Media of Health Research
Vol. 4 No. 3, August 2026, pages: 401-408
e-ISSN 2987-7784
DOI: https://doi.org/10.70716/mohr.v4i3.670

Factors Related To Formula Feeding To Babies Aged 0-6 Months In Work Area Of Balai Jaya Health Center

Liva Maita[1], Octa Dwienda Ristica[2], Kiki Megasari[3], Zunaida[4]
[1,2,3,4] Program Studi S1 Kebidanan, Universitas Hang Tuah Pekanbaru, Indonesia.
**Corresponding Author: livahayati@htp.ac.id*

Article History

Manuscript submitted:
14 April 2026
Manuscript revised:
26 May 2026
Accepted for publication:
15 June 2026
Manuscript published:
28 June 2026

Keywords

Formula feeding;
Exclusive breastfeeding;
Maternal knowledge;
Maternal attitude;
Family support

Abstract

Formula feeding among infants aged 0-6 months remains a public health concern because it can reduce exclusive breastfeeding and increase infant health risks. This study aimed to identify factors associated with formula feeding among infants aged 0-6 months in the working area of Balai Jaya Health Center, Rokan Hilir Regency, in 2025. This research used a quantitative cross-sectional design. The population comprised all mothers of infants aged 0-6 months, and 74 respondents were selected through total sampling. Data were collected using questionnaires and analyzed through univariate analysis and chi-square tests at a significance level of $p < 0.05$. The results showed that 60.8% of infants received formula milk. Most mothers had low levels of knowledge, negative attitudes, were working, were exposed to formula milk promotion, and lacked family support. Bivariate analysis showed significant associations between knowledge, attitude, employment status, formula milk promotion, and family support and formula feeding (p-values = 0.000). This study concludes that these factors are associated with formula feeding. Therefore, continuous education, lactation counseling, workplace support, and family involvement are needed to strengthen exclusive breastfeeding practices and prevent inappropriate early formula use among infants in the local community.

Copyright © 2026, The Author(s)
This is an open-access article under the CC BY-SA license

How to Cite: Maita, L., Ristica, O. D., Megasari, K., & Zunaida (2026). Factors Related To Formula Feeding To Babies Aged 0-6 Months In Work Area Of Balai Jaya Health Center. *Media of Health Research, 4*(3), 401-408. https://doi.org/10.70716/mohr.v4i3.670

Introduction

Health and nutrition are important foundations for improving the quality of human resources. Nutritional adequacy from infancy supports optimal growth, development, and immunity. Infancy, especially the 0-6 months age range, is a critical period because the baby's organ systems aresystems are still developing and require safe, appropriate, and easily digested nutrition. Breast milk is the main and recommended food for infants in this age group because it contains complete nutrients,

antibodies, enzymes, and hormones that are not found in formula milk (Nuddin & Umar, 2020; Mitiku et al., 2023; Derow & Waruguru, 2025).

Exclusive breastfeeding is the World Health Organization (WHO) recommendation for babies aged 0–6 months because it supports growth, immunity, and disease prevention. However, in practice, there are still many babies who have received formula before the age of 6 months. This condition is a global concern because it can increase the risk of short-term and long-term health problems. Therefore, research on factors related to formula feeding is important to study further (WHO, 2025).

Infant formula is a manufactured milk product designed as a substitute when breastfeeding cannot be provided adequately to infants aged 0-6 months (Aulia et al., 2023). However, the widespread promotion and advertising of formula milk in Indonesia may lead parents to perceive formula as a primary food source rather than a substitute for breast milk. Inappropriate use of formula milk, including incorrect preparation, inappropriate dosing, and poor bottle hygiene, can increase the risk of health problems and nutritional disorders in infants (Rozensztrauch et al., 2022).

Based on data from the Indonesian Ministry of Health through SSGI 2024, exclusive breastfeeding coverage in Indonesia reached 74.73%, indicating that around one-fourth of infants still did not receive full exclusive breastfeeding until the age of 6 months. Previous data and international studies indicate that maternal education, employment, economic status, perceptions of breast milk sufficiency, low early initiation of breastfeeding (IMD), and limited counseling from health workers are associated with early formula feeding (Kemenkes RI, 2023). Formula milk is a processed product made from cow's milk or other ingredients and modified to resemble the nutritional composition of breast milk; however, it cannot fully replace the biological and protective functions of breast milk (Kemenkes RI, 2025).

Although national exclusive breastfeeding coverage has improved, it remains below the Ministry of Health of the Republic of Indonesia's 80% target. In Riau Province, the 2023 Health Profile reported that the proportion of exclusive breastfeeding among infants aged 0-6 months was 44.5%, a decrease from 45.4% in 2022 and still below the provincial target of 45%. Similar conditions were found in several districts and cities in Riau Province, including Rokan Hilir Regency. In November 2025, several health centers reported low exclusive breastfeeding coverage, including Balai Jaya Health Center (48%), Tanah Putih Health Center (40%), and Taluk Merbau Health Center (45%). A preliminary survey in the Balai Jaya Health Center area also identified three villages with low coverage, namely Bagan Bhakti Village (40%), West Pasir Puti Village (42%), and Lubuk Jawi Village (44%) (Dinas Kesehatan Provinsi Riau, 2023). These data highlight the need for stronger local interventions to improve exclusive breastfeeding and reduce early formula feeding.

Several maternal, family, environmental, and socio-cultural factors may be associated with mothers' decisions to give formula milk. Previous studies have examined formula feeding and exclusive breastfeeding in various settings. However, evidence focusing on the combined roles of maternal knowledge, maternal attitude, employment status, formula milk promotion, and family support in the working area of Balai Jaya Health Center remains limited. The local context is important because the area has villages with low exclusive breastfeeding coverage and different patterns of family support, work demands, and exposure to formula milk promotion. Therefore, this study offers novelty by analyzing these five factors simultaneously in a specific local health center setting in Rokan Hilir Regency in 2025. The findings are expected to provide evidence for strengthening exclusive breastfeeding education, lactation counseling, workplace support, regulation of formula promotion exposure, and family involvement, especially support from husbands and close relatives.

Materials and Methods

Research Design

This study used a quantitative cross-sectional design to identify factors associated with formula feeding among infants aged 0-6 months in the Balai Jaya Health Center working area, Rokan Hilir Regency, in 2025. The study was conducted from November 2025 to January 2026. The dependent variable was formula feeding, while the independent variables were maternal knowledge, maternal attitude, employment status, exposure to formula milk promotion, and family support.

Population and sample

The study population comprised all mothers with infants aged 0-6 months in the Balai Jaya Health Center working area, totaling 74 respondents. Because the population size was limited and accessible, all eligible mothers were included using a total sampling technique. Data were collected using a structured questionnaire completed by the respondents with assistance from the researcher when clarification was needed.

Research instrument and measurement criteria

The instrument consisted of sections on respondent characteristics, formula feeding practices, maternal knowledge, maternal attitude, employment status, exposure to formula milk promotion, and family support. The questionnaire was adapted from previous studies on exclusive breastfeeding and formula feeding and was reviewed before use to ensure that each item was relevant to the study variables. Validity was assessed using item-total correlation, while reliability was assessed using Cronbach's alpha; only items that met the validity and reliability criteria were retained for data collection. Formula feeding was categorized as "given" when the infant had received any formula milk during the age of 0-6 months and "not given" when the infant had not received formula milk. Maternal knowledge was categorized as low or good based on the total knowledge score. Maternal attitude was categorized as negative or positive based on the attitude score. Employment status was categorized as working or not working. Exposure to formula milk promotion was categorized as exposed or not exposed based on the mother's report of receiving formula milk information through advertisements, social media, stores, health-service settings, or family/community recommendations. Family support was categorized as not supported or supported based on emotional, informational, and practical support received by the mother during breastfeeding.

The research instrument uses a questionnaire compiled from several previous references and adjusted to the research objectives. The maternal knowledge questionnaire on breast milk and formula milk was adapted from Hudha & Tambun (2025), and the family support questionnaire was adapted from Prabasari et al. (2026). Formula-feeding variables were measured using three questions about the history of formula feeding before the baby was 6 months old. Before use, the instrument was tested for validity and reliability on 30 respondents outside the research sample. The validity test was carried out using item-total correlation with a table r-value of 0.361 at a significance level of 5%. The test results showed that all items in the variables knowledge, attitude, formula milk promotion, family support, and formula feeding had calculated r values greater than the r table value, so all items were declared valid. Reliability tests were performed using Cronbach's Alpha and KR-20, depending on the measurement scale type. The reliability test results showed alpha values of 0.812 for knowledge, 0.846 for maternal attitude, 0.805 for formula milk promotion, 0.831 for family support, and 0.779 for formula feeding. Thus, all instruments are deemed reliable because their reliability values are greater than 0.60.

Data Analysis

Data were analyzed using SPSS version 16. Data processing included editing, coding, entry, cleaning, and tabulation. Univariate analysis was used to describe the frequency distribution of each variable, while bivariate analysis using the chi-square test was used to identify associations between the independent variables and formula feeding among infants aged 0-6 months. The level of

significance was set at $p < 0.05$. Because this study used a cross-sectional design, the findings were interpreted as associations rather than causal effects.

Ethical considerations

This research has received ethical approval from the research ethics committee of Hang Tuah University, Pekanbaru, with ethics number 80/KEPK/UHTP/I/2026. All respondents provided informed consent before the research was implemented. The confidentiality of the respondents' identities was maintained during the research process.

Results and Discussions

Results

The following results of the research that the researcher has conducted can be seen in the following table:

Table 1. Frequency Distribution of Factors Related to Formula Feeding in Infants Aged 0–6 Months

Variable	Frequency (n)	Percentage (%)
Knowledge		
Low	41	55.4
Good	33	44.6
Maternal attitude		
Negative	39	52.7
Positive	35	47.3
Employment status		
Working	42	56.8
Not working	32	43.2
Formula milk promotion		
Exposed	40	54.1
Not exposed	34	45.9
Family support		
Not supported	43	58.1
Supported	31	41.9
Formula feeding		
Given	45	60.8
Not given	29	39.2

Table 1 shows that 41 respondents (55.4%) had low knowledge and 33 respondents (44.6%) had good knowledge. Most respondents had negative attitudes toward exclusive breastfeeding (52.7%), were working mothers (56.8%), were exposed to formula milk promotion (54.1%), and did not receive adequate family support (58.1%). Regarding infant feeding practices, 45 infants (60.8%) received formula milk, while 29 (39.2%) did not.

Bivariate Analysis

Table 2. Summary of Bivariate Analysis Results

	Formula feeding					P-value
	Given		Not given		Total (n, %)	
	n	%	n	%		
Knowledge						0.000
Low	38	51.4	3	4.1	55.4	
Good	7	9.5	26	35.1	44.6	
Maternal						0.000
attitude	33	44.6	6	8.1	52.7	
Negative	12	16.2	23	31.1	47.3	

	Formula feeding					P-value
	Given		Not given		Total (n, %)	
	n	%	n	%		
Positive						
Employment						0.000
status	10	13.5	22	29.7	43.2	
Not working	35	47.3	7	9.5	56.8	
Working						
Formula						0.000
milk	35	47.3	5	6.8	54.1	
promotion	10	13.5	24	32.4	45.9	
Exposed						
Not exposed						
Family						0.000
support	37	50.0	6	8.1	58.1	
Not	8	10.8	23	31.1	41.9	
supported						
Supported						

The bivariate analysis showed that all five independent variables, namely maternal knowledge, maternal attitude, employment status, formula milk promotion, and family support, were significantly associated with formula feeding among infants aged 0-6 months ($p < 0.05$).

Discussions

The Relationship between Knowledge and Formula Feeding in Infants Aged 0-6 Months. The chi-square test showed a p-value of 0.000 ($p < 0.05$), indicating a significant association between maternal knowledge and formula feeding among infants aged 0-6 months. Knowledge is the result of understanding an object and serves as an important basis for the formation of health-related attitudes and behaviors. Good knowledge can encourage healthier feeding practices, including exclusive breastfeeding, while limited knowledge may be associated with feeding practices that do not fully support infant health (Rachmawati, 2019). Zekarias et al. (2024) found that mothers with good knowledge of exclusive breastfeeding were less likely to give infants aged 0-6 months formula milk. Good knowledge may increase maternal confidence in breastfeeding and help mothers manage breastfeeding challenges. The findings of this study support previous evidence that maternal knowledge is associated with formula feeding behavior (Andresen et al., 2026; Kalhor et al., 2025).

Maternal knowledge, education, and perceptions of breast milk production are closely related to infant feeding decisions. Mothers who have limited knowledge about the benefits of breast milk or who believe that their milk production is insufficient may be more likely to use formula milk. Therefore, counseling should not only explain the risks of early formula feeding but also strengthen mothers' confidence in breastfeeding and provide practical guidance for overcoming common lactation problems (Dessalegn et al., 2025).

The Relationship between Maternal Attitudes and Formula Feeding in Infants Aged 0-6 Months. The chi-square test showed a p-value of 0.000 ($p < 0.05$), indicating a significant association between maternal attitude and formula feeding among infants aged 0-6 months. Attitude is a closed response to a stimulus and plays an important role in shaping health behavior. A positive attitude toward exclusive breastfeeding may encourage mothers to breastfeed without additional formula, whereas a negative attitude may be associated with early formula feeding (Rachmawati, 2019). Osa et al. (2019) also reported an association between maternal attitudes and early formula feeding, noting that prior experiences, family influences, and exposure to formula milk promotion may shape negative attitudes.

In addition, research conducted by Horwood et al. (2024) found that mothers with a positive attitude towards exclusive breastfeeding were more consistent in breastfeeding without added formula until the baby was 6 months old. Positive attitudes make mothers more confident in breastfeeding and better able to overcome breastfeeding obstacles, thereby increasing the success of exclusive breastfeeding. The findings reinforce this study's results, which show that positive attitudes are associated with lower formula feeding.

The Relationship between Employment Status and Formula Feeding in Infants Aged 0-6 Months. The chi-square test showed a p-value of 0.000 ($p < 0.05$), indicating a significant association between maternal employment status and formula feeding among infants aged 0-6 months. Employment can become an enabling or inhibiting factor in breastfeeding practice. Working mothers may face structural barriers, such as long working hours, limited maternity leave, and the absence of lactation rooms, which can make exclusive breastfeeding more difficult. Juaeriah et al. (2018) also found a significant association between maternal employment status and exclusive breastfeeding. Mothers who are not working usually have more flexibility to breastfeed directly, whereas working mothers may have difficulty expressing, storing, and providing breast milk consistently.

The Relationship between Formula Milk Promotion and Formula Feeding in Infants Aged 0-6 Months.

The chi-square test showed a p-value of 0.000 ($p < 0.05$), indicating a significant association between exposure to formula milk promotion and formula feeding among infants aged 0-6 months. Formula milk promotion can serve as a reinforcing factor, as advertising messages, recommendations, and product superiority claims may strengthen mothers' decisions to use formula milk (Kreuter, 2018). Repeated exposure to promotional messages may create the perception that formula milk is equal to or better than breast milk, thereby weakening mothers' commitment to exclusive breastfeeding. Aulia et al. (2023) found that mothers exposed to formula milk advertisements had a higher risk of giving formula milk to infants under 6 months of age than mothers who were not exposed. Hamisah and Mutia (2020) also explained that exposure to formula advertising may attract mothers, especially new mothers who are concerned about low breast milk production after delivery.

The Relationship between Family Support and Formula Feeding in Infants Aged 0-6 Months. The chi-square test showed a p-value of 0.000 ($p < 0.05$), indicating a significant association between family support and formula feeding among infants aged 0-6 months. These findings align with the Social Ecological Model, which emphasizes that maternal health behaviors are influenced by individual, interpersonal, and environmental factors, including the family (Hanson, 2023). At the interpersonal level, family members play an important role in shaping mothers' decisions about infant feeding. Lack of family support can become a major barrier to maintaining exclusive breastfeeding and may encourage formula milk use as an alternative. This finding is consistent with Haliza et al. (2023), who reported that mothers with low family support were at higher risk of giving formula milk to infants aged 0-6 months.

The World Health Organization (WHO) emphasizes that support from health workers and family members, especially husbands and close relatives, is important for the success of exclusive breastfeeding. Mothers who receive emotional and practical support from their families are more likely to continue exclusive breastfeeding until the infant reaches 6 months of age. In contrast, a lack of support may increase the likelihood of early formula feeding (WHO, 2021). In some families, husbands or grandmothers may support formula feeding when mothers work or leave the house because they have limited knowledge about exclusive breastfeeding. Therefore, breastfeeding counseling should involve not only mothers but also husbands and other family members who influence infant feeding decisions (Salsabilla et al., 2023).

Conclusion

There were significant associations between maternal knowledge, maternal attitude, employment status, formula milk promotion, and family support with formula feeding among infants aged 0-6 months in the Balai Jaya Health Center working area, Rokan Hilir Regency, in 2025 (p-values of 0.000; $p < 0.05$). The health center is expected to strengthen promotive and preventive efforts to support exclusive breastfeeding for infants aged 0-6 months. Increasing knowledge and fostering positive attitudes among breastfeeding mothers should be achieved through continuous counseling and educational activities, especially for mothers with limited knowledge. Assistance for working mothers in lactation management also needs improvement so they can continue to provide breast milk optimally. In addition, the health center should provide accurate and balanced information on infant nutrition in accordance with health standards and involve family members as the primary support system for mothers during breastfeeding.

Acknowledgments

The author would like to express deepest gratitude to the Head of the Study Program of Hang Tuah University Pekanbaru, Balai Jaya Health Center, and LPPM Hang Tuah University Pekanbaru for the support, opportunities, and facilities provided during the implementation of this research. The author hopes that the results of this research can contribute to the development of science and to improving the quality of research, especially in the S1 Midwifery Study Program, Faculty of Health, Hang Tuah University, Pekanbaru.

References

Andresen, E., Oras, P., Norrman, G., Målqvist, M., & Funkquist, E.-L. (2026). Navigating without a compass: A qualitative study on parents' infant formula handling. *Food Science & Nutrition, 14*, e71432. https://doi.org/10.1002/fsn3.71432

Aulia, N., Idris, F. P., & Rahmat, H. R. (2023). Hubungan promosi susu formula dengan kegagalan pemberian ASI eksklusif di UPTD Puskesmas Bojo Baru. *Window of Public Health Journal, 4*(1), 153–161.

Derow, M. H., & Waruguru, P. (2025). Factors contributing to inadequate exclusive breastfeeding among children 0–6 months in developing countries: A review. *International Journal of Medical Science and Clinical Invention, 12*(12), 7814–7823. https://doi.org/10.18535/ijmsci/v12i12.01

Dessalegn, N., Alene, T., Terefe, T. F., & Bimerew, M. (2025). Formula feeding knowledge, practice, and associated factors among mothers visiting public hospitals with infants under six months in Southwest Ethiopia. *BMC Nutrition*. Advance online publication.

Dinas Kesehatan Provinsi Riau. (2023). *Profil kesehatan Provinsi Riau 2023*. Dinas Kesehatan Provinsi Riau.

Haliza, N. (2023). Socio-cultural relationships and family support with exclusive breastfeeding. *Jurnal Midwifery Science and Women's Health, 4*(1), 34–39. https://doi.org/10.36082/jmswh.v4i1.1102

Hamisah, I., & Mutia, Y. (2020). Hubungan promosi susu formula, produksi ASI, dan psikologis ibu dengan pemberian ASI eksklusif. *Jurnal Kebidanan Kestra, 3*(1), 13–20.

Hanson, K. G. C. (2023). *Family health care nursing: Theory, practice, and research* (7th ed.). F. A. Davis.

Horwood, C., Mapumulo, S., Haskins, L., Doherty, T., & Kingston, G. (2024). Women's exposure to commercial milk formula marketing: A WHO multi-country market research study. *Globalization and Health, 20*, 86. https://doi.org/10.1186/s12992-024-01088-y

Hudha, N., & Tambun, M. (2025). Analisis faktor yang berhubungan dengan pemberian susu formula pada bayi usia 0–6 bulan. *Jurnal Kesehatan Masyarakat Indonesia, 2*(2), 70–79.

Juaeriah, R., Ika, N., & Rohmah, S. (2018). Hubungan ibu bekerja dengan pemberian ASI eksklusif pada bayi usia 6 bulan di Puskesmas Cimahi Selatan tahun 2017. *Jurnal Kesehatan Budi Luhur, 11*(2), 243–250.

Kalhor, M., Yazdkhasti, M., Simbar, M., Hajian, S., & Kiani, Z. (2025). Predictors of exclusive breastfeeding: A systematic review and meta-analysis. *International Breastfeeding Journal, 20*, 52. https://doi.org/10.1186/s13006-025-00744-2

Kementerian Kesehatan Republik Indonesia. (2023). *Profil kesehatan Indonesia 2023*. Kementerian Kesehatan Republik Indonesia.

Kementerian Kesehatan Republik Indonesia. (2025). *Data dan informasi kesehatan ibu dan anak*. Kementerian Kesehatan Republik Indonesia.

Kreuter, M. W., & Green, L. W. (2018). *Health program planning: An educational and ecological approach* (4th ed.). McGraw-Hill Education.

Mitiku, A., Asrat, K., Wakuma, Z., Radiet, A., & Tamirat, M. (2023). Formula feeding and associated factors among mothers with 6-month-old infants in Mettu Town, Southwest Ethiopia. *Food Science & Nutrition, 11*(7), 4136–4145. https://doi.org/10.1002/fsn3.3403

Nuddin, A., & Umar, F. (2020). Pemilihan jenis susu formula oleh ibu balita di wilayah kerja Puskesmas Mattombong Kabupaten Pinrang. *Jurnal Ilmiah Manusia dan Kesehatan, 3*(2), 250–258.

Osa, M. L., Safitri, D. E., & Yulita, I. (2019). Faktor-faktor yang berhubungan dengan pemberian susu formula pada bayi berusia 0–6 bulan di Kelurahan Pamulang Barat Kota Tangerang Selatan. *ARGIPA (Arsip Gizi dan Pangan), 4*(2), 85–93. https://doi.org/10.22236/argipa.v4i2.1012

Prabasari, S. N., Dwiarini, M., Mgogo, J., Mifta, I., Khotimah, H., & Justine, N. (2026). Enhancing community-based breastfeeding support: Impact of structured lactation management education for Posyandu. *Journal of Community Empowerment for Health, 6*(1), 8–15.

Rachmawati, W. C. (2019). *Promosi kesehatan dan ilmu perilaku*. Wineka Media.

Rozensztrauch, A., Klaniewska, M., & Berghausen, M. (2022). Factors affecting the mother's choice of infant feeding method in Poland: A cross-sectional preliminary study. *Irish Journal of Medical Science, 191*(4), 1735–1743. https://doi.org/10.1007/s11845-021-02751-8

Salsabilla, A., Anwar, K., Nur, M., & Syah, H. (2023). Faktor-faktor yang berhubungan dengan keputusan ibu dalam pemberian susu formula pada bayi usia 0–24 bulan di Puskesmas Merdeka Kota Bogor. *Amerta Nutrition, 7*(2SP), 58–64. https://doi.org/10.20473/amnt.v7i2SP.2023.58-64

Seid, M. A., Zegeye, A. F., Workneh, B. S., Zeleke, G. A., Mekonen, E. G., Aemro, A., Tekeba, B., Tamir, T. T., Wassie, M., & Terefe, B. (2024). Determinants of formula feeding among mothers with infants and young children in six Sub-Saharan African countries: Multilevel analysis of data from demographic and health surveys. *PLOS ONE, 19*(10), e0311945. https://doi.org/10.1371/journal.pone.0311945

World Health Organization. (2021). *Infant and young child feeding counselling: An integrated course*. World Health Organization.

World Health Organization. (2025). *Breastfeeding*. https://www.emro.who.int/nutrition/breastfeeding/exclusively-breastfeed-for-6-months.html

Zekarias, F., Gashu, A., Damtew, A., Amera, M., Mulugeta, B., & Hailemeskel, S. (2024). Infant formula feeding and associated factors in Debre Berhan City: A community-based cross-sectional study. *Heliyon, 10*(18), e37594. https://doi.org/10.1016/j.heliyon.2024.e37594