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Determinants of Continued Breastfeeding Among Mothers of Children Aged 6–23 Months in Indonesia

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Abstract

Continued breastfeeding up to two years of age is an important component of infant and young child nutrition. However, breastfeeding continuation may be influenced by maternal, child-related, behavioural, and social factors. Evidence specifically examining continued breastfeeding during the complementary feeding period in Indonesia remains limited. To identify factors associated with continued breastfeeding among mothers of children aged 6–23 months in Padang, Indonesia. A cross-sectional study was conducted among 579 mother–child dyads recruited through multistage probability sampling in Padang, West Sumatra, Indonesia. Data were collected using structured questionnaires and analysed using bivariate tests and multivariable logistic regression. Results: Of 579 mothers, 459 (79.3%) continued breastfeeding. Children aged 12–23 months had lower odds of continued breastfeeding than those aged 6–11 months (AOR = 0.337; 95% CI: 0.187–0.604). Multiparous mothers had higher odds than primiparous mothers (AOR = 7.591; 95% CI: 1.334–43.205). Formula-feeding status (AOR = 0.262; 95% CI: 0.165–0.416) and having more than five children (AOR = 0.054; 95% CI: 0.004–0.675) were associated with lower odds of continued breastfeeding. High perceived social support was associated with higher odds (AOR = 1.616; 95% CI: 1.028–2.541). Continued breastfeeding was associated with child age, maternal parity, formula-feeding status, number of children, and perceived social support. Community and maternal-child health nurses should provide sustained, family-centred breastfeeding counselling beyond early infancy, particularly for mothers requiring additional support.

Keywords: Continued Breastfeeding, Maternal Parity, Social Support, Infant and Young Child Feeding, Maternal-Child Nursing, Indonesia.

INTRODUCTION

Breastfeeding is a central component of infant and young child feeding and remains relevant after complementary foods are introduced. Continued breastfeeding and complementary feeding should be understood as concurrent practices during the second year of life rather than as mutually exclusive feeding strategies. Studies of infant and young child feeding consistently show that feeding practices vary across settings and are shaped by maternal, child, household, and health-service characteristics (Ng et al., 2012; Yunitasari et al., 2022).

Maintaining breastfeeding beyond early infancy can be challenging. As children grow older, feeding routines become more complex, complementary foods become increasingly prominent, and mothers may experience competing caregiving and household demands. Evidence from a systematic review

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indicates that breastfeeding maintenance for 12 months or longer is influenced by multiple maternal and contextual factors, including previous breastfeeding experience and parity (Santana et al., 2018). Maternal experience may therefore be particularly relevant when breastfeeding is sustained alongside complementary feeding.

Continuing breastfeeding alongside age-appropriate complementary foods until two years of age or beyond can provide additional nutrients, immune-protective components, and comfort during illness. Premature discontinuation may reduce these contributions, particularly when complementary diets are inadequate; however, child health outcomes also depend on overall dietary quality, infection exposure, and access to care.

Breastfeeding continuation is also embedded within broader feeding behaviour. Research in several settings has shown associations between breastfeeding practices and complementary-feeding patterns (Alzaheb, 2016; Jose et al., 2021; Tromp et al., 2013). Indonesian evidence likewise demonstrates that infant and young child feeding is influenced by a combination of child, maternal, socioeconomic, and behavioural factors (Ng et al., 2012; Sekartaji et al., 2021; Yunitasari et al., 2022). However, determinants of continued breastfeeding may differ from determinants of dietary diversity, meal frequency, or timely introduction of complementary foods.

Maternal reproductive experience may be especially important. Multiparous mothers may draw on knowledge and skills acquired through previous breastfeeding experiences, whereas primiparous mothers may require greater anticipatory guidance and professional support. Previous research has associated parity and maternal experience with longer breastfeeding duration (Carrascoza et al., 2005; Santana et al., 2018). At the same time, larger family size may create competing demands for maternal time and resources, indicating that reproductive experience and caregiving burden should not be treated as equivalent constructs.

This study is part of a larger doctoral research programme examining maternal adherence to infant and young child feeding recommendations. The present analysis focuses specifically on continued breastfeeding among mothers of children aged 6–23 months. The study aimed to identify child, maternal, behavioural, socioeconomic, and psychosocial factors associated with continued breastfeeding, with particular attention to potentially modifiable factors that can inform nursing and family-centred support. Unlike studies primarily examining complementary feeding indicators, this analysis isolates breastfeeding receipt in the preceding 24 hours among children aged 6–23 months and assesses its associations with maternal experience and perceived social support. This may inform sustained, family-centred nursing support beyond early infancy.

METHODS

Study Design and setting

This article reports an outcome-specific analysis from a cross-sectional survey examining maternal adherence to complementary feeding guidelines and associated factors. The study was conducted in Padang City, West Sumatra, Indonesia. Padang comprises 11 districts and 104 subdistricts and is served by 23 primary health-care facilities (Puskesmas) that provide maternal and child health services, including antenatal care, postpartum care, growth and development monitoring, counselling, and immunisation. Padang was selected because community-based evidence specifically examining breastfeeding continuation among children aged 6–23 months remains limited in this setting. Local breastfeeding coverage statistics should be incorporated here once an official Padang City or West Sumatra health profile and the relevant indicator year have been verified.

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Population and Sampling

Eligible participants were mothers of reproductive age who had children aged 6–23 months, lived in Padang, were willing to participate, and could communicate in Indonesian or Minang. Mothers with psychosocial problems and mothers whose children had serious chronic or congenital illnesses were excluded; these conditions were confirmed from diagnoses documented in maternal and child health records at the Puskesmas. A multistage probability-sampling procedure was used. First, five districts were randomly selected by lottery to represent urban, suburban, and rural areas: North Padang, East Padang, Nanggalo, Pauh, and Kuranji. Two subdistricts were then randomly selected within each district. The required sample was allocated proportionally to the population in each selected area. Sixty Posyandu (Integrated Health Posts) were randomly selected, and eligible mothers were selected systematically within the study areas. The parent study calculated a target sample of 594 participants, including a 20% allowance for attrition; 579 mother–child dyads were included in the present analysis. The sampling frame comprised eligible mothers attending selected Posyandu in the sampled subdistricts; mothers were systematically approached from the available eligible lists. The target of 594 was determined for the parent study, and 579 complete records were available for this analysis. The original sample-size formula and its assumptions should be reported from the parent study protocol before submission.

Variable, Measurement and Data Collection

The outcome for this article was continued breastfeeding, derived from the Infant and Young Child Feeding (IYCF) indicators used in the parent study. Continued breastfeeding was operationalised as whether the child received breast milk during the 24 hours preceding the interview (yes/no), irrespective of complementary foods or formula milk. The study assessed IYCF practices using a 24-hour dietary recall and age-specific indicators for children aged 6–23 months (World Health Organization & United Nations Children's Fund, 2021).

Explanatory variables included biological factors (child age, recent child illness, maternal age, and parity), behavioural factors (breastfeeding/formula-feeding status, antenatal care visits, and postnatal check-ups), sociocultural factors (maternal education, employment, family income, place of residence, number of children, place of delivery, and cultural beliefs), informational factors (media exposure and sources of information), maternal knowledge, maternal attitude, maternal self-efficacy, and perceived social support. Formula-feeding status indicated that the child had received formula during the reference period, whereas children who had not received formula were classified as not receiving formula milk; this category did not imply exclusive breastfeeding.

Sociodemographic, biological, behavioural, and informational characteristics were assessed using structured self-developed questions. Maternal knowledge and attitude were assessed using questionnaires adapted from the Knowledge, Attitudes and Practices model for infant and young child feeding. Perceived social support was measured using the Medical Outcomes Study Social Support Survey (MOS-SSS), and maternal self-efficacy was measured using the diet dimension of the Self-efficacy in Infant Care Scale (SICS). Cultural beliefs were measured using an adapted questionnaire on mothers' cultural beliefs about weaning, modified for complementary feeding.

The MOS-SSS, SICS, and cultural-beliefs questionnaire underwent cross-cultural adaptation using forward translation, synthesis, back-translation, expert review, and pretesting. The prefinal questionnaires were tested among 40 mothers of children aged 6–23 months. In the parent study, Cronbach's alpha was 0.96 for the Indonesian MOS-SSS, 0.651 for the adapted SICS diet dimension, 0.80 for the modified cultural-beliefs questionnaire, and 0.67 for the maternal-attitude questionnaire. The final 10-item maternal-knowledge questionnaire had a Cronbach's alpha of 0.544.

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The relatively low internal consistency of the maternal-knowledge measure (Cronbach's alpha = 0.544) should be considered when interpreting analyses involving this variable.

Data were collected by 60 trained Posyandu cadres. Before data collection, the cadres completed one day of training covering the study objectives, questionnaires, data-collection procedures, and role-play of interview techniques. Face-to-face interviews were conducted at Posyandu using structured questionnaires and generally lasted 15–30 minutes. When participants had limited time, a home visit was arranged. Data collectors checked questionnaire completeness, and the principal investigator reviewed completeness and consistency daily as part of quality control. Information was obtained directly from maternal interviews, with documented health records used to verify eligibility-related exclusions.

Data Analysis

Data were analysed using IBM SPSS Statistics version 25. Categorical variables were summarised using frequencies and percentages. Bivariate associations between explanatory variables and continued breastfeeding were examined using chi-square tests. Eleven explanatory variables were entered simultaneously into a multivariable binary logistic regression model using the Enter method. Parity and number of children were treated as categorical variables, with primiparous mothers and mothers with one child as the respective reference groups. Formula milk consumption and perceived social support were also analysed as categorical variables. Adjusted odds ratios (AORs) and 95% confidence intervals (CIs) were reported. Overall Wald tests for multi-category predictors and category-specific estimates were distinguished. Statistical significance was assessed at $p < 0.05$.

Ethical Consideration

Ethical approval was obtained from the Health Research Ethics Committee of Dr. M. Djamil General Hospital, Padang (No. LB.02.02/5.7/539/2022). Administrative permission was also obtained from the Padang City Investment and One-Stop Integrated Service Office (No. 070.3174/DPMPTSP-PP/XI/2022) and relevant health authorities. Before enrolment, data collectors explained the study to eligible mothers, and written informed consent was obtained from all participants.

RESULTS

Continued breastfeeding and bivariate associations

Among 579 mothers, 459 (79.3%) were adherent to continued breastfeeding and 120 (20.7%) were non-adherent. Adherence was higher among mothers of infants aged 6–11 months (89.4%) than among mothers of children aged 12–23 months (75.1%). It was also higher among multiparous (82.8%) and grand multiparous mothers (83.3%) primiparous mothers (71.8%). Children not receiving formula milk were more likely to receive breast milk (88.8%) than those receiving formula milk (66.8%). High perceived social support was associated with higher adherence (82.2% vs 74.3%) (See table 1).

Table 1. Bivariate analysis of factors associated with Continued breastfeeding

Variables	Continued breastfeeding				P value
	No		Yes		
	n	%	n	%	
Children's age					
Infant (6-11 months)	18	10.6	152	89.4	< 0.000 *
Young children (12-23 months)	102	24.9	307	75.1	
Disease's history					
No.	53	25.1	158	74.9	0.048 *
Yes	67	18.2	301	81.8	

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Mother's age					
Young mother (≤ 25 years)	6	13.6	38	86.4	0.227
Older mother (>25 years)	114	21.3	421	78.7	
Parity of mother					
Primipara	53	28.2	135	71.8	0.009 *
Multipara	64	17.2	309	82.8	
Grand multipara	3	16.7	15	83.3	
Formula milk consumtion					
Yes	83	33.2	167	66.8	< 0.000 *
No.	37	11.2	292	88.8	
Antenatal care visit					
Never	0	0.0	4	100.0	0.768
1 time	2	20.0	8	80.0	
2-3 times	20	22.0	71	78.0	
4 times or more	98	20.7	376	79.3	
Postnatal check-up					
Never	13	23.2	43	76.8	0.804
1 time	32	23.0	107	77.0	
2-3 times	58	19.5	239	80.5	
4 times or more	17	19.5	70	80.5	
Education level					
Lower education	13	19.7	53	80.3	0.827
Higher education	107	20.9	406	79.1	
Occupation					
Unemployed	87	20.3	342	79.7	0.655
Working mother	33	22.0	117	78.0	
Family income					
Low income	59	18.6	258	81.4	0.168
High Income	61	23.3	201	76.7	
Residence					
Rural area	73	20.6	281	79.4	0.938
Urban area	47	20.9	178	79.1	
Place of delivery					
Hospital	80	22.4	277	77.6	0.205
Other than hospital	40	18.0	182	82.0	
Number of children					
1 child (Only child)	49	26.3	137	73.7	0.054 *
2-5 children (Small)	68	17.8	314	82.2	
more than 5 children (Large)	3	27.3	8	72.7	
Cultural belief					
Negative	63	21.8	226	78.2	0.525
Positive	57	19.7	233	80.3	
Exposure to media					
No exposure	3	23.1	10	76.9	0.832
Expose to media	117	20.7	449	79.3	
Source of information					
No source of information	2	20.0	8	80.0	0.954
Source of information	118	20.7	451	79.3	
Knowledge					
Poor	11	20.0	44	80.0	0.889
Good	109	20.8	415	79.2	
Attitude					
Negative	1	4.2	23	95.8	0.041 *
Positive	119	21.4	436	78.6	
Self-efficacy					
Low	21	28.8	52	71.2	0.070
High	99	19.6	407	80.4	
Social support					
Low	55	25.7	159	74.3	0.024 *
High	65	17.8	300	82.2	

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Multivariable predictors of continued breastfeeding

Table 2 presents the multivariable logistic regression model with all eleven explanatory variables entered simultaneously. Children aged 12–23 months had lower odds of continued breastfeeding than children aged 6–11 months (AOR = 0.337; 95% CI: 0.187–0.604; p < 0.001). Formula milk consumption was associated with lower odds (AOR = 0.262; 95% CI: 0.165–0.416; p < 0.001), while high perceived social support was associated with higher odds (AOR = 1.616; 95% CI: 1.028–2.541; p = 0.038). Although the multiparous (AOR = 7.591; p = 0.022), grand multiparous (AOR = 12.468; p = 0.038), and more-than-five-children (AOR = 0.054; p = 0.023) contrasts were individually significant, the overall tests for parity (p = 0.060) and number of children (p = 0.076) were not. The model was significant (x^2 = 89.491, df = 13, p < 0.001), with Nagelkerke R^2 = 0.224 and Hosmer–Lemeshow p = 0.981. Overall classification accuracy was 79.3%, but only 14.2% of non-breastfeeding cases were correctly classified.

Table 2. Multivariable logistic regression analysis of factors associated with continued breastfeeding (n = 579

Variable	Continue Breastfeeding		COR (95% CI)	AOR (95% CI
	Yes	No.		
Children age				
6-11 months	152 (89.4%)	18 (10.6%)	1	1
12-23 months	307 (75.1%)	102 (24.9%)	0.356 (0.208-0.610)	0.337 (0.187-0.604) ***
Child history of disease				
No.	158 (74.9%)	53 (25.1%)	1	1
Yes	301 (81.8%)	67 (18.2%)	1.507 (1.002-2.267)	1.490 (0.948-2.343)
Mother's age				
≤25 years	38 (86.4%)	6 (13.6%)	1	1
> 25 years	421 (78.7%)	114 (21.3%)	0.583 (0.241-1.414)	0.683 (0.255-1.826)
Parity				
Primipara	135 (71.8%)	53 (28.2%)	1	1
Multipara	309 (82.8%)	64 (17.2%)	1.895 (1.250-2.874)	7.591 (1.334-43.205) *
Grand multipara	15 (83.3%)	3 (16.7%)	1.963 (0.546-7.058)	12.468 (1.446-135.663) *
Formula milk consumption				
Yes	167 (66.8%)	83 (33.2%)	0.255 (0.166-0.393)	0.262 (0.165-0.416) ***
No.	292 (88.8%)	37 (11.2%)	1	1
Income				
Low	258 (81.4%)	59 (18.86%)	1	1
High	201 (76.7%)	61 (23.3%)	0.754 (0.504-1.127)	0.842 (0.532-1.332)
Place of delivery				
Hospital	277 (77.6%)	80 (22.4%)	1	1
Other than hospital	182 (82.0%)	40 (18.0)	1.314 (0.861-2.006)	1.197 (0.748-1.916)
Number of children				
Only child	49 (26.3%)	137 (73.7%)	1	1
Small	68 (17.8%)	314 (82.2%)	1.652 (1.087-2.510)	0.239 (0.042-1.353)
Large	3 (27.3%)	8 (72.7%)	0.954 (0.243-3.740)	0.054 (0.004-0.675) *
Attitude				
Negative	23 (95.8%)	1 (4.2%)	1	1
Positive	436 (78.6%)	119 (21.4%)	0.159 (0.21-1.192)	0.169 (0.021-1.336)
Self-efficacy				
Low	52 (71.2%)	21 (28.8%)	1	1
High	407 (80.4%)	99 (19.6%)	1.660 (0.956-2.884)	1.832 (0.981-3.421)
Social support				
Low	159 (74.3%)	55 (25.7%)	1	1
High	300 (82.2%)	65 (17.8%)	1.597 (1.062-2.399)	1.616 (1.028-2.541) *

COR Crude odds ratio, AOR Adjusted odds ratio, CI Confidence interval
*P < 0.05, **P < 0.01, ***P< 0.0001

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DISCUSSION

This study aimed to identify factors associated with continued breastfeeding among mothers of children aged 6–23 months. In the fully adjusted model, child age, formula milk consumption, and perceived social support were associated with continued breastfeeding. Some category-specific contrasts for parity and family size also reached statistical significance, but their overall variable-level tests did not. These findings suggest that breastfeeding continuation is shaped by child-related, feeding, maternal, and social circumstances, with cautious interpretation warranted for sparse categories.

Child age was significantly associated with continued breastfeeding. Mothers of children aged 12–23 months had lower odds of continuing breastfeeding than mothers of infants aged 6–11 months. This finding indicates that maintaining breastfeeding may become increasingly challenging as children grow older. Previous studies have similarly demonstrated variations in infant and young child feeding practices according to child age (Aber et al., 2018; Harvey et al., 2017; Issaka et al., 2017; Nkoka et al., 2018; Sarrassat et al., 2019). As complementary foods become more established during the second year of life, breastfeeding may gradually become less prominent within the child's feeding routine. Mothers may also face increasing caregiving and household demands as the child grows. These findings highlight the importance of viewing breastfeeding continuation beyond infancy as a distinct period that may require sustained support rather than assuming that breastfeeding established during early infancy will automatically continue into the second year of life. In community and maternal–child health services, nurses can assess breastfeeding continuation during Posyandu visits for children aged 12–23 months and provide anticipatory counselling on maintaining breastfeeding alongside complementary feeding.

Maternal parity showed category-specific associations with continued breastfeeding: multiparous and grand multiparous mothers had higher adjusted odds than primiparous mothers. However, the overall test for parity did not meet the conventional significance threshold ($p = 0.060$), and the wide confidence intervals indicate imprecise estimates, particularly among grand multiparous mothers. Previous breastfeeding experience may be relevant, but these findings should be interpreted cautiously (Carrascoza et al., 2005; Santana et al., 2018). Nurses may offer additional practical lactation guidance to primiparous mothers, including assessment of feeding difficulties, positioning, and strategies for combining breastfeeding with complementary feeding.

The relationship between parity and number of children provides an additional perspective on maternal breastfeeding experience. Although multiparous mothers were more likely to continue breastfeeding, mothers with more than five children had substantially lower odds of continued breastfeeding. These findings suggest that reproductive experience and family caregiving demands may operate differently. Previous breastfeeding experience may provide mothers with knowledge and practical skills that facilitate continued breastfeeding, whereas having a very large number of children may increase competing demands for maternal time, attention, and household resources. Previous evidence has similarly suggested that larger family size can influence infant and young child feeding practices because mothers may face greater demands in preparing food and providing care to several children. Nevertheless, this finding should be interpreted cautiously because relatively few participants were in the category of more than five children, as reflected in the wide confidence interval.

An important finding of this study was the association between breastfeeding status and continued breastfeeding. Mothers who provided formula feeding had substantially lower odds of continued breastfeeding than children who did not receive formula milk. Previous studies conducted in different

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settings have also demonstrated relationships between breastfeeding practices and subsequent infant and young child feeding (Alzaheb, 2016; Tromp et al., 2013; Wang et al., 2017). The present finding suggests that the introduction or use of formula feeding may coexist with a gradual reduction in breastfeeding. However, given the cross-sectional design of this study, the temporal direction of this relationship cannot be established. Formula feeding may contribute to reduced breastfeeding frequency, but it is also possible that mothers introduce formula because breastfeeding has already declined or become difficult. Therefore, this association should not be interpreted as causal. Nurses can routinely ask whether formula milk was consumed during the previous 24 hours, assess reasons for supplementation without judgement, and offer individualized lactation support when breastfeeding difficulties are identified.

Perceived social support was another important factor independently associated with continued breastfeeding. Mothers reporting high social support had higher odds of continuing breastfeeding than mothers reporting low social support. This finding reinforces the view that continued breastfeeding is not solely an individual maternal behaviour but occurs within a broader social and family context. Support from family members and other significant people may help mothers manage practical and emotional challenges associated with maintaining breastfeeding alongside complementary feeding and other caregiving responsibilities. The importance of social support is particularly relevant during the second year of the child's life, when breastfeeding may compete with increasingly complex feeding routines and other family demands. Thus, breastfeeding support should extend beyond improving maternal knowledge and skills to include the social environment in which feeding decisions are made. At Puskesmas and Posyandu, nurses can involve partners and other family members in breastfeeding counselling and help families identify practical ways to support mothers' continued breastfeeding.

Notably, several factors that appeared to be associated with continued breastfeeding in the initial analyses did not remain significant after adjustment for other variables. In particular, maternal self-efficacy showed higher odds of continued breastfeeding but did not reach statistical significance in the final multivariable model. This finding suggests that although maternal confidence may be relevant to breastfeeding behaviour, its independent contribution may be less apparent when child, maternal, feeding, and social factors are considered simultaneously. The distinction between factors associated at the bivariate level and those remaining significant after multivariable adjustment underscores the multifactorial nature of continued breastfeeding.

Strengths and limitations

A strength of this study is the simultaneous examination of multiple child, maternal, behavioural, socioeconomic, and psychosocial factors, allowing the identification of factors independently associated with continued breastfeeding after adjustment for potential confounders. The analysis also provides insight into continued breastfeeding specifically during the 6–23-month period, when breastfeeding occurs alongside complementary feeding and may face different challenges from those encountered during early infancy.

Several limitations should nevertheless be considered. The cross-sectional design prevents conclusions about temporal or causal relationships between the identified factors and continued breastfeeding. The reliance on maternal reports may introduce recall or social desirability bias. Some categories contained relatively few participants, particularly grand multiparous mothers (n = 18) and mothers with more than five children (n = 11), leading to wide confidence intervals. Although the overall classification accuracy was 79.3%, the model correctly classified only 14.2% of children who did not receive breast milk. The analysis also did not explicitly account for clustering within sampled Posyandu, which may affect standard errors. Future studies should address these limitations. The maternal-knowledge questionnaire demonstrated low internal consistency (Cronbach’s alpha = 0.544),

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which may have introduced measurement error and attenuated associations involving maternal knowledge. Findings related to this construct should therefore be interpreted cautiously.

Implications for nursing practice

The findings have several implications for nursing and maternal-child health services. Breastfeeding support should not be concentrated only during pregnancy, childbirth, or the early postpartum period but should continue throughout the complementary feeding period. Particular attention may be needed for mothers of older children and primiparous mothers, who may be more vulnerable to discontinuing breastfeeding. Nurses can use routine child health and postnatal contacts to assess breastfeeding continuation, identify emerging feeding difficulties, and provide individualized counselling as children transition to complementary foods.

The findings also support a family-centred approach to breastfeeding promotion. Because perceived social support was independently associated with continued breastfeeding, breastfeeding education and counselling may be strengthened by involving partners and other influential family members rather than focusing exclusively on mothers. Families may benefit from practical support to sustain breastfeeding as children grow older. Taken together, these findings suggest that interventions to sustain breastfeeding should combine continued professional support with strategies that strengthen the mother's family and social support environment.

Overall, this study demonstrates that continued breastfeeding among mothers of children aged 6–23 months is associated with interconnected child, maternal, feeding, and social factors. The findings particularly highlight the challenges of sustaining breastfeeding as children grow older and the potential importance of maternal experience and supportive social environments. Continued breastfeeding should therefore be addressed as an ongoing maternal-child health practice requiring sustained, developmentally appropriate, and family-inclusive support beyond early infancy.

CONCLUSION

This study found that older child age and formula milk consumption were associated with lower adjusted odds of continued breastfeeding, whereas higher perceived social support was associated with higher odds among mothers of children aged 6–23 months. Although several parity and family-size contrasts were statistically significant, the overall tests for these multi-category variables were not, and the corresponding estimates require cautious interpretation. These findings support sustained, family-centred breastfeeding counselling during complementary feeding. Longitudinal studies are needed to clarify temporal relationships.

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CONFLICT OF INTEREST

The authors declare no conflict of interest related to this study.

DISCLOSURE OF GENERATIVE AI AND AI-ASSISTED TECHNOLOGIES

The authors used ChatGPT (OpenAI) and Grammarly solely for language editing, including improving grammar, clarity, and readability. All revisions were reviewed and verified by the authors, who take full responsibility for the final content of the manuscript.

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REFERENCES

Aber, H., Kisakye, A. N., & Babirye, J. N. (2018). Adherence to complementary feeding guidelines among caregivers of children aged 6-23 months in Lamwo district, rural Uganda. The Pan African medical journal, 31. https://doi.org/https://doi.org/10.11604/pamj.2018.31.17.14955.

Ahmed, J. A., Sadeta, K. K., & Lenbo, K. H. (2022). Magnitude and factors associated with appropriate complementary feeding practice among mothers of children 6–23 months age in Shashemene town, Oromia- Ethiopia: Community based cross sectional study. PloS one, 17(3), e0265716. https://doi.org/https://doi.org/10.1371/journal.pone.0265716.

Alzaheb, R. A. (2016). Factors Associated with the Early Introduction of Complementary Feeding in Saudi Arabia. International journal of environmental research and public health, 13(7). https://doi.org/https://dx.doi.org/10.3390/ijerph13070702.

Carrascoza, K., Costa, A., & Moraes, A. (2005). The early weaning and extended breastfeeding influent factors. Estudos de Psicologia (Campinas), 22, 433-440.

Dagne, A. H., Anteneh, K. T., Badi, M. B., Adhanu, H. H., Ahunie, M. A., Tebeje, H. D., & Aynalem, G. L. (2019). Appropriate complementary feeding practice and associated factors among mothers having children aged 6-24 months in Debre Tabor Hospital, North West Ethiopia, 2016. BMC Research Notes, 12(1), Article 215. https://doi.org/10.1186/s13104-019-4259-3.

Dhami, M. V., Ogbo, F. A., Osuagwu, U. L., & Agho, K. E. (2019). Prevalence and factors associated with complementary feeding practices among children aged 6-23 months in India: a regional analysis. BMC public health, 19(1), 1034. https://doi.org/https://dx.doi.org/10.1186/s12889-019-7360-6.

Gebretsadik, M. T., Adugna, D. T., Aliyu, A. D., & Belachew, T. (2023). Optimal complementary feeding practices of children aged 6-23 months in three agro-ecological rural districts of Jimma zones of southwest Ethiopia. Journal of nutritional science, 12, Article e40. https://doi.org/10.1017/jns.2023.26.

Harvey, S., Callaby, J., & Roberts, L. (2017). An exploration of complementary feeding of infants and young children in the rural area of Muhoroni, Nyanza province, Kenya: a descriptive study. Paediatrics and International Child Health, 37(3), 172-180. https://doi.org/10.1080/20469047.2016.1230970.

Issaka, A. I., Agho, K. E., Burns, P., Page, A., & Dibley, M. J. (2015). Determinants of inadequate complementary feeding practices among children aged 6-23 months in Ghana. Public health nutrition, 18(4), 669-678. https://doi.org/https://dx.doi.org/10.1017/S1368980014000834.

Issaka, A. I., Agho, K. E., Ezeh, O. K., & Renzaho, A. M. (2017). Population-attributable risk estimates for factors associated with inappropriate complementary feeding practices in The Gambia. Public health nutrition, 20(17), 3135-3144. https://doi.org/https://dx.doi.org/10.1017/S1368980017002014.

Jose, J. P., Cherayi, S. J., Sudhakar, S., & Raju, K. T. (2021). Complementary feeding practices of tribal mothers to their Infants and Young Children in Kerala. Clinical Epidemiology and Global Health, 11, 100767. https://doi.org/https://doi.org/10.1016/j.cegh.2021.100767.

This work is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License.

Joshi, N., Agho, K. E., Dibley, M. J., Senarath, U., & Tiwari, K. (2012). Determinants of inappropriate complementary feeding practices in young children in Nepal: secondary data analysis of Demographic and Health Survey 2006. Maternal & child nutrition, 8 Suppl 1, 45-59. https://doi.org/https://dx.doi.org/10.1111/j.1740-8709.2011.00384.x.

Mamo, Z. B., Wudneh, A., & Molla, W. (2022). Determinants of complementary feeding initiation time among 6–23 months children in Gedeo Zone, South Ethiopia: Community-based case-control study. International Journal of Africa Nursing Sciences, 16, 100418. https://doi.org/https://doi.org/10.1016/j.ijans.2022.100418.

Na, M., Aguayo, V. M., Arimond, M., Narayan, A., & Stewart, C. P. (2018b). Stagnating trends in complementary feeding practices in Bangladesh: An analysis of national surveys from 2004-2014 [Article]. Maternal and Child Nutrition, 14. https://doi.org/10.1111/mcn.12624.

Na, M., Aguayo, V. M., Arimond, M., & Stewart, C. P. (2017). Risk factors of poor complementary feeding practices in Pakistani children aged 6-23 months: A multilevel analysis of the Demographic and Health Survey 2012-2013. Maternal & child nutrition, 13 Suppl 2. https://doi.org/https://dx.doi.org/10.1111/mcn.12463.

Ng, C. S., Dibley, M. J., & Agho, K. E. (2012). Complementary feeding indicators and determinants of poor feeding practices in Indonesia: a secondary analysis of 2007 Demographic and Health Survey data. Public health nutrition, 15(5), 827-839. https://doi.org/https://dx.doi.org/10.1017/S1368980011002485.

Nkoka, O., Mhone, T. G., & Ntenda, P. A. M. (2018). Factors associated with complementary feeding practices among children aged 6-23 mo in Malawi: an analysis of the Demographic and Health Survey 2015-2016. International health, 10(6), 466-479. https://doi.org/https://dx.doi.org/10.1093/inthealth/ihy047.

Ogbo, F. A., Ogeleka, P., & Awosemo, A. O. (2018). Trends and determinants of complementary feeding practices in Tanzania, 2004-2016. Tropical medicine and health, 46, 40. https://doi.org/https://dx.doi.org/10.1186/s41182-018-0121-x.

Okafoagu, N. C., Oche, O. M., Raji, M. O., Onankpa, B., & Raji, I. (2017). Factors influencing complementary and weaning practices among women in rural communities of Sokoto state, Nigeria. The Pan African medical journal, 28, 254. https://doi.org/https://dx.doi.org/10.11604/pamj.2017.28.254.10992.

Patel, A., Pusdekar, Y., Badhoniya, N., Borkar, J., Agho, K. E., & Dibley, M. J. (2012). Determinants of inappropriate complementary feeding practices in young children in India: secondary analysis of National Family Health Survey 2005-2006. Maternal & child nutrition, 8 Suppl 1, 28-44. https://doi.org/https://dx.doi.org/10.1111/j.1740-8709.2011.00385.x.

Rakotomanana, H., Hildebrand, D., Gates, G. E., Thomas, D. G., Fawbush, F., & Stoecker, B. J. (2020). Maternal Knowledge, Attitudes, and Practices of Complementary Feeding and Child Undernutrition in the Vakinankaratra Region of Madagascar: A Mixed-Methods Study. Current Developments in Nutrition, 4(11), nzaa162. https://doi.org/https://doi.org/10.1093/cdn/nzaa162.

Reynolds, E. C., Onyango, D., Mwando, R., Oele, E., Misore, T., Agaya, J., Otieno, P., Tippett Barr, B. A., Lee, G. O., & Akelo, V. (2021). Mothers' Perspectives of Complementary Feeding Practices in

This work is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License.

an Urban Informal Settlement in Kisumu County, Western Kenya. Current Developments in Nutrition, 5(5), nzab065. https://doi.org/https://doi.org/10.1093/cdn/nzab065.

Santana, G. S., Giugliani, E. R. J., Vieira, T. O., & Vieira, G. O. (2018). Factors associated with breastfeeding maintenance for 12 months or more: a systematic review. J Pediatr (Rio J), 94(2), 104-122. https://doi.org/10.1016/j.jped.2017.06.013.

Sarrassat, S., Ganaba, R., Some, H., Cresswell, J. A., Diallo, A. H., Cousens, S., & Filippi, V. (2019). Suboptimal infant and young child feeding practices in rural Boucle du Mouhoun, Burkina Faso: Findings from a cross-sectional population-based survey [Review]. PloS one, 14(11). https://doi.org/https://doi.org/10.1371/journal.pone.0224769.

Scarpa, G., Berrang-Ford, L., Galazoula, M., Kakwangire, P., Namanya, D. B., Tushemerirwe, F., Ahumuza, L., & Cade, J. E. (2022). Identifying Predictors for Minimum Dietary Diversity and Minimum Meal Frequency in Children Aged 6–23 Months in Uganda [Article]. Nutrients, 14(24), Article 5208. https://doi.org/10.3390/nu14245208.

Sekartaji, R., Suza, D. E., Fauziningtyas, R., Almutairi, W. M., Susanti, I. A., Astutik, E., & Efendi, F. (2021). Dietary Diversity and Associated Factors Among Children Aged 6–23 Months in Indonesia. Journal of pediatric nursing, 56, 30-34. https://doi.org/https://doi.org/10.1016/j.pedn.2020.10.006.

Senarath, U., Godakandage, S. S. P., Jayawickrama, H., Siriwardena, I., & Dibley, M. J. (2012). Determinants of inappropriate complementary feeding practices in young children in Sri Lanka: secondary data analysis of Demographic and Health Survey 2006-2007. Maternal & child nutrition, 8 Suppl 1, 60-77. https://doi.org/https://dx.doi.org/10.1111/j.1740-8709.2011.00375.x.

Sheikh, N., Akram, R., Ali, N., Haque, S. R., Tisha, S., Mahumud, R. A., Sarker, A. R., & Sultana, M. (2020). Infant and young child feeding practice, dietary diversity, associated predictors, and child health outcomes in Bangladesh. Journal of child health care : for professionals working with children in the hospital and community, 24(2), 260-273. https://doi.org/https://dx.doi.org/10.1177/1367493519852486.

Tromp, I. I. M., Briedé, S., Kiefte-De Jong, J. C., Renders, C. M., Jaddoe, V. W. V., Franco, O. H., Hofman, A., Raat, H., & Moll, H. A. (2013). Factors associated with the timing of introduction of complementary feeding: The Generation R Study [Article]. European journal of clinical nutrition, 67(6), 625-630. https://doi.org/10.1038/ejcn.2013.50.

Victor, R., Baines, S. K., Agho, K. E., & Dibley, M. J. (2014). Factors associated with inappropriate complementary feeding practices among children aged 6-23 months in Tanzania. Maternal & child nutrition, 10(4), 545-561. https://doi.org/https://dx.doi.org/10.1111/j.1740-8709.2012.00435.x.

Wang, A., Scherpbier, R. W., Huang, X., Guo, S., Yang, Y., Josephs-Spaulding, J., Ma, C., Zhou, H., & Wang, Y. (2017). The dietary diversity and stunting prevalence in minority children under 3 years old: A cross-sectional study in forty-two counties of Western China [Article]. British Journal of Nutrition, 118(10), 840-848. https://doi.org/https://doi.org/10.1017/s0007114517002720.

Yesuf, N. N., Mekonnen, E. G., & Takele, W. W. (2021). Minimum dietary diversity and associated factors among young infants and children living in the most productive area of Amhara region, Addis Zemen town: A community-based cross-sectional study. International Journal of Africa Nursing Sciences, 14, 100279. https://doi.org/https://doi.org/10.1016/j.ijans.2021.100279.

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Yunitasari, E., Al Faisal, A. H., Efendi, F., Kusumaningrum, T., Yunita, F. C., & Chong, M. C. (2022). Factors associated with complementary feeding practices among children aged 6-23 months in Indonesia. BMC pediatrics, 22(1). https://doi.org/ARTN 727.10.1186/s12887-022-03728-x.

Sekartaji, R., Suza, D. E., Fauziningtyas, R., Almutairi, W. M., Susanti, I. A., Astutik, E., & Efendi, F. (2021). Dietary Diversity and Associated Factors Among Children Aged 6–23 Months in Indonesia. Journal of pediatric nursing, 56, 30-34. https://doi.org/https://doi.org/10.1016/j.pedn.2020.10.006.

Senarath, U., Godakandage, S. S. P., Jayawickrama, H., Siriwardena, I., & Dibley, M. J. (2012). Determinants of inappropriate complementary feeding practices in young children in Sri Lanka: secondary data analysis of Demographic and Health Survey 2006-2007. Maternal & child nutrition, 8 Suppl 1, 60-77. https://doi.org/https://dx.doi.org/10.1111/j.1740-8709.2011.00375.x.

Sheikh, N., Akram, R., Ali, N., Haque, S. R., Tisha, S., Mahumud, R. A., Sarker, A. R., & Sultana, M. (2020). Infant and young child feeding practice, dietary diversity, associated predictors, and child health outcomes in Bangladesh. Journal of child health care : for professionals working with children in the hospital and community, 24(2), 260-273. https://doi.org/https://dx.doi.org/10.1177/1367493519852486.

Tromp, I. I. M., Briedé, S., Kiefte-De Jong, J. C., Renders, C. M., Jaddoe, V. W. V., Franco, O. H., Hofman, A., Raat, H., & Moll, H. A. (2013). Factors associated with the timing of introduction of complementary feeding: The Generation R Study [Article]. European journal of clinical nutrition, 67(6), 625-630. https://doi.org/10.1038/ejcn.2013.50.

Victor, R., Baines, S. K., Agho, K. E., & Dibley, M. J. (2014). Factors associated with inappropriate complementary feeding practices among children aged 6-23 months in Tanzania. Maternal & child nutrition, 10(4), 545-561. https://doi.org/https://dx.doi.org/10.1111/j.1740-8709.2012.00435.x.

Wang, A., Scherpbier, R. W., Huang, X., Guo, S., Yang, Y., Josephs-Spaulding, J., Ma, C., Zhou, H., & Wang, Y. (2017). The dietary diversity and stunting prevalence in minority children under 3 years old: A cross-sectional study in forty-two counties of Western China [Article]. British Journal of Nutrition, 118(10), 840-848. https://doi.org/https://doi.org/10.1017/s0007114517002720.

Yesuf, N. N., Mekonnen, E. G., & Takele, W. W. (2021). Minimum dietary diversity and associated factors among young infants and children living in the most productive area of Amhara region, Addis Zemen town: A community-based cross-sectional study. International Journal of Africa Nursing Sciences, 14, 100279. https://doi.org/https://doi.org/10.1016/j.ijans.2021.100279.

Yunitasari, E., Al Faisal, A. H., Efendi, F., Kusumaningrum, T., Yunita, F. C., & Chong, M. C. (2022). Factors associated with complementary feeding practices among children aged 6-23 months in Indonesia. BMC pediatrics, 22(1). https://doi.org/ARTN20727.2010.1186/s12887-022-03728-x.

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