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Determining Formula Feeding Risk Factors: The Effect of Income and Education on Exclusive Breastfeeding Adherence in Rural Communities

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ABSTRACT

Efforts to increase the prevalence of exclusive breastfeeding in rural areas still face challenges due to the high use of formula milk among infants aged 0–6 months. Sociodemographic factors such as maternal education and family income play an important role in determining a mother's decision to breastfeed or provide formula milk. In the working area of Donomulyo Community Health Center, which is predominantly rural, limited access to health services and information further strengthens the influence of these factors. This study employed a quantitative, retrospective case-control design. A total of 68 respondents were selected using simple random sampling based on inclusion and exclusion criteria. Data were analyzed using the chi-square test with a 95% confidence level and a significance level of $p < 0.05$ to identify factors associated with formula feeding among infants aged 0–6 months. Significant relationships were found between maternal education ($p = 0.001$; OR = 5.510), maternal attitude ($p = 0.002$; OR = 5.018), maternal employment ($p = 0.004$; OR = 4.400), and family income ($p = 0.013$; OR = 3.656) with formula feeding practices. However, health worker support showed no significant relationship ($p = 0.225$; OR = 1.810). Formula feeding among infants aged 0–6 months is influenced by maternal education, attitude, occupation, and family income. Efforts to promote exclusive breastfeeding should focus on improving maternal knowledge and motivation through continuous education provided by health professionals, particularly in rural areas with limited access to information.

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INTRODUCTION

WHO and UNICEF recommend exclusive breastfeeding for infants for the first six months of life because it is considered the most effective method of protecting the infant's immune system, which is crucial in reducing the risk of infection. IMR can be decreased, and children's future health can be enhanced by exclusive breastfeeding. By 2030, WHO and UNICEF want to see 70% of women exclusively breastfeeding (Food & Nutrition Action in Health Systems (AHS) and Nutrition and Food Safety (NFS), 2023). It is anticipated that 68% of Indonesian mothers will exclusively breastfeed by 2023, according to WHO data for 2024 (UNICEF, 2024, 2025). However, only 27% of newborns are exclusively breastfed within an hour of birth, indicating that there are still significant barriers in the early stages of breastfeeding. The percentage of 6-month-old infants exclusively breastfed was 63.9% in Indonesia's Health Profile 2023, and 74.2% in Lampung Province (Kementerian Kesehatan RI, 2024; UNICEF and WHO, 2024). According to the findings of the Puskesmas Donomulyo survey, 78.9% of the 332 infants in total were exclusively breastfed. Despite the fact that this number is encouraging, 21.1% of infants were given formula milk instead of being breastfed exclusively. This implies that some mothers continue to choose

formula milk. Thus, further investigation into the elements influencing this choice is required. Even though breastfeeding has numerous advantages, Indonesia has not reached the goal due to gaps in breastfeeding. However, formula milk use is still widespread. For a variety of reasons, many mothers decide to give their infant formula milk rather than breast milk (Novitasari et al., 2025; Paramashanti et al., 2023; Prasetyo et al., 2023).

The higher frequency of gastrointestinal issues like vomiting and diarrhea is one of the main issues linked to formula use. A formula with added sugar from milk-based sources was linked to a higher risk of rapid weight gain in the first few months of life, according to a study (Dharod et al., 2023). Errors in formula preparation and proportions can also raise the risk of diarrhea (Rosenkranz et al., 2024). A higher risk of respiratory tract infections has been linked to the use of formula milk. Research indicates that a greater percentage of respiratory tract infections occur in infants who are formula-fed as opposed to breastfed (McCoy & Heggie, 2020). This has to do with the fact that breast milk helps develop the baby's immune system by providing antibodies that formula does not. Additionally, studies have shown that formula-fed babies are more likely to experience gastrointestinal and respiratory issues (Nguyen et al., 2019). From an immunological perspective, breast milk offers bioactive components that enhance infants' immunological health in addition to nutrients. Babies who are fed formula run a higher risk of losing this immune defense, which leaves them more vulnerable to infections that can sometimes be fatal (McCoy & Heggie, 2020; Vandenplas et al., 2019). Furthermore, children who grow up on formula are more likely to develop allergies and asthmatic conditions than those who drink breast milk, which are long-term consequences of formula-related malnutrition (Klingberg et al., 2019).

A number of factors, such as maternal attitudes, education, support from health professionals, and parental income, have a significant impact on formula feeding in infants aged 0–6 months. Studies reveal strong correlations between these variables and the choice to use formula rather than breast milk. How mothers raise their children, including how they feed them, is greatly influenced by their attitudes and knowledge (Sabriana et al., 2022). Maternal attitudes and knowledge regarding exclusive breastfeeding were found to be significantly correlated by Sabriana et al. (2022). Better-informed mothers were more likely to have a more positive attitude toward breastfeeding, which in turn affected their choice to breastfeed instead of using formula. At the Payungrejo Health Center, (Suja et al., 2023) discovered a direct correlation between mothers' success with exclusive breastfeeding and their level of education. This is consistent with the findings of (Azizah et al., 2023), who highlighted that mothers with higher levels of education are more likely to prioritize breastfeeding over formula milk because they have greater knowledge about breastfeeding. Maternal attitudes toward breastfeeding are typically positively correlated with their educational attainment (Aiman et al., 2023).

The assistance of healthcare professionals also aids formula feeding. According to Polwandari & Wulandari (2021), exclusive breastfeeding practices were associated with mothers' knowledge and husbands' support (Polwandari & Wulandari, 2021). In this situation, health professionals are essential in educating and informing mothers in a way that can encourage them to exclusively breastfeed instead of using formula. Additionally, Ambarsari et al. (2021) discovered that the mother's decision to breastfeed was impacted by family support (Ambarsari et al., 2021). One important factor is parental income. Many studies suggest that mothers from lower-income backgrounds prefer formula milk because it is easier to obtain or because they do not receive the same breastfeeding support, even though not all of them specifically name income as a significant variable. Due to the challenges of exclusive breastfeeding, working mothers with little support from their employers frequently opt for formula, according to (Hadina et al., 2022). These results are corroborated by research by Yulendasari and Firdaus (2020), which demonstrates that low awareness and knowledge of the advantages of breast milk are among the factors that contribute to mothers in particular areas using formula milk (Yulendasari & Firdaus, 2020). Formula dependence is frequently caused by a lack of knowledge and assistance, which raises the baby's health risks (Anggraini et al., 2024; Assriyah et al., 2020). Overall, mothers are more likely to exclusively breastfeed their children if they have a higher level of education, positive attitudes toward breastfeeding, support from health professionals, and a favorable

financial situation. This reduces the use of formula by infants aged 0–6 months. The key to boosting breastfeeding rates and decreasing formula dependence is providing sufficient social support and effective health education.

The Donomulyo Community Health Center, located in the rural area of East Lampung District, faces challenges distinct from urban settings, particularly in terms of economic access and health literacy. Although 78.9% of infants in this area are exclusively breastfed, 21.1% still receive formula milk. This situation highlights the need to identify specific factors influencing formula feeding in rural communities. Therefore, this study aims to determine the factors associated with formula feeding among infants aged 0–6 months in the working area of Donomulyo Community Health Center, focusing on maternal education, occupation, family income, and health professional support. The results are expected to provide evidence-based input for improving exclusive breastfeeding programs in rural areas.

METHOD

This study employed a quantitative analytical approach with a retrospective case-control design to identify factors associated with formula milk use among infants aged 0–6 months in the working area of Donomulyo Community Health Center, East Lampung Regency. The case group consisted of mothers who gave formula milk to their infants, while the control group consisted of mothers who exclusively breastfed. Eligible participants were mothers of infants aged 7–12 months to minimize recall bias.

Sample Size and Sampling Technique

The sample size was calculated using the unpaired categorical analytical formula:

$$n \frac{(Z_{\alpha/2} + Z_{\beta})^2 [P_1(1-P_1) + P_2(1-P_2)]}{(P_1 - P_2)^2}$$

where $Z_{\alpha/2}$=1.96 for a 95% confidence level and Z_{β}=0.84 for 80% statistical power. The expected proportion of exposure among cases (P_1) was assumed to be 0.60 and among controls (P_2) 0.30, yielding a minimum sample of 68 respondents (34 cases and 34 controls). Sampling was conducted in two stages. First, purposive sampling was used to select mothers meeting the inclusion criteria (infants aged 7–12 months, residing in the Puskesmas area, and willing to participate). Second, simple random sampling using a random number table was applied to determine final respondents from the eligible list, ensuring equal selection probability. Three phases of sampling were used: stratified sampling to guarantee population representation, purposive sampling based on inclusion and exclusion criteria, and simple random sampling using a spinner wheel selection as the last step. A validated and trustworthy questionnaire was used to gather data. Using SPSS version 23, reliability was evaluated using Cronbach's alpha, and validity was evaluated using Pearson's product-moment correlation. While bivariate analysis used the chi-square test with a 95% CI and a significance level of $p < 0.05$, univariate analysis was used to describe proportions across categories.

Ethical considerations

The Poltekkes Kemenkes Tanjung Karang Research Ethics Committee gave its approval to this study (Approval Number: 059/KEPK-TJK/III/2025). Date of Approval: March 12, 2025. Every participant signed an informed consent form, and the study complied with participant confidentiality, anonymity, and informed consent guidelines. Furthermore, the authorities supplied the required license for the sample, and the texts' safety and correctness were assured.

RESULTS

Univariate analysis

The comparative distribution of formula milk and exclusive breastfeeding practices across nine sociodemographic and support-related factors is shown in Table 1. The information reveals clear trends that highlight the impact of maternal education, work status, income, and support

networks on infant feeding decisions. Exclusive breastfeeding was more common among mothers with higher education levels (60.3%) than among mothers with lower education levels (39.8%). On the other hand, moms with less education were more likely to use formula milk (58.8%) than mothers with greater education (47.1%).

According to this, having more education may increase knowledge of and adherence to advised breastfeeding techniques. Maternal views that were supportive were highly linked to exclusive breastfeeding (70.6%), whereas attitudes that were not supportive were linked to increased formula milk consumption (38.2%). This demonstrates the crucial influence that mothers' commitment and perspective have on feeding habits. Compared to moms who did not work (70.6% exclusive breastfeeding; 41.2% formula milk), working mothers depended more on formula milk (64.7%) and were much less likely to exclusively breastfeed (32.9%). These results imply that work-related responsibilities could be a hindrance to long-term nursing habits. It's interesting to note that although exclusive breastfeeding rates were moderate (47.1%), moms from low-income households reported using more formula milk (76.5%). High-income women, on the other hand, used formula slightly less frequently (58.8%) and exclusively breastfed (41.2%). This pattern could be the result of intricate relationships between marketing exposure, nursing assistance, and financial limitations. Supportive health personnel were linked to lower formula milk use (41.2%) and higher exclusive breastfeeding (55.9%). Conversely, lower rates of exclusive breastfeeding (41.2%) and higher formula milk use (64.7%) were associated with a lack of professional support. These results highlight how important it is for medical professionals to encourage the best feeding habits for babies.

Bivariate analysis

The relationship between exclusive breastfeeding and formula feeding habits and a number of independent variables, including education, maternal attitudes, employment status, income, and health worker support, is shown in Table 1. The odds ratio (OR) and confidence interval (CI) were used to assess the strength of the connection, and the chi-square test was used to test for statistical significance. The analysis of maternal education revealed a p-value = 0.001 ($p < 0.05$), indicating a significant relationship between formula feeding and maternal education level in infants aged 0–6 months in the Donomulyo Health Center area, with OR = 5.510 (CI = 1.879-16.159). This means that mothers with lower levels of education are 5.5 times more likely than mothers with higher levels of education to use formula milk for their infants. According to the analysis of the maternal attitude variable, there is a significant correlation between formula feeding and maternal attitude in infants aged 0–6 months in the Donomulyo Health Center Region, with OR = 5.018 (CI = 1,792-14,053). This means that mothers who have a positive attitude toward formula feeding are five times more likely to give formula milk to their babies than mothers who have a negative attitude. The analysis of the mother's occupation variable revealed a p-value of 0.004 ($p < 0.05$), indicating a significant relationship between formula feeding and maternal occupation in infants aged 0–6 months in the Donomulyo Health Center area. The odds ratio (OR) was 4.400 (CI = 1.588–12.193), meaning that working mothers are 4.4 times more likely than non-working mothers to give formula milk to their infants. There is a strong correlation between formula feeding and parental income for infants aged 0–6 months in the Donomulyo Health Center Region, according to the study of parental income results, which reveal a p value of 0.013 ($p < 0.05$). Parents with higher incomes are 3.6 times more likely to give formula milk than parents with lower incomes (OR value = 3.656; CI = 1.292-10.344). The findings of the health worker support study revealed a p-value = 0.225 ($p < 0.05$), indicating that there is no significant correlation between formula feeding and health worker assistance for infants ages 0–6 months in the Donomulyo Health Center Area. The OR=1.810 (CI=0.692-4.734) indicates that while there is a trend toward women who receive health professional support giving more formula milk, statistical analysis does not find this finding to be significant.

Table 1: Analysis of Social Factors and Support for Exclusive Breastfeeding Practices: Chi-Square and Odds Ratio Approach among Breastfeeding Mothers in Indonesia

Variable	Formula Milk		Exclusive Breastfeeding		Total		P Value	OR Value	95% CI
	n	%	n	%	N	%			
Education:									
- Low	20	58.8	7	39.7	27	39.7	0.001	5.510	1.879-16.159
- Height	14	41.2	27	60.3	41	60,3			
Total	**34**	**100.0**	**34**	**100.0**	**68**	**100.0**			
Mother's Attitude:									
- Support	23	67.6	10	29.4	33	48.5	0.002	5.018	1.792-14.053
- No	11	32.4	24	70.6	35	51.5			
Total	**34**	**100.0**	**34**	**100.0**	**68**	**100.0**			
Mother's occupation:									
- Work	22	64.7	10	2.4	32	47.1	0.004	4.400	1.588-12.193
- Not working	12	35.3	24	70.6	36	52.9			
Total	**34**	**100.0**	**34**	**100.0**	**68**	**100.0**			
Income:									
- Height	18	52.9	8	23.5	26	38.2	0.013	3.656	1.292-10.344
- Low	16	47.1	26	76.5	42	61.8			
Total	**34**	**100.0**	**34**	**100.0**	**68**	**100.0**			
Health Worker Support:	20	58.8	15	44.1	35	51.5			
- Support							0.225	1.810	0.692-4.734
- No	14	41.2	19	55.9	33	48.5			
Total	**34**	**100.0**	**34**	**100.0**	**68**	**100.0**			

DISCUSSION

The Donomulyo Health Center Area's formula milk feeding rates for infants aged 0–6 months by proportion of maternal education, attitude, occupation, parental income, and health professional support.

The purpose of this discussion is to examine the univariate findings that demonstrate the connection between some social and economic factors and the mother's choice to give formula milk to infants between the ages of 0 and 6 months. The majority of respondents, according to the data, had low educational backgrounds; 20 respondents, or 58.8% of the sample, had only completed elementary and junior high school, while 14 respondents, or 41.2% of the sample, had higher education, including college and high school. This implies that mothers with lower levels of education are more likely to use formula milk, which is consistent with studies that demonstrate how mothers' attitudes and knowledge about breastfeeding are influenced by their educational attainment (Suja et al., 2023).

According to the data, 67.6% (23 respondents) of the mothers who used formula milk had a positive attitude toward its use, whereas 32.4% (11 respondents) had a negative attitude. This suggests that mothers' propensity to use formula is influenced by their positive attitude, which is corroborated by studies that demonstrate the strong correlation between maternal attitudes and the choice to exclusively breastfeed or use formula (Hayati & Aziz, 2023). Additionally, the analysis revealed that while 35.5% (12 respondents) of formula-feeding mothers were unemployed, 64.7% (22 respondents) were employed. This study shows that working mothers are more likely to choose formula milk as an alternative to breastfeeding because they have less time to do so. They are more likely to stop exclusive breastfeeding due to time constraints brought on by work demands (Hadina et al., 2022). 52.9% (18 respondents) of the respondents were from high-income families, whereas 47.1% (16 respondents) were from low-income families. Because they have easier access to formula milk products and promotions, mothers from higher-income families are more likely to use formula milk (Yuliantie et al., 2023). This suggests that economic factors can affect infants' nutritional choices, with wealthier families more likely to select milk that is thought to be more profitable or useful. Lastly, 58.8% (20 respondents) of formula-feeding mothers reported receiving support from health workers, whereas 41.2% (14 respondents) did not, suggesting that health support may have a role. When it comes to helping mothers make

decisions about milk feeding, the assistance of medical professionals can be crucial (Hayati & Aziz, 2023). Formula feeding and exclusive breastfeeding decisions can be adversely affected by inadequate health support.

Based on these findings, it can be said that mothers' decisions to use formula are significantly influenced by their level of education, attitude, income, employment status, and health support. Addressing the issue of low exclusive breastfeeding rates and increasing awareness of the potential health risks associated with formula use may be made easier with a focus on enhancing education about the advantages of breastfeeding and assistance from health professionals.

Relationship between maternal education and formula feeding in infants aged 0-6 months.

Based on the results of this study, the p-value = 0.001 and OR 5.510 were obtained, which indicates that there is a relationship between maternal education and formula feeding in infants aged 0-6 months. Mothers who have a low educational background are 5.5 times more likely to give formula milk to their babies than mothers who have a higher education. This finding is highly relevant in describing the phenomenon of infant health and nutrition in Indonesia.

First, the relationship between education and formula feeding practices can be understood in the context of mothers' knowledge. Research by Sari et al. (2023) showed a positive correlation between mothers' education and their knowledge of the benefits of exclusive breastfeeding for children's health. Mothers with higher education tend to be more educated about nutrition and health, so they better understand the importance of providing exclusive breastfeeding for their babies (Sari et al., 2023). This is in line with the findings that knowledge, attitude, husband's support, and health worker support have a large influence on exclusive breastfeeding.

Second, the results showing that mothers with low education are more likely to formula feed could be an indicator of their lack of access to information and social support. Ramadhaniah et al. (2022) suggest that knowledge and support from family and health workers play a vital role in exclusive breastfeeding decision-making (Ramadhaniah et al., 2022). Mothers with low education often have difficulty accessing appropriate information on breastfeeding practices, so they may be more receptive to the promotion of formula and other options that do not fully consider the benefits of breastfeeding.

Third, the presence of higher risk among mothers with low educational backgrounds may also reflect their weaker socio-economic conditions. With a difficult economic situation, mothers may feel forced to choose formula milk due to limited time and inadequate resources for breastfeeding, especially when they also have work responsibilities outside the home. This suggests a complex relationship between education, economics, and health that needs more investigation. Research on factors associated with exclusive breastfeeding success also indicates a need for a deeper understanding.

In this context, interventions that focus on improving education and knowledge about breastfeeding, as well as support from health workers, are essential to reduce reliance on formula. Educational programs targeting mothers, especially those from low-education backgrounds, need to be strengthened to provide a better understanding of the benefits of exclusive breastfeeding and the negative impacts of formula use. Raising awareness and providing access to better information can help improve infant health and reduce the risk of diseases often associated with formula use. Overall, the results of this study highlight the importance of considering education as a key factor in influencing formula feeding decisions. Collaborative efforts between relevant parties, including health workers, government, and communities, are needed to improve understanding and positive attitudes towards breastfeeding, with the ultimate goal of improving infant health in Indonesia.

The Relationship between Maternal Attitudes and Formula Milk Feeding in Infants 0-6 Months of Age

The bivariate analysis's findings, which indicate a p-value of 0.002 and an odds ratio (OR) of 5.018, suggest a significant correlation between mothers' attitudes supporting formula feeding and the use of formula milk by infants ages 0–6 months. Supportive mothers are five times more likely to choose formula milk than unsupportive mothers. This result implies that formula feeding

practices are significantly influenced by the attitudes and perceptions of mothers regarding feeding.

First, mothers' opinions about formula feeding are a reflection of their knowledge and perceptions of various child-feeding methods. According to research by Roberts et al. (2023), a mother's decision to continue breastfeeding can be reinforced by supportive social environment attitudes toward breastfeeding, such as those from family and medical professionals. On the other hand, unfavorable opinions or ignorance of the advantages of breastfeeding may discourage mothers from choosing to breastfeed and increase the likelihood that they will convert to formula. Because the formula contains nutritional deficiencies compared to breastmilk, mothers may be more likely to rely on it if they believe their family or other sources support it. This could be harmful to the infant's health (Lubbe et al., 2019).

Second, an OR of 5.018 suggests that mothers who support formula feeding are more likely to choose this feeding method. This demonstrates the significance of appropriate instruction and knowledge about the advantages of breast milk and the harm that formula milk causes to a baby's health. According to research by Etowa et al. (2020), mothers' attitudes regarding breastfeeding and formula feeding can be significantly influenced by the knowledge and instruction provided by health professionals. Therefore, it may divert them from breastfeeding, which is actually more advantageous, when environmental support-including the influence of a spouse or other family members-focuses on promoting the use of formula (Etowa et al., 2020). In addition, it's critical to take into account how mothers' attitudes may be influenced by formula marketing. According to several studies, the infant formula industry's marketing and promotions frequently give the impression that formula is just as good as breastfeeding, if not better (Appiah et al., 2020; Cetthakrikul et al., 2022). Mothers are more likely to favor formula without taking into account the holistic health of their infants if this reinforces their attitudes toward its use.

In this regard, efforts are required to increase knowledge of the value of exclusive breastfeeding and to mold favorable attitudes toward breastfeeding by means of thorough health education. A crucial first step is the creation of educational initiatives aimed at expectant and new mothers, emphasizing the advantages of breastfeeding for both the health of the baby and the long-term development of the child. Working together, families, communities, and health professionals can shift the way people think about baby feeding, which will decrease the use of unnecessary formula and raise awareness of the value of exclusive breastfeeding. All things considered, the analysis's findings point to the necessity of more research and the application of successful nutrition and lactation education techniques that stress how attitudes affect babies' decisions about milking. It also emphasizes how all parties involved have a shared responsibility to foster an atmosphere that promotes breastfeeding and infant health.

Relationship between maternal employment and formula feeding in infants aged 0-6 months.

According to the study's findings, which included a p-value of 0.004 and an odds ratio (OR) of 4.400, working mothers and formula milk feeding for infants ages 0–6 months are significantly correlated. Formula milk use was 4.4 times more common among working mothers than among unemployed mothers. This finding reflects how multifactorial the influence of employment is on feeding choices for highly vulnerable children. According to other research supporting these findings, working mothers frequently encounter difficulties when it comes to exclusive breastfeeding. Hadina et al. (2022), for instance, discovered that working mothers who are in an environment that does not encourage exclusive breastfeeding typically favor formula feeding (Hadina et al., 2022). They are encouraged to switch to formula by a number of factors, including time constraints, the need to return to work, and a lack of environmental support. Furthermore, Unar-Munguía et al. (2022) highlighted how formula milk's widespread marketing can affect mothers' choices, particularly for those who feel pressured to find quick fixes to meet their infants' nutritional needs (Unar - Munguía et al., 2022).

From a theoretical perspective, Husna et al.'s Transactional Stress Model (2021) explains why working mothers feel pressured to manage their time and many duties. When mothers are under stress from work responsibilities, they may feel more pressure to choose formula for

efficiency rather than finding ways to maintain nursing (Husna et al., 2021). However, a lack of social support and adequate understanding of the need for exclusive breastfeeding also play a role in this choice. It should be noted that while Lindawati (2019) provides insight into the relationship between exclusive breastfeeding and knowledge and support, further study is required to ascertain the direct relevance to job pressure (Lindawati, 2019).

Based on these results, the researchers predict that women's job affects not only their availability of time and energy for nursing, but also their capacity to obtain adequate information and support. Additionally, work circumstances that are less supportive of breastfeeding habits, including a lack of breastfeeding facilities at work, may exacerbate this issue by making moms prefer formula milk (Hadina et al., 2022). The results of the study allow for the following recommendations: Information on balancing employment and breastfeeding, as well as more comprehensive counseling programs on the benefits of exclusive breastfeeding, is needed. In order to help moms acquire the information and confidence they need to continue breastfeeding while working, support from medical professionals is essential. The importance of breastfeeding facilities must be recognized by businesses. An inviting space for nursing or pumping might help working moms feel more comfortable and free up time for exclusive breastfeeding. However, formula milk ads that could influence mothers' attitudes-especially working moms' attitudes, should be subject to stricter regulation. Campaigns to inform the public about the disadvantages of formula versus breast milk should be strengthened. In order to assist mothers in understanding the consequences of this decision, information about the health risks associated with formula dependence, such as an increased risk of diarrhea or other health problems, must be given (Anggraini et al., 2024). The study's overall conclusions highlight the significance of fostering a more supportive environment for working women in order to improve their ability to exclusively breastfeed their children.

Relationship between parental income and formula feeding in infants aged 0-6 months.

The results of the study showed a significant correlation between parental income and formula feeding for infants aged 0–6 months, with a p-value of 0.013 and an odds ratio (OR) of 3.656. These results show that high-income parents are 3.7 times more likely than low-income parents to formula-feed their infants. This outcome reflects the complex links between baby feeding decisions and economic situations. Several previous studies support these findings. Kabdwal et al. (2024) noted, for example, that household economic status is a major contributor to malnutrition disparities, with wealthier families generally having easier access to nutrient-dense foods, such as infant formula products, which may be a more practical option than breastfeeding. Studies showing the relationship between dietary preferences and socioeconomic status have also been proposed by Lee (2025).

These results can be explained by a number of theories, including the Resource Access and Control Theory. In this scenario, resources like food and healthcare are more easily accessible to parents who earn more money. This allows them the choice to choose formula milk as an alternative to nutrition, even though breastfeeding is still the best option. This is commonly combined with the idea that formula milk is a more sensible choice for working parents, especially those who have demanding jobs to fulfill (Titaley et al., 2019). Their parents' income may affect their ability to buy formula milk, but it may also affect their access to health care, nutrition education, and family and community support. The use of formula may be influenced by the aggressive marketing and advertising that is commonly used to promote formula to higher-income parents (Ventura et al., 2021).

This analysis enables the following helpful suggestions: There should be increased support for initiatives that educate low-income families about the importance of exclusive breastfeeding. When they receive health counseling that highlights the benefits of breastmilk for the baby's health, they might be convinced to choose breastfeeding over formula. Businesses must create a breastfeeding mother-friendly workplace with facilities for pumping breast milk and nursing breaks, because many high-income parents now work. Regulations governing formula marketing must be stricter. Public education about the advantages of choosing breastmilk over formula can help make formula the preferred option and reduce the pressure from misleading advertising. Create community-based programs to encourage social support for breastfeeding. This might

make formula use less stigmatized, raise awareness of the health benefits of breastmilk for babies, and create a more supportive environment for mothers who decide to breastfeed. The overall findings of the study suggest that the relationship between breastfeeding practices and socioeconomic status needs more attention. Combining interventions that target socioeconomic factors and health support may improve infant health in a range of populations.

Relationship between Health Worker Support and Formula Milk Feeding in Infants 0-6 Months of Age.

The study's results, which included a p-value of 0.225 and an odds ratio (OR) of 1.810, indicate that there is no meaningful correlation between health support and formula milk consumption in infants aged 0–6 months. According to the odds ratio (OR), mothers who received assistance from medical professionals were 1.81 times more likely to use formula milk than mothers who did not. The relationship between formula feeding and health worker assistance was not strong enough to be deemed statistically significant; nevertheless, as indicated by the lack of statistical significance ($p > 0.05$). This finding runs counter to multiple studies that demonstrate the significant impact of health workers' support on mothers' breastfeeding decisions. According to a study by Abebe et al. (2019), for instance, mothers who were unaware of the negative health effects of formula feeding were more likely to make poor decisions. Support from medical professionals could help them learn more (Abebe et al., 2019). However, a study by Fang et al. (2021) revealed that mothers who received sufficient breastfeeding counseling were more likely to decide to exclusively breastfeed their children, suggesting that health professionals' support affected their choice of infant feeding technique (Fang et al., 2021).

The behavior change policy theory explains why formula feeding practices are not always positively impacted by health support. Health professionals may help mothers, but this beneficial impact could be diminished if the information given is contradictory or if mothers don't feel pressured to alter their decisions (Rippey et al., 2020). This shows that to support moms, it is essential to transform the way information is disseminated and make sure that counseling emphasizes the advantages of exclusive breastfeeding. Although health support is important, mothers may not always interpret it as encouragement to breastfeed. Their decision to use the formula may be reinforced if they believe this support is more about confirming their choice. It is also possible that other factors, like habits, attitudes, and social pressures, have a greater influence on their choice than the assistance of medical professionals (Hemmingway et al., 2020).

The following recommendations can be made in light of the study's findings: In order to offer mothers consistent, evidence-based counseling, health professionals need to receive better training. The value of breastfeeding and the drawbacks of formula milk should be emphasized in training materials. Raising awareness of the advantages of exclusive breastfeeding should be the goal of educational initiatives. Moms would benefit from counseling that emphasizes health knowledge and offers a forum for talking about feeding options (Zahra et al., 2022). Supporting nursing mothers requires community involvement. Support from the community and family can be a powerful incentive to continue breastfeeding. To determine the factors that influence mothers' decisions, more research should be done. To better comprehend this relationship, the study will be repeated with a larger and more varied sample. Overall, the study's findings point to the need for a more thoughtful approach to the questions of formula feeding and health support in order to promote improved breastfeeding habits and enhance the health of newborns.

CONCLUSION

This study identified several factors significantly associated with the use of formula milk among infants aged 0–6 months in the Donomulyo Health Center area. Maternal education, maternal attitude, employment status, and family income showed significant relationships with formula feeding. Mothers with lower education levels, favorable attitudes toward formula, working status, and higher family income were more likely to provide formula milk to their infants. No significant association was found between health worker support and formula feeding.

AUTHOR'S DECLARATION

Authors' contributions and responsibilities
DAP: Data Collection and Formal Analysis.
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