

# Factors Associated with Giving Formula Milk to Babies Aged Between 0-6 Months

Fanimah Hi Yusup <sup>1</sup>, Sulistiyah <sup>2\*</sup>, Tut Rayani Aksohini Wijayanti <sup>3</sup>

<sup>1-3</sup> Department of Midwifery, Health Science Faculty, Institut Sains dan Teknologi Kesehatan RS dr. Soepraoen, Indonesia ; e-mail: [sulistiyah364@gmail.com](mailto:sulistiyah364@gmail.com)

\*Corresponding Author : Fanimah Hi Yusup

**Abstract:** Low exclusive breastfeeding rates are often linked to the widespread use of formula milk in infants. Formula feeding cannot replace colostrum, the first milk produced after birth, which is crucial for providing infants with essential nutrients and immunity. Without colostrum, infants are at increased risk of developing diarrhea, septicemia, meningitis, and other serious health complications. Additionally, formula milk may lead to protein intolerance, which often results in allergies among infants. This study aims to identify the factors associated with formula feeding in infants aged 0-6 months. The study employed an analytic observational approach with a cross-sectional design, involving 55 mothers with infants aged 0-6 months. Participants were selected using accidental sampling. Data were analyzed using the Chi-square statistical test. The univariate analysis revealed that the majority of respondents (56.4%) had good knowledge of infant feeding practices, while 30.9% had a junior high school education. Most respondents (76.4%) were not employed, and 56.4% of mothers reported giving formula milk to their infants. The bivariate analysis showed a significant relationship between maternal knowledge and formula feeding practices, but no significant relationship was found between the mother's education level or employment status and the use of formula milk. Based on these findings, it is recommended that healthcare workers play a more active role in providing education, information, and motivation to mothers, helping them understand the benefits and advantages of exclusive breastfeeding. By increasing maternal knowledge and addressing misconceptions, healthcare workers can contribute to improving exclusive breastfeeding rates and reducing the unnecessary use of formula feeding.

**Keywords:** Education; Formula Milk; Knowledge; Occupation

## 1. Introduction

Breastfeeding is a truly precious gift a mother can give her baby. A low rate of breastfeeding is a threat to a child's growth and development. Babies who aren't breastfed, at least until 6 months of age, are more vulnerable to nutritional deficiencies. According to the World Health Organization (WHO), the 2016 exclusive breastfeeding presentation, obtained through The Global Breastfeeding Scorecard data, showed that out of 194 countries, only 40% of babies were exclusively breastfed, and only 23 countries had exclusive breastfeeding rates above 60 percent. Yet, WHO itself aims for at least 50% exclusive breastfeeding by 2025 (WHO, 2017). Data from the United Nations Children's Fund (UNICEF) indicated that exclusive breastfeeding coverage in 2016 was only 43%. In the Association of Southeast Asian Nations (ASEAN), exclusive breastfeeding is not widely practiced across all countries. Cambodia is the only country in the ASEAN region that has achieved exclusive breastfeeding rates of up to 65%. Thailand has the lowest exclusive breastfeeding rate at 12% (ASEAN, 2016).

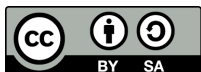
Received: 17, May 2025

Revised: 31, May 2025

Accepted: 16, June 2025

Published: 30, June 2025

Curr. Ver.: 30, June 2025



Copyright: © 2025 by the authors.

Submitted for possible open

access publication under the

terms and conditions of the

Creative Commons Attribution

(CC BY SA) license

([https://creativecommons.org/li](https://creativecommons.org/licenses/by-sa/4.0/)

[censes/by-sa/4.0/](https://creativecommons.org/licenses/by-sa/4.0/))

According to the Ministry of Health of the Republic of Indonesia (2021), the presentation of exclusive breastfeeding for infants was 71.58% in 2021. This was an increase from the previous year, but most provinces still had exclusive breastfeeding rates below the national average. Gorontalo was recorded as the province with the lowest percentage at 52.75%, and Bengkulu at 67.08%. Based on Riskesdas (2018), exclusive breastfeeding coverage experienced a decrease from the previous year, from 75.7% to 67.7%. In Mukomuko Regency, exclusive breastfeeding coverage was 65.4%. There are several contributing factors, among others: the busy schedule of mothers who cannot fully accompany their children because they have to work outside the home, easy access to breast milk substitutes or formula milk, and the large number of advertisements or promotions for formula milk as a breast milk substitute.

The low coverage of exclusive breastfeeding can be attributed to the aggressive promotion and provision of formula milk to infants. Formula milk cannot replace colostrum as a baby's first food, making infants more susceptible to diarrhea, septicemia, and meningitis. Babies may also suffer from intolerance to proteins in formula milk, often leading to allergies (Khasanah, 2013).

Mothers' lack of knowledge often leads them to choose formula milk over breastfeeding their babies. For example, if a mother has the flu or a cough, she might fear transmitting the illness to her baby, and thus refuse to breastfeed. However, if a mother stops breastfeeding and switches to formula milk, the risk of the baby contracting illnesses actually increases. This is supported by research conducted by Rombot, Kandou & Ratag (2013) on factors related to formula feeding in infants aged 0-6 months in the Molompar Tomabatu Timur Public Health Center Working Area, Southeast Minahasa. Using data analysis, a p-value of  $<0.027$  was obtained for the knowledge variable, indicating that mothers' knowledge is related to formula feeding in infants aged  $<6$  months (Rombot, 2014).

Education is also an important factor influencing a mother's mindset in determining beneficial or unfavorable actions. A highly educated person will be more receptive to reasons for exclusive breastfeeding because their mindset is more realistic compared to those with a low education level. However, this proves that education alone cannot be a factor for behavioral change, as many other factors, such as occupation, also play a role (Oktoval, 2017).

Occupation is also considered one of the factors causing mothers to give formula milk to their babies. This is supported by research conducted by Oktoval titled "Analysis of Factors Related to Formula Feeding in Infants Aged 0-6 Months," which states that working respondents are at a 1.408 times higher risk of giving formula milk to infants aged 0-6 months compared to non-working respondents. The mother's employment status influences the practice of formula feeding in infants aged 0-6 months. Statistical test results yielded a p-value ( $0.005 < \alpha 0.05$ ), meaning there is a relationship between respondents' occupation and formula feeding in infants aged 0-6 months. The odds ratio (OR = 1.408) means that working

respondents are 1.408 times more likely to give formula milk to infants aged 0-6 months compared to non-working respondents (Oktoval, 2017)..

## 2. Research Methods

This research is a quantitative study, and the research design uses a quasi-experimental approach. The research design is a one-group pretest-posttest model. Before the intervention, the researcher will first conduct examinations related to the Mid-Upper Arm Circumference (MUAC) measurement in pregnant women to determine whether they fall into the Chronic Energy Deficiency (CED) category. The researcher will then take a sample of CED pregnant women and provide them with Supplementary Food (SF) intervention. After the intervention, the researcher will re-measure the pregnant women's MUAC.

The population in this study consists of all pregnant women identified as experiencing Chronic Energy Deficiency (CED) at Ribang Public Health Center, totaling 15 pregnant women. The sample for this study will be drawn from the previously mentioned population. The sample comprises 15 pregnant women experiencing Chronic Energy Deficiency (CED). These individuals, representing a portion of the total number and characteristics of the population, will be selected using a total sampling method.

Data collection will utilize MUAC tape and observation sheets for the Local Supplementary Food Consumption Monitoring Card for Pregnant Women with Chronic Energy Deficiency (CED). For data analysis, the Wilcoxon test will be used.

## 3. Results and Discussion

### Relationship between Knowledge and Formula Feeding

Based on the research results, among 17 respondents with good knowledge, the majority of respondents (58.8%) gave formula milk, while almost half (41.2%) did not. Furthermore, among 31 respondents with sufficient knowledge, almost half (45.2%) gave formula milk, and the majority (54.8%) did not. Finally, among 7 respondents with poor knowledge, all (100%) gave formula milk. The results of bivariate analysis using the Chi-square statistical test (Pearson Chi-Square) showed a  $p\text{-value} = 0.03 \leq \alpha 0.05$ , meaning it is significant. Therefore,  $H_0$  is rejected and  $H_a$  is accepted, indicating a relationship between knowledge and formula feeding in infants aged 0-6 months at Mukomuko Hospital in 2023.

This research aligns with the study conducted by Oktoval titled "Analysis of Factors Related to Formula Feeding in Infants Aged 0-6 Months." Data analysis used the chi-square test ( $\alpha < 0.05$ ). The statistical test results showed a  $p\text{-value}$  ( $0.004 < \alpha 0.05$ ) and an Odds Ratio (OR=0.018) for the knowledge variable. Thus, there is a relationship between knowledge and formula feeding in infants aged 0-6 months, and no relationship between education level and formula feeding in infants aged 0-6 months.

A mother's lack of knowledge often leads her to choose formula milk instead of breastfeeding her baby. For instance, when a mother has the flu or a cough, she sometimes

fears transmitting the illness to her baby, leading her to avoid breastfeeding. If a mother stops breastfeeding and replaces it with formula milk, the risk of disease transmission actually increases (Rombot, 2014).

According to the researcher, the relationship between knowledge and formula feeding in infants aged 0-6 months exists because mothers with good knowledge will strive to ensure their babies continue to consume breast milk, as mothers understand the importance of breast milk. Formula milk carries risks for babies, such as diarrhea and even allergies.

### **3.1 Relationship between Education and Formula Feeding**

Based on the research results, among 11 respondents with an elementary school education level, the majority (81.8%) gave formula milk, and a minority (18.2%) did not. Among 17 respondents with a junior high school education level, the majority (64.7%) gave formula milk, and almost half (35.5%) did not. Furthermore, among 16 respondents with a high school education level, almost half (37.5%) gave formula milk, and the majority (62.5%) did not. Lastly, among 11 respondents with a university education level, some (45.5%) gave formula milk, and some (54.5%) did not. The results of bivariate analysis using the Chi-square statistical test (Pearson Chi-Square) showed a  $p\text{-value} = 0.10 \geq \alpha 0.05$ , meaning it is not significant. Therefore,  $H_a$  is rejected and  $H_0$  is accepted, indicating no relationship between education and formula feeding in infants aged 0-6 months at Mukomuko Hospital in 2023.

This research aligns with the study conducted by Ralu (2016) titled "Relationship of Maternal Characteristics with Formula Feeding in Infants Aged 0-6 Months in the Mabaolpura Palu Public Health Center Working Area." A  $p\text{-value}$  of  $<0.710$  was obtained, meaning there is no relationship between the mother's education level and formula feeding in infants aged  $<6$  months.

Education significantly influences changes in attitudes and healthy living behaviors. A low education level makes it difficult for an individual or community to accept and understand health messages. This differs from highly educated mothers, who are more easily able to accept and understand messages or information conveyed by others to improve their health. Notoatmodjo states that education is a persuasive effort or learning process for the community so that they are willing to take actions or practices to maintain and improve their health. A person's education is related to their social life. The higher a person's education, the more they will pay attention to their health problems. Education is also important in influencing a mother's mindset to determine beneficial or unfavorable actions. A highly educated person will be more able to accept reasons for exclusive breastfeeding because their mindset is more realistic compared to those with a low education level.

According to the researcher, the absence of a relationship between education and formula feeding in infants aged 0-6 months is due to the fact that education does not always shape a mother's mindset to exclusively breastfeed. When a mother has a low education, it is still possible for her to exclusively breastfeed if her milk supply is smooth, she is not working, has time to breastfeed on demand, and has high knowledge about the importance of exclusive

breastfeeding, which can be obtained from health professionals. There are also mothers with low education who continue to give formula milk, which may be because they perceive formula milk as better than breast milk, as low education can affect a person's knowledge. Highly educated mothers will not always exclusively breastfeed; many mothers give formula milk.

### 3.2 Relationship between Occupation and Formula Feeding

Based on the research results, among 13 working respondents, the majority (84.6%) gave formula milk, and a small minority (15.4%) did not. Furthermore, among 42 non-working respondents, some (47.6%) gave formula milk, and some (52.4%) did not. The results of bivariate analysis using the Chi-square statistical test (continuity correction) showed a  $p\text{-value} = 0.04 \leq \alpha 0.05$ , meaning it is significant. Therefore,  $H_0$  is rejected and  $H_a$  is accepted, indicating a relationship between occupation and formula feeding in infants aged 0-6 months at Mukomuko Hospital in 2023.

This research aligns with Tri Wahyuni's research, which from the occupation factor showed that almost all working respondents were 39 respondents (97.5%). Based on the results of statistical tests using the Fisher Exact Test, it was found that there was a relationship between the occupation factor and formula feeding ( $p=0.05$ ).

Occupation is something done to earn a living or a livelihood. People who are busy with daily activities or work will have more time to obtain information. Working mothers increase the frequency of exclusive breastfeeding failure. Working mothers experience several obstacles in exclusive breastfeeding due to time allocation, quality of time spent with the baby, workload, stress, and the low belief of working mothers that they can exclusively breastfeed. This is exacerbated by Law No. 13 of 2003 concerning labor, article 82, which states that "female workers/laborers have the right to rest for 1.5 months before giving birth and 1.5 months after giving birth."

Working mothers are more likely to give formula milk to their babies. This is because mothers are too busy and cannot leave their jobs for long periods, making formula milk an alternative to breast milk while the mother is working. Roesli states that many working mothers experience a dilemma in exclusively breastfeeding their babies, even though they actually know the benefits and advantages of breast milk, but find it difficult to practice. Long working hours outside the home and many offices or institutions not being supportive contribute to this. The findings of my research and previous research show similarity in the effect of intervention on increasing Mid-Upper Arm Circumference (MUAC). Nevertheless, the main difference lies in the sample studied and the duration of the research. It can be observed from the available results that my research, with a duration of 20 days, was able to produce changes in MUAC. Meanwhile, previous research required a three-month period to achieve optimal results. This difference indicates that sample factors and research duration can influence the speed of response to the intervention, illustrating variability in the time required to achieve changes in certain parameters.

#### 4. Conclusions

From the results, it can be concluded that knowledge and occupation are indicators of formula feeding in infants aged 0-6 months. Therefore, health workers should enhance their role in providing information and motivation, and improve mothers' knowledge about the benefits and advantages of exclusive breastfeeding through counseling or leaflets, involving the mother's immediate family.

#### References

- ASEAN Socio-Cultural Community Department, & UNICEF East Asia and the Pacific Regional Office. (2016). *Regional report on nutrition security in ASEAN - Volume 2* (Vol. 2, pp. 1-158). Available from [http://www.unicef.org/eapro/12205\\_22043.html](http://www.unicef.org/eapro/12205_22043.html)
- Fitri, S. R., Lestari, B. C., Indriana, N. P. R. K., Meiranny, A., Hasyim, D. I., Saputri, N., & Prisusanti, R. D. (2024). *Asuhan kebidanan neonatus: Bayi balita dan anak prasekolah berbasis evidence-based practice*. PT. Sonpedia Publishing Indonesia.
- Kementerian Kesehatan Republik Indonesia. (2016). *Profil Kesehatan Indonesia 2016* [Internet]. Available from <http://www.depkes.go.id/resources/download/pusdatin/profil-kesehatan-indonesia/Profil-Kesehatan-Indonesia%202016.pdf>
- Khasanah, N. (2013). *ASI atau susu formula ya? Panduan lengkap ASI dan susu formula*. FlashBooks.
- Oktoval, R. (2017). Analysis of factors related to formula feeding in infants aged 0-6 months. *Jurnal Kesehatan*, 1-33. Available from [http://kelembagaan.ristekdikti.go.id/wp-content/uploads/2016/08/UU\\_no\\_20\\_th\\_2003.pdf](http://kelembagaan.ristekdikti.go.id/wp-content/uploads/2016/08/UU_no_20_th_2003.pdf)
- Prasetyono. (2016). *Buku pintar ASI eksklusif*. Diva Press.
- Prisusanti, R. D. (2021). *Metodologi penelitian di berbagai bidang*.
- Prisusanti, R. D., Dewi, C., Kiriwenno, E., Prastiwi, R. S., & Epid, M. (2022). *Kesehatan reproduksi dan kesehatan wanita*. Yayasan Penerbit Muhammad Zaini.
- Ralu, J. (2018). Relationship of maternal characteristics with milk provision in infants aged 0-6 months in the working area of Mabaolpura Palu Public Health Center.
- Riset Kesehatan Dasar (Riskesdas). (2018). *Badan Penelitian dan Pengembangan Kesehatan Kementerian RI tahun 2018*. Available from [http://www.depkes.go.id/resources/download/infoterkini/materi\\_rakorpop\\_2018/Hasil%20Riskesdas%202018.pdf](http://www.depkes.go.id/resources/download/infoterkini/materi_rakorpop_2018/Hasil%20Riskesdas%202018.pdf)
- Roesli, U. (2013). *Mengenal ASI eksklusif*. Pustaka Pembangunan Swadaya Nusantara.
- Rombot, G., Kandou, G. D., & Ratag, G. A. E. (2014). Factors related to formula feeding in infants aged 0-6 months in the working area of Molompar Tomabatu Timur Public Health Center, Southeast Minahasa. *Jurnal Kedokteran Komunitas dan Tropis*, 2(2).
- Wahyuni, T. (2014). Factors related to formula feeding in infants aged 0-6 months in Wonsari Village, Ngoro District, Mojokerto.
- Widuri, H. (2013). *Cara mengelola ASI eksklusif bagi ibu bekerja*. Gosyen Publish.
- World Health Organization. (2017). Babies and mothers worldwide failed by lack of investment in breastfeeding [Internet]. Available from <http://www.who.int/en/news-room/detail/01-08-2017-babies-and-mothers-worldwide-failed-by-lack-of-investment-in-breastfeeding>