

Feeding Behaviour In Children With Tuberculosis And Malnutrition: A Case Study In East Kikim Subdistrict, Lahat Regency

Indri Paradillah¹, Deri Sentosa², Evi Martha³

¹*Faculty of Medicine, Sriwijaya University, Jalan Dokter Muhammad Ali, Sekip Jaya, Palembang City, Indonesia*

²*Faculty of Medicine, Sriwijaya University, Jalan Dokter Muhammad Ali, Sekip Jaya, Palembang City, Indonesia*

³*Faculty of Public Health, Indonesia University, Depok City, East Java, Indonesia*
indriparadillah@gmail.com

Keywords: *Tuberculosis, Malnutrition, Child, Feeding Behaviour,*

Abstract: Feeding practices play an important role in children's growth. Poor feeding practices by mothers or caregivers can increase susceptibility to infection and exacerbate malnutrition. Malnutrition's effects on immune system development and respiratory tract infections among malnourished children create a dangerous cycle. Understanding the mechanisms that contribute to this interaction in children is essential to addressing the problems that arise from both. This study aims to analyze the feeding behavior in children infected with tuberculosis and suffering from malnutrition in Kikim Timur Subdistrict, Lahat Regency, South Sumatra Province. This study uses a qualitative method with a case study approach. The research was conducted from October to November 2022 in Kikim Timur Subdistrict, Lahat Regency, South Sumatra Province. Primary data collection was conducted through in-depth interviews with six informants, namely mothers with children infected with TB and suffering from malnutrition in Kikim Timur Subdistrict. The study's results indicate a low level of knowledge and a negative perception regarding exclusive breastfeeding and dietary diversity in children, alongside a lack of support from health workers to assist mothers with feeding their children.

1 INTRODUCTION

Tuberculosis is an infectious disease caused by the bacterium *Mycobacterium tuberculosis* and is the leading cause of death worldwide (Kementerian Kesehatan Republik Indonesia, 2020). Even during the COVID-19 pandemic, TB remains the disease with the highest mortality rate above HIV/AIDS. There are 10 million TB infection cases worldwide, 1.1 million affect children (World Health Organization, 2021). Children under five years of age are at a greater risk of contracting TB due to their underdeveloped immune systems (Khalil et al., 2020).

Research shows that 26% of TB infections are caused by malnutrition, which is a significant risk factor for TB (Khalil et al., 2020). Malnutrition causes the human body's defense mechanisms to malfunction and, due to immune system disorders, the body becomes more susceptible to infectious diseases. Children with malnutrition are generally thin and weak, making them more vulnerable (Putra et al., 2018). Inadequate feeding practices by mothers or caregivers can increase susceptibility to infection and exacerbate malnutrition (Wijaya et al., 2021). This means that feeding practices have a significant impact on children's nutritional status, especially those suffering from TB (Rahmadani et al., 2018).

According to the Health Office of one of the provinces in Indonesia, which is currently one of the provinces with the highest prevalence of pulmonary TB, South Sumatra has 6.2% of children infected with TB (Dinas Kesehatan Provinsi Sumatera Selatan, 2020). Based on data reported by the South Sumatra Provincial Health Office, Lahat Regency has the highest number of malnutrition cases in South Sumatra Province (Dinas Kesehatan Kabupaten Lahat, 2020).

2 METHOD

Participants in this study were parents of children aged 1–10 years infected by tuberculosis (pulmonary and extra pulmonary) with malnutrition. The key informant were tuberculosis officer and nutritionist at the public health center. In this study, inclusion and exclusion criteria were applied to reduce bias in the research results. The inclusion criteria were parents of children aged 1 to 10 years infected by tuberculosis (pulmonary and extra pulmonary) with malnutrition, while the exclusion is informant who refused to provide information related to this study.

This research is a qualitative study with a case study design that aims to identify the behavior of

giving to children infected with tuberculosis with malnutrition in East Kikim. This research was conducted in East Kikim District, which consists of three public health center areas, namely Bungamas Public Health Center, Palembang Public Health Center, and Bumi Lampung Public Health Center. Data collection for this research was conducted from October to November 2022. This study used purposive sampling, where the researcher selected samples according to the type of information needed. The sample in this study was based on saturation (saturated data), where the information obtained was considered sufficient if it was repeated by other informants or, in other words, data collection was stopped if no new data was obtained.

Data analysis in this study began with the researcher extracting information from in-depth interviews by summarizing, selecting key points, and focusing on substantial aspects relevant to the phenomenon of child feeding behavior. Through this process, the complex raw data was simplified without reducing the essence of the information provided by the informants and then the researcher categorized the data into a matrix. This step aimed to map the patterns of relationships between the data in detail and facilitate triangulation between the interview results and the matrix that had been prepared. In the final stage, it is carried out content analysis for identify the relationship between feeding behavior in children with tuberculosis and malnutrition.

This research has passed the ethical review of the Faculty of Public Health, University of Indonesia, with Letter Number: Ket 615/UN2.F10.D11/PPM.00.02/2022 and has obtained permission to conduct field research from the Faculty of Public Health, University of Indonesia, with Letter Number: S-6070/UN2.F10.D1/PDP.04.04/2022. Usage informed consent in this study demonstrates the researcher's adherence to the code of ethics for health research, which upholds humanitarian values. Prior to the primary data collection process through in-depth interviews, the researcher transparently provided a comprehensive explanation to potential informants regarding the intent, purpose, and procedures of the research to be conducted. The researcher also guarantees that the informant's personal identity will not be included in the research report. All data obtained will be stored securely on electronic devices protected by a restricted access code to prevent information leakage. Researchers also provide an explanation regarding the use of recording equipment.

3 RESULT

This study involved 6 primary informants and 4 key informants. The primary informants were mothers of children aged 0-10 years suffering from both tuberculosis and malnutrition. Three informants had children under five years old, while the other three had children over five. The majority (5 out of 6) of primary informants had a junior or senior high school education level, worked as housewives or farmers, and had family income below the Lahat Regency Minimum Wage (UMK).

The key informants consisted of two TB Program Coordinators and two Nutrition Coordinators from Public Health Centers in the East Kikim District. The characteristics of the informants are summarized in Table 1 and Table 2.

Table 1. Characteristics of Primary Informants

No	Informant Code	Age	Last Education	Occupation	Family Income	Age of Child
1	1	37	SMP	Housewife	< UMK Lahat District	2y 7m
2	2	33	SMA	Housewife	< UMK Lahat District	1y 9m
3	3	45	SD	Farmer	< UMK Lahat District	4
4	4	28	SMA	Housewife	< UMK Lahat District	8
5	5	42	SMP	SMP	< UMK Lahat District	6
6	6	37	S2	Entrepreneur	> UMK Lahat District	6

Table 2. Characteristics of Key Informants

No	Informant Code	Age	Last Education	Occupation	Family Income	Period of Employment
1	9	41	D3	TB Officer	> UMK Lahat District	18
2	10	26	S1	TB Officer	> UMK Lahat District	2
3	11	23	D3	TB Officer	> UMK Lahat District	1
4	12	37	S1	TB Officer	> UMK Lahat District	5

Four of the six mothers had an incomplete understanding of exclusive breastfeeding, especially regarding the duration of feeding during the first 0-6 months. However, the other two mothers demonstrated an accurate understanding.

“Exclusive breastfeeding is breastfeeding given to babies from birth until 6 months of age without any additional food...” (Informant 6)

All mothers know that complementary feeding begins at six months of age, but five of them admit to a lack of understanding about the specific nutritional content of foods. All mothers generally have a positive attitude toward the importance of good nutrition. However, they face significant obstacles, such as economic difficulties that limit food variety, picky eaters, and difficulty accessing premium food ingredients.

“That’s great [having a variety of foods]. Because it will definitely make children healthier. But if the family’s finances don’t allow them to buy a variety of foods, it will be difficult.” (Informant 3)

Health facilities such as public health center and midwives are available, but services are limited to TB treatment, with referrals required for further examination. Complaints about drug shortages at Puskesmas have also been reported, forcing mothers to purchase drugs independently.

“I also don’t know much about the activities of the toddler health center here because no one has given me any information.” (Informant 2)

In addition, Posyandu activities are reportedly not carried out regularly and information is not well disseminated. The main sources of information for

mothers are social media, family/neighbors, and health workers.

All informants stated that they received positive support from their husbands, especially in the form of accompanying their children during medical treatment. However, support from health workers was considered lacking. All mothers felt that health workers were not proactive enough in providing information related to nutrition and feeding practices.

“Health workers at the local health center are not very active in providing us with health information...” (Informant 6)

Only two of the six mothers provided exclusive breastfeeding for 0-6 months. The main reasons for the failure to provide exclusive breastfeeding were low milk production, low birth weight, and mothers having to leave their children in the care of others.

The types of food provided were not very varied; three mothers stated that eggs were the most frequently consumed side dish because they were affordable. The frequency of children’s meals was also irregular. This was due to the TB medication schedule in the morning, which required fasting for one hour, so children often skipped breakfast. For school-age children, the habit of buying snacks was an additional obstacle.

“It’s difficult to eat. That’s what makes it irregular. They want to snack. If they don’t get their way, they can throw a tantrum.” (Informant 3).

4 DISCUSSION

The Indonesian Ministry of Health defines exclusive breastfeeding as feeding a baby only breast milk for the first six months of life, without any other food or drink. The findings of this study indicate a gap between mothers’ positive attitudes and their knowledge and perceptions regarding feeding. Low knowledge about the duration of exclusive breastfeeding is consistent with studies in India (Khan et al., 2022), which is often caused by a lack of information from health workers and mothers’ educational levels (Tyas et al., 2022).

Children aged 6-24 months need complementary foods because breast milk alone is no longer sufficient to meet their nutritional needs due to rapid growth and physical activity, and babies are recommended to consume easily digestible foods. However, challenges arise in terms of mothers’ knowledge. Although mothers understand the importance of complementary foods after 6 months (Kementerian Kesehatan Republik Indonesia, 2020), this study found that a lack of specific knowledge about nutrition often caused by

a lack of information can increase the risk of abnormal nutritional status in children. This shows that mothers' level of nutritional knowledge greatly influences feeding behavior.

Mothers' perceptions, namely the process of interpreting feeding patterns based on the five senses, greatly influence behavior. Mothers with inaccurate perceptions (underestimated/overestimated) tend to have insufficient or excessive feeding behaviors. In this context, the common perception that breast milk supply is insufficient is a major barrier, prompting mothers to introduce complementary foods earlier (Matara et al., 2020). Regarding attitudes, findings show that mothers' optimistic attitudes do not guarantee that children receive adequate nutrition, because positive attitudes do not always translate into good practices. This can occur due to limited understanding, emotional factors (such as forcing children to eat), or the influence of other people who are considered important, which causes mothers' actions to be inconsistent with their personal beliefs (Rissa et al., 2021).

The availability of community-level health facilities, such as community health centers (puskesmas), is an important foundation in nutrition management. Community health centers have carried out their governmental responsibilities by providing supplementary feeding in the form of biscuits, which is a supplementation strategy to overcome malnutrition (Susana et al., 2019). However, the main obstacle is that the effectiveness of this program depends on long-term compliance or implementation by mothers. On the other hand, in the information age, social media has triggered a shift in health information-seeking behavior. Mothers are proven to be heavy users of social media, with Facebook being the main source (Supthanasup et al., 2022), as found in Thailand. However, this ease of access to information also carries the risk of exposure to false (hoax) or conflicting information, which can result in suboptimal child feeding (Dusingizimana et al., 2020).

Family support, especially from husbands, has been shown to be a significant reinforcing factor in this study, in line with Lawrence Green's behavioral theory. This support, which can take the form of attitudes, actions, or acceptance from other family members, plays an important role in motivating and facilitating healthy behaviors, such as ensuring that children receive treatment or nutritious food (Nurul et al., 2018). Conversely, the role of health workers as a reinforcing factor is considered less than optimal. Although health professionals are essential for the adoption of healthy feeding practices, the lack of proactive nutrition counseling from them is

a missed opportunity. In fact, nutrition counseling is a key intervention to help families recognize problems and make appropriate decisions regarding the nutritional challenges they face (Mahmudah & Sari, 2020).

The feeding practices observed in this study are the result of complex interactions between various factors. The failure of some informants to exclusively breastfeed was not only due to a lack of knowledge about when to start, how long to continue, and the importance of avoiding pre-lactation foods (Kamble et al., 2020), but also reinforced by perceptions of insufficient breast milk, which led mothers to decide to give formula milk.

Regarding dietary diversity, low dietary diversity was found. Although the FAO recommends seven food groups (cereals/tubers; fruits/vegetables rich in vitamin A; meat/fish/poultry; nuts/seeds; eggs; other fruits/vegetables; milk and dairy products), some informants often only provided a minimum of three types, most often carbohydrates, eggs, and vegetables. This finding is consistent with other studies showing low food diversity (Awasthi et al., 2019).

This is driven by two main factors: First, the economic inability to purchase diverse foods such as meat and fruit, which are considered expensive (Mekonnen et al., 2018), so informants prefer eggs or green vegetables. Second, poor appetite in children due to infections (such as TB). This creates a vicious cycle: infection reduces appetite, mothers give smaller portions, which ultimately worsens the child's malnutrition and nutrient deficiency.

2025 5 CONCLUSION

Feeding behaviors in children with tuberculosis and malnutrition in East Kikim are driven by a gap between mothers' positive attitudes and their limited knowledge regarding exclusive breastfeeding and dietary diversity. This study finds that while family support is strong, optimal feeding is hindered by economic constraints that limit access to varied food and the child's decreased appetite due to infection, creating a "vicious cycle". Furthermore, the lack of proactive nutritional counseling from health workers remains a significant barrier to improving these practices. To improve health outcomes, it is essential for public health centers to integrate medical TB treatment with more intensive and accessible nutritional education for caregivers

REFERENCES

- Awasthi, S., Verma, T., Sanghvi, T., & Frongillo, E. A. (2019). Path To Severe Acute Malnutrition In Children Below 2 Years Of Age: Findings Of Qualitative Research In Uttar Pradesh, North India. *Clinical Epidemiology And Global Health*, 7(2), 246–252. <https://doi.org/10.1016/J.Cegh.2018.11.001>
- Dinas Kesehatan Kabupaten Lahat. (2020). *Profil Kesehatan Kabupaten Lahat*. 2020.
- Dinas Kesehatan Provinsi Sumatera Selatan. (2020). *Profil Kesehatan Provinsi Sumatera Selatan Tahun 2020*.
- Dusingizimana, T., Weber, J. L., Ramilan, T., Iversen, P. O., & Brough, L. (2020). A Qualitative Analysis Of Infant And Young Child Feeding Practices In Rural Rwanda. 24(12), 3592–3601. <https://doi.org/10.1017/S1368980020001081>
- Kamble, B. D., Kaur, R., Acharya, B. P., Gupta, M., & Batch, B. (2020). Infant And Young Child Feeding Practices Among Mothers Of Children Aged 6 Months – 2 Years In A Rural Area Of Haryana: A Qualitative Study. 3–9. <https://doi.org/10.4103/Jfmpc.Jfmpc>
- Kementerian Kesehatan Republik Indonesia. (2020). *Profil Kesehatan Indonesia Tahun 2020*.
- Khalil, B., Hussain, M., Taj, W., Iqbal, S., Irshad, M., & Khan, M. J. (2020). Frequency Of Pulmonary Tuberculosis In Severely Acute Malnourished Children And Its Association. 252–255.
- Khan, J., Karim, R., Khan, A., Ullah, A., & Afridi, M. (2022). Original Article Knowledge, Attitude And Practice Regarding Exclusive Breastfeeding Among Mothers Attending Tertiary Care. March, 44–48.
- Mahmudah, U., & Sari, S. P. (2020). Pengaruh Penggunaan Media Cakram Gizi Terhadap Pengetahuan Remaja Mengenai Konsumsi Buah Dan Sayur. *Ilmu Gizi Indonesia*, 03(02), 155–162.
- Matare, C. R., Craig, H. C., Martin, S. L., Rosemary, A., Chappleau, G. M., Kerr, R. B., Dearden, K. A., Nnally, L. P., & Dickin, K. L. (2020). Barriers And Opportunities For Improved Exclusive Breast-Feeding Practices In Tanzania: Household Trials With Mothers And Fathers. 40(3), 308–325. <https://doi.org/10.1177/0379572119841961>.
Barriers
- Mekonnen, N., Asfaw, S., Mamo, A., Mulu, Y., & Fentahun, N. (2018). Barriers And Facilitators Of Child-Feeding Practice In A Small Sample Of Individuals From Gozamin District, Northwest Of Ethiopia: A Qualitative Study. 1–7.
- Nurul, L., Yulia, S., & Dwi, H. (2018). Hubungan Dukungan Keluarga Dengan Status Gizi. *Jurnal Keperawatan Volume*, 10(1).
- Putra, A. S., Eliska, Gurning, F. P., & Pratama, M. Y. (2018). Analisis Faktor Yang Berhubungan Dengan Kejadian Tuberkulosis Paru Anak Di Rsud Sibuhuan. 6, 268–275. <https://doi.org/10.20473/Jbe.V6i32018.268-275>
- Rahmadani, E., Midiawati, & Nasuha, A. Riadin. (2018). Hubungan Pola Makan Dengan Status Gizi Penderita Tb Paru Di Wilayah Puskesmas Suka Makmur Dan Puskesmas Seblat Bengkulu Utara Tahun 2018. *Journal Of Nursing And Public Health*, 6(2), 19–24.
- Rissa, N., Eka, W., & Agnita, U. (2021). Hubungan Tingkat Pengetahuan Dan Sikap Ibu Dengan Status Gizi Pada Anak Balita. *Jurnal Medika Utama*, 892–899.
- Supthanasup, A., Banwell, C., & Kelly, M. (2022). Facebook Feeds And Child Feeding: A Qualitative Study Of Thai Mothers In Online Child Feeding Support Groups.
- Susana, L., Liliana, & Suroño, P. (2019). Edukasi Pemberian Makanan Tambahan Bagi Ibu Balita Gizi Kurang. *Community Development Journal*.
- Tyas, T. P., Perbawati, D., Ilmu, F., Prodi, K., Kebidanan, D., Soebandi, U., District, M., & Regency, J. (2022). Pendidikan Kesehatan Pentingnya Pemberian Asi Eksklusif Di Desa Pejitalang Kecamatan Mumbulsari Kabupaten Jember 1. 6(1), 9–11.
- Wijaya, M. S. D., Mantik, M. F. J., & Rampengan, N. H. (2021). Faktor Risiko Tuberkulosis Pada Anak. 9(28), 124–133.
- World Health Organization. (2021). *Global Tuberculosis Report*.