346-352.

Muharam, Tantri., Sudirman, Andi Akifa., Modjo, Dewi. 2023. Faktor Risiko Kejadian Tuberkulosis pada Anak di RSUD Toto Kabila. Jurnal Inovasi Riset Ilmu Kesehatan. Vol 1(2).

Notoadmojo, S. 2010. Ilmu Perilaku Kesehatan. Jakarta:Rineka Cipta.

Notoadmojo, S. 2018. Promosi Kesehatan dan Ilmu Perilaku. Jakarta:Rineka Cipta.

Nurjana, Made Agus. 2015. Faktor Risiko Terjadinya Tuberculosis Paru Usia Produktif (15-49) Di Indonesia. Jurnal Badan Penelitian dan Pengembangan kesehatan. Vol 25 No.3.

Peraturan Presiden Republik Indonesia. 2021. Peraturan Presiden Republik Indonesia Nomor 67 Tahun 2021.

Rab, T. 2013. Mikrobiologi Kesehatan. Jakarta : Penerbit Medika.

Simanjuntak, Thomas Wira Dharma dan Iskandar, Irvan Sebastian. 2023. Implementasi Kebijakan pelayanan Kesehatan Bagi Narapidana Penderita Tuberkulosis di Lembaga Permasyarakatan Narkotika Kelas II A Langkat. Jurnal Pendidikan Kewarganegaraan Undiskha. Vol. 11 No. 3.

Soesanto, A., Anam, M.S., Arkhaesi, N., & Pratiwi, R. 2021. Kejadian dan Faktor Risiko Tuberkulosis pada Anak Penghuni Pada Penduduk : Studi Pada Rusun Kudu. Sari Pediatri 2022;24(1):1-6.

Sugiyono.2018. Metode Penelitian Kuantitatif, Kualitatif, dan R&D. Bandung: Alfabeta.

Sutriyawan, A., Nofianti, N., Halim, R. 2022. Faktor yang Berhubngan dengan Kejadian Tuberkulosis Paru. Jurnal ilmiah Kesehatan (Jika). 4(1),98-105.

Tripena, Christy Heny., Suangga Fitriany., Purnama Indah. 2024. Faktor-Faktor yang Berhubungan dengan Kejadian TB Paru pada Anak di Poliklinik RSUD Embung Fatimah. Jurnal Ilmiah Ilmu Kesehatan dan Kedokteran. Vol 2 (3).

Wahidah, Latifatul., Wardani, Ratih Sari., Wulandari. 2023. Faktor Kejadian Tuberkulosis Paru Pada Anak Usia 5-14 tahun. Prosiding Seminar kesehatan Masyarakat. Vol (1).

Wardani, Dayah W.S.R., Dewi, Rosmala A., Suharmanto. 2020. Hubungan Keberadaan Kontak Serumah dan Perilaku Ibu terhadap Kejadian Tuberkulosis Anak. Jurnal Dunia Kesmas. Vol 9(3).

Wijaya, M. S. D., Mantik, M. F. J., & Rampengan, N. H. 2021. Faktor risiko tuberkulosis pada anak. E-CliniC, 9(1), 124–133. https://doi.org/10.35790/ecl.v9i1.32117

Wulanda, A.F., Delilah, S. 2021. Efektivitas Imunisasi BCG terhadap Kejadian Tuberkulosis Anak di Kabupaten Bangka. Jurnal Kesehatan Poltekkes Kemenkes RI Pangkalpinang, 9(1),1-8.

World Health Organization .2022. Global Tuberculosis Report 2022. WHO.World Health Organization. Tuberculosis

World Health Organization. 2023. Global Tuberculosis Report. Geneva: World Health Organization.

World Health Organization. 2023. Inclusion for Every Child : Reaching Every Child Affacted by Tuberculosis. Geneva: World Health Organization.

World Health Organization. 2023. Roadmap Towards Ending TB in Children and Adolescents (3RD ed.) Geneva: World Health Organization.