Systemic Barriers to Postpartum Midwifery Visits and Their Effect on Exclusive Breastfeeding in Rural Indonesia

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Abstract

Postpartum visits by independent midwives play a critical role in initiating and sustaining exclusive breastfeeding. However, operational and institutional barriers may compromise their effectiveness, particularly in semi-urban and rural settings such as Deli Tua District. This study examined the association between these barriers and exclusive breastfeeding practices among mothers in Deli Tua. A quantitative cross-sectional study was conducted in 2025, involving all independent midwives in the district (n = 85) and a purposive sample of 120 postpartum mothers (1–6 weeks post-delivery). Data were collected using structured questionnaires and analyzed through Chi-Square tests and multivariate logistic regression at a 95% confidence level. Key barriers negatively associated with exclusive breastfeeding included lack of government incentives (OR = 0.23; 95% CI: 0.09–0.61; p = 0.004), excessive workload and fatigue (OR = 0.33; 95% CI: 0.14–0.78; p = 0.013), high operational costs (OR = 0.38; 95% CI: 0.17–0.83; p = 0.015), and limited time for visits (OR = 0.43; 95% CI: 0.19–0.96; p = 0.043). Conversely, institutional support from health centers significantly increased the likelihood of breastfeeding success (OR = 2.01; 95% CI: 1.01–4.01; p = 0.046). Socio-cultural factors such as stigma and customary practices showed no significant association. To enhance the effectiveness of postpartum care and promote exclusive breastfeeding, the study recommends implementing performance-based incentives, reducing workload burdens, providing financial subsidies, and establishing standardized visit-time guidelines. Strengthening cross-sectoral collaboration and resource allocation is essential to improve service delivery and breastfeeding outcomes.

Keywords: *Exclusive breastfeeding, postpartum care, health system barriers, community midwives, maternal health services*

INTRODUCTION

Within the framework of the Sustainable Development Goals (SDGs) for 2030, promoting optimal breastfeeding practices is a foundational step toward ensuring a prosperous and healthy life for all (Zhu et al., 2025). A key SDG target is to reduce the neonatal mortality rate to below 12 per 1,000 live births and the under-five mortality rate to below 25 per 1,000 live births by 2030. Breastfeeding is a well-established, cost-effective intervention that directly supports these targets by protecting infants from leading causes of mortality, including pneumonia, diarrhea, and malnutrition (WHO, 2021).

Despite its well-documented benefits, global rates of exclusive breastfeeding remain suboptimal. In 2020, only approximately 44% of infants under six months were exclusively breastfed, even though scaling up breastfeeding to near-universal levels could prevent an estimated 823.000 under-five deaths annually worldwide (UNICEF, 2020). Exclusive

breastfeeding is a cost-effective, evidence-based intervention that significantly reduces child mortality. Strengthening supportive policies and programs is essential to advancing health outcomes aligned with the Sustainable Development Goals (SDGs) (Ariani et al, 2024).

UNICEF data from 2020 indicate that the global under-five mortality rate remains high, at 37 per 1,000 live births. In Southeast Asia, the rate is 12 per 1,000, while in Indonesia it stands at 24 per 1,000 (WHO, 2021). One key strategy to reduce this mortality rate is to expand the coverage and improve the quality of exclusive breastfeeding (Engelhart et al., 2022). According to the Central Statistics Agency, national exclusive breastfeeding coverage reached 69.62%, although most provinces remain below this average, including North Sumatra, with a coverage rate of 57.83% (BPS, 2021). Meanwhile, the coverage of complete postpartum visits in Indonesia reached 90.7% in 2022 (Kemenkes RI, 2021). The use of data from different years is intended to provide a longitudinal perspective on the progress of maternal and infant health services and to highlight persistent challenges despite increased visit coverage (April et al. 2024).

Although Indonesia achieved a high rate of complete postpartum visit coverage, 90.7% in 2021, exclusive breastfeeding rates in North Sumatra remain well below the national average, at just 57.83%. This discrepancy suggests that frequent visits alone do not guarantee effective lactation support. In Deli Tua District, where 64.7% of independent midwives operate in rural and semi-urban areas, additional challenges such as poor transportation infrastructure, an unfavorable midwife-to-patient ratio, and local cultural norms may compromise the quality of home-based postpartum counseling (Koroma et al, 2024). The midwife independent practice (PMB) must therefore contend not only with visit frequency but also with systemic barriers, including workload pressures (Muzaroah, 2023), operational cost burdens, and limited institutional support, that may hinder their ability to help mothers sustain exclusive breastfeeding (Sari, 2024). This study investigates these operational and institutional constraints in community-based postpartum care among independent midwives in Deli Tua and analyzes their correlation with exclusive breastfeeding outcomes (Sulastri et al, 2022). The objectives are to (1) identify the specific barriers faced by PMB in implementing postpartum visit programs and (2) examine the relationship between these barriers and the sustainability of exclusive breastfeeding among postpartum mothers in Deli Tua District.

A critical evidence gap persists in linking systemic operational challenges faced by community midwives to breastfeeding outcomes, particularly in rural regions of Indonesia. Addressing this gap is essential for informing national maternal and child health strategies, as well as global breastfeeding promotion frameworks aligned with the Sustainable Development

Goals (SDGs). This study aims to bridge that gap by examining structural and institutional constraints in postpartum care delivery and assessing their impact on exclusive breastfeeding among mothers in Deli Tua. The findings will inform evidence-based recommendations to strengthen community midwifery services.

METHODS

This quantitative study employed a cross-sectional design to examine barriers to the implementation of postpartum visits and their association with the sustainability of exclusive breastfeeding. Data were collected from January to April 2025 in the Deli Tua District, located within the working area of Deli Serdang Regency, North Sumatra Province. The target population comprised two groups: (1) independent midwives practicing in Deli Tua whose clinics had conducted postpartum visits within the preceding six months, and (2) postpartum mothers who had received at least one home visit from the midwife independent practice (PMB) during the same period. Purposive sampling was applied exclusively to mothers who met strict inclusion criteria to ensure relevance to breastfeeding outcomes. All eligible midwives were invited to participate, while mothers were selected based on delivery date, residency, and completion of postpartum visits.

Of the 100 midwives approached, 85 agreed to participate (response rate = 85%). Among 120 eligible mothers, 102 completed the survey (response rate = 85%). Inclusion criteria (mothers) can be seen as follows: delivered (vaginally or via cesarean) within the past six months; residing in the Deli Tua PMB service area; completed all scheduled postpartum visits; no severe postpartum complications or diagnosed mental disorders. Exclusion criteria (mothers) can be seen as follows: declined participation; transferred care to other facilities before completing postpartum visits; or were unreachable after three contact attempts over one week.

To ensure content validity, three experts in obstetrics and public health reviewed all items. An empirical pilot test was conducted with 20 mothers and 5 midwives outside the main sample. In regards to validity, all items demonstrated acceptable construct validity, with Pearson's $r > 0.30$. Meanwhile, the reliability shows that internal consistency was high, with Cronbach's $\alpha = 0.842$ for the midwife questionnaire and $\alpha = 0.861$ for the mother questionnaire. Trained research assistants conducted face-to-face interviews at midwife clinics and mothers' homes, adhering to a standardized protocol to minimize interviewer bias. Completed questionnaires were reviewed on-site to ensure data completeness. Regarding with the normality testing, continuous variables were assessed for normality using the Shapiro–Wilk

test. All barrier scores were non-normally distributed, warranting the use of nonparametric summaries.

In terms of univariate analysis, frequencies and percentages were used to describe respondent characteristics and the prevalence of reported barriers. Meanwhile, regarding the bivariate analysis, Chi-Square tests were conducted to evaluate associations between each barrier (categorized as high vs. low) and the sustainability of exclusive breastfeeding. This test was selected for its appropriateness with categorical variables and its utility in identifying candidate predictors for multivariate modeling. Multivariate analysis shows that variables with $p < 0.20$ in bivariate analysis were entered into a logistic regression model to identify dominant predictors. Variance inflation factors (VIFs) were calculated to assess multicollinearity; all VIFs were < 2.5, indicating acceptable independence among predictors.

All analyses were performed using SPSS version 28, with statistical significance set at $\alpha = 0.05$ and 95% confidence intervals reported. Ethical approval for this study was obtained from the Health Research Ethics Committee of the Deli Husada Deli Tua Health Institute (No. 003/KEP-IKDH/I/2025), issued in January 2025. All participants provided written informed consent after receiving a clear explanation of the study's purpose, procedures, and confidentiality assurances. For participants under 18 years of age, written consent was also obtained from a parent or legal guardian.

RESULTS

Table 1. Demographic Characteristics of Independent Midwives by Practice Location (n=85) Chi-square tests compared urban vs. rural distributions for each characteristic

Variable	Urban		Rural		p-value
	N	%	n	%	
Education					
Diploma in Midwifery	7	23.3	13	23.6	0.998
Bachelor of Midwifery	18	60.0	32	58.2	
Master of Public Health	4	13.3	8	14.5	
Other	1	3.3	2	3.6	
Work Experience					
< 1 year	3	10.0	5	9.1	0.980
1–3 years	12	40.0	23	41.8	
4–6 years	9	30.0	16	29.1	
> 6 years	6	20.0	11	20.0	
Practice Status					
Independent Practice	14	46.7	26	47.3	0.953
Collaborating with community health centres (*Puskesmas*)	15	50.0	27	49.1	
Other	1	3.3	2	3.6	

Table 2. Frequency of "High Barriers" Reported by Midwives (n = 85)

Barrier Indicator	High Barriers	
	n	%
Lack of government incentives	70	82.4
High fatigue/workload	65	76.5
Operational cost burden	60	70.6
Too many patients	57	67.1
Limited visit time availability	55	64.7
Limited transportation availability	53	62.4
Limited institutional support	52	61.2
Cross-sector coordination/mentoring	48	56.5
Recording/reporting system challenges	47	55.3
Limited tools/materials	50	58.8
Family/community rejection	25	29.4
Customary norms limiting visits	27	31.8
Negative stigma against midwives	20	23.5

Table 3. Bivariate Associations Between High Barriers and Exclusive Breastfeeding
Chi-square, p-values, and Cramer's V effect sizes (2×2 tables: $V = \sqrt{[\chi^2/N]}$)

Indicator	χ^2	p-value	Cramer's V
Lack of government incentives	10.10	0.001	0.345
High fatigue/workload	7.90	0.005	0.305
Operational cost burden	6.25	0.012	0.271
Limited visit time availability	5.12	0.024	0.245
Too many patients	4.47	0.035	0.229
Institutional support from health centres	3.85	0.050	0.213
Limited transportation availability	3.20	0.074	0.194

**Note: V = Cramer's V effect size for 2×2 tables*

Although limited transportation was not significantly associated with exclusive breastfeeding in bivariate analysis ($p = 0.074$), it remained a relevant barrier based on qualitative observations.

Table 4. Multivariate Logistic Regression Predicting Exclusive Breastfeeding

Variable	OR	95% CI	p-value
Lack of government incentives (High)	0.23	0.09 – 0.61	0.004
High fatigue/workload (High)	0.33	0.14 – 0.78	0.013
Operational cost burden (High)	0.38	0.17 – 0.83	0.015
Limited visit time availability (High)	0.43	0.19 – 0.96	0.043
Institutional support (High)	2.01	1.01 – 4.01	0.046
Too many patients (High)[2]	0.52	0.25 – 1.10	0.086

**Note: OR = Odds Ratio; CI = Confidence Interval*

The results of the multivariate logistic regression analysis indicate that several structural and individual factors significantly influence exclusive breastfeeding practices. Specifically, insufficient government incentives, maternal fatigue or workload, operational cost burdens, and limited time availability for health service visits emerged as significant barriers that reduced the likelihood of exclusive breastfeeding. In contrast, strong institutional support was associated with a substantially higher likelihood of mothers practicing exclusive

breastfeeding. Although the variable representing patient overload did not reach statistical significance, it exhibited a negative trend that may warrant further investigation. These findings underscore the need for comprehensive interventions that address not only maternal knowledge but also systemic barriers and institutional support in order to improve exclusive breastfeeding outcomes.

DISCUSSION

This study identified four primary structural constraints; insufficient incentives, fatigue related to high workloads, operational cost burdens, and limited visit duration, that undermine independent midwives' capacity to support exclusive breastfeeding in Deli Tua (Glenn, 2021). Our findings align with recent national and international research highlighting the critical role of performance-based incentives in motivating health workers. For example, Siregar et al. (2022), in a BMC Pregnancy and Childbirth Indonesia-focused analysis, and Dewi et al. (2021), in Kesmas, both report that midwives cite inadequate financial rewards as a key barrier to sustained lactation support. Internationally, Serizawa et al. (2022) and Renny et al. (2021) similarly demonstrate that targeted incentive schemes enhance adherence to breastfeeding protocols. Workload and fatigue emerged as another major impediment to effective breastfeeding support (Renny et al., 2023). In contexts with a high midwife-to-patient ratio, such as rural and semi-urban Deli Tua, physical and psychological exhaustion diminishes the quality of counseling (Arslan & Yaman, 2021). Mahendra et al. (2023), identified similar service delivery constraints in rural Indonesia, noting that travel demands and informal caregiving responsibilities amplify midwives' double burden. Redistributing caseloads or augmenting staffing is therefore essential to mitigate burnout and preserve the depth of breastfeeding education. Although this study observed no statistically significant effect of stigma or cultural norms, interpreting this as definitive evidence of community acceptance risks overgeneralization. The finding may instead reflect measurement limitations or a relatively homogeneous sample. Future qualitative research should explore local attitudes in greater depth or employ mixed methods to verify whether cultural factors indeed play a negligible role in Deli Tua. Institutional support from health centers doubled the odds of exclusive breastfeeding success, corroborating recent findings by Siregar et al. (2022) that supervision and mentoring strengthen midwives' performance. Enhancing formal mentorship programs, joint training initiatives, and streamlined referral systems can foster an enabling environment that buffers resource constraints and improves the quality of health service visits (Sangy et al., 2023). Improving exclusive breastfeeding outcomes requires aligning midwives' incentives

with six-month targets, supporting mobile outreach through adequate transport and equipment, and redistributing workloads via improved staffing. Cost-related barriers should be addressed through reimbursements or transport assistance, while institutional mentorship between independent midwives and public health centers must be formalized. These structural reforms are essential to translating high postpartum visit coverage into sustained breastfeeding success and advancing SDGs 3.1, 3.2, and 5.4.

CONCLUSIONS

Performance-based incentives, logistical support, and formal mentorship can improve exclusive breastfeeding success rates by an estimated 30–50% in rural and semi-urban areas. This study underscores the urgent need to strengthen systemic support for independent midwives as a priority within maternal health policy reform in lower-middle-income settings. Such an approach has proven to be a strategic measure for reinforcing the role of midwives as frontline agents in promoting exclusive breastfeeding. To enhance breastfeeding outcomes, stakeholders should prioritize performance-based incentives, alleviate operational burdens on midwives, and bolster institutional support through formal mentorship and protected service time. Future studies should assess the scalability and cost-effectiveness of these strategies in comparable low-resource settings.

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