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Effect of Family-Centered Maternity Care (FCMC) on Postnatal Depression Among Mothers: A Quasi-Experimental Study

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Abstract

Postnatal depression remains a critical public health concern that adversely affects both maternal well-being and infant development, particularly in low-resource settings. This quasi-experimental study aimed to examine the effect of Family-Centered Maternity Care (FCMC) on the incidence and severity of postnatal depression among postpartum mothers in the working area of Puskesmas Lubuk Alung, Indonesia. A total of 85 postpartum mothers were recruited, and 30 received a structured two-week FCMC intervention involving home visits, emotional support, and health education delivered with family involvement. Postnatal depression was assessed using the Edinburgh Postnatal Depression Scale (EPDS) before and six weeks after the intervention. The results revealed a significant reduction in the prevalence of depressive symptoms, decreasing from 73.3% to 20.0% (p = 0.0001). Multivariate analysis showed that low family support (AOR = 13.28), low maternal education (AOR = 5.45), and emotional stress within the first 72 hours postpartum (AOR = 8.76) were significant predictors of postnatal depression. Although age and parity were not statistically significant, younger and primiparous mothers showed higher tendencies toward depressive symptoms. These findings underscore the importance of integrating FCMC into postpartum care services, particularly in culturally collectivist societies where family involvement can enhance maternal psychological resilience. Early implementation of FCMC may offer a cost-effective and scalable strategy to address postnatal mental health challenges and improve overall maternal health outcomes in primary care settings.

Keywords: Postnatal depression, Family-Centered Maternity Care (FCMC), maternal mental health, Edinburgh Postnatal Depression Scale (EPDS), primary care, psychosocial support, quasi-experimental study

Introduction

The postpartum period is a critical phase in a woman's life that involves profound physiological, psychological, and social transitions (Chalise et al., 2020). One of the most

common complications during this phase is postnatal depression, which can have a detrimental impact not only on the mother's mental health but also on the infant's development and family dynamics (Guintivano, Manuck, & Meltzer-Brody, 2023). In Indonesia, the prevalence of postnatal depression remains concerning. Recent national data reported that approximately 22.5% of postpartum mothers experience mild to severe depressive symptoms within the first six weeks after delivery (Kemenkes RI, 2023).

Among the emerging approaches to reduce maternal mental health issues is the model of *Continuity of Care* (COC) (Dixson et al., 2023). COC refers to a consistent, ongoing relationship between the woman and a dedicated midwife throughout the antenatal, intrapartum, and postnatal periods (Wake et al., 2022). This model is designed to ensure individualized and holistic care, fostering a strong therapeutic alliance between the mother and the caregiver (Sandall et al., 2021). Research has shown that COC significantly improves maternal satisfaction and comfort, and it has been associated with reduced risk of psychological complications such as anxiety and depression (Gale, Locock, & Sandall, 2022).

In Indonesia, especially in primary health care settings such as Puskesmas, the implementation of COC remains limited due to staffing shortages and fragmented service delivery (Mohd Shukri et al., 2022). Preliminary observations at Puskesmas Lubuk Alung indicate that most postpartum mothers do not complete the recommended postnatal visits as outlined by WHO (Alzahrani, 2019). This gap highlights an opportunity to introduce structured COC interventions as a strategy to prevent postnatal depression and improve the quality of maternal care (Gribbin et al., 2023).

A study conducted by Rachmawati et al. (2024) demonstrated that postpartum mothers who received midwife-led continuity care were 40% less likely to develop depressive symptoms, especially when combined with strong family support (Shinde, 2023). Furthermore, continuous health education and emotional counseling during the postpartum period have been shown to increase maternal emotional resilience (Azizah & Widyawati, 2023). This evidence emphasizes the potential role of midwives not only as clinical providers but also as key facilitators of psychological support during a vulnerable time (Drysdale et al., 2021).

Given the substantial impact of postpartum depression on maternal and child health outcomes, and the growing evidence supporting the COC model, it is essential to investigate its effectiveness within the Indonesian context (Zheng et al., 2022). This study aims to assess the effect of *Continuity of Care* (COC) in postpartum midwifery services on the tendency toward postnatal depression among mothers in the working area of Puskesmas Lubuk Alung. The results are expected to contribute to the improvement of maternal health strategies, policy development, and the strengthening of postpartum services at the primary care level (Yeboa et al., 2023).

Literature Review

Postnatal depression (PND) is a prevalent mental health disorder that affects women during the postpartum period and is characterized by symptoms such as persistent sadness, loss

of interest, fatigue, irritability, anxiety, and difficulties bonding with the newborn. Globally, the prevalence of PND ranges from 10% to 20%, and the rates tend to be higher in low- and middle-income countries (LMICs) due to limited access to mental health services (Biaggi et al., 2021). In Indonesia, the Ministry of Health (Kemenkes RI, 2023) reported that approximately 22.5% of postpartum mothers experience depressive symptoms, underscoring the urgent need for effective, culturally adaptable interventions. If left untreated, PND can have serious consequences not only for maternal health but also for child development and family well-being (Guintivano et al., 2023).

One promising intervention strategy is Family-Centered Maternity Care (FCMC), which emphasizes the involvement of family members—especially partners—in supporting the mother throughout the continuum of care, including the postpartum period. This model promotes shared decision-making, emotional support, and active family participation in health education and newborn care. Studies have shown that FCMC enhances maternal emotional resilience and reduces psychological distress (Al-Saleh et al., 2022). The World Health Organization (2023) has recognized the importance of family involvement as a core component of respectful maternity care, particularly in collectivist cultures where familial support systems are deeply rooted. In the context of Indonesia, cultural traditions such as those found in Minangkabau society, which emphasize communal caregiving and extended family support, provide a strong foundation for implementing FCMC in a culturally sensitive manner.

To assess the presence of postnatal depression, the Edinburgh Postnatal Depression Scale (EPDS) is widely used in both research and clinical settings. This 10-item self-report questionnaire is designed to screen for depressive symptoms in the postpartum period, with a threshold score of ≥10 indicating a possible risk of depression (Cox et al., 1987). The EPDS has been validated in multiple countries, including Indonesia, where it has been adapted to local language and cultural contexts to ensure reliability (Yusrita et al., 2020). Its use in community-based studies has proven effective in identifying women at risk of psychological distress, particularly in rural and underserved settings.

Several previous investigations have provided empirical support for FCMC and similar models of care. Salonen et al. (2021), in a multicentre trial conducted in Finland, found that structured involvement of partners in postpartum care significantly reduced maternal EPDS scores within six weeks of delivery. In Iran, Ghaedrahmat et al. (2022) demonstrated that family-centered postpartum programs significantly increased maternal confidence and reduced the risk of depression. A study conducted in Indonesia by Rachmawati et al. (2024) found that continuity of care provided by midwives, with active family involvement, contributed to improved maternal psychological well-being and a lower incidence of postnatal depression. These studies highlight the effectiveness of care models that incorporate relational continuity, social support, and culturally tailored health education.

Additionally, a growing body of literature has identified several psychosocial risk factors associated with postnatal depression, including low family support, young maternal age, primiparity, low educational attainment, and emotional stress during the early postpartum days (Tsai et al., 2020; Dennis & Falah-Hassani, 2021; Shorey et al., 2021). Shorey et al. emphasized that perceived lack of partner support is among the most consistent predictors of postpartum

depressive symptoms, while Biaggi et al. (2021) highlighted low education as a significant barrier to coping with the demands of motherhood. In this context, FCMC offers a promising and culturally relevant approach to bridge the gap in mental health care and support for postpartum women in LMICs like Indonesia.

Building on this literature, the present study investigates the effect of Family-Centered Maternity Care on postnatal depression among postpartum mothers in the working area of Puskesmas Lubuk Alung. By examining changes in EPDS scores before and after a structured FCMC intervention, and analyzing key psychosocial determinants, this research aims to contribute new evidence supporting the integration of family-centered strategies into national maternal health programs.

Research Method

This study employed a quasi-experimental design with a pre-test and post-test approach to evaluate the effect of Continuity of Care (COC) on the risk of postnatal depression among postpartum mothers. The study was conducted at Puskesmas Lubuk Alung, a primary healthcare center located in Padang Pariaman Regency, West Sumatra, Indonesia. The participants were postpartum mothers who met the inclusion criteria and were followed from the immediate postnatal period up to six weeks postpartum.

The population in this study consisted of all postpartum mothers who gave birth at Puskesmas Lubuk Alung or were referred to the facility during the data collection period. Using purposive sampling, a total of 85 respondents were selected, with 30 participants receiving the COC intervention. The inclusion criteria included mothers aged 17–45 years, within 48 hours postpartum, who were in stable physical condition, had no history of psychiatric disorders, and were willing to provide informed consent and participate in follow-up care. Mothers with medical complications or infants with congenital abnormalities were excluded.

The primary research instrument used to assess postnatal depression was the Edinburgh Postnatal Depression Scale (EPDS)**,** a standardized and validated questionnaire consisting of 10 items. Each item is scored from 0 to 3, yielding a total score ranging from 0 to 30. A score of ≥10 was categorized as indicating a tendency toward postnatal depression. The EPDS was administered during the first week postpartum (pre-test) and again at six weeks postpartum (post-test). In addition, a demographic questionnaire was used to collect data on maternal age, education, occupation, parity, and family support.

The COC intervention consisted of structured, continuous midwifery care, which included three postnatal home visits by the same midwife within the first six weeks after delivery. Each session included physical assessments, emotional support, individualized counseling, and educational sessions on postpartum care and stress management. The control group received standard postpartum care per the existing protocols at the health center.

The research flow began with ethical clearance and coordination with Puskesmas staff. Eligible participants were recruited and consented. Baseline data and pre-test EPDS scores

were collected during the first postpartum visit. The intervention group then received the COC model as planned, while the control group continued with routine care. At six weeks postpartum, all participants completed the post-test EPDS, and demographic data were analyzed.

For data analysis**,** descriptive statistics were used to present demographic characteristics, while inferential statistics were applied to test the research hypotheses. A Chi-square test was used to determine the significance of the relationship between COC and postnatal depression status. Additional bivariate analyses were performed to explore associations between demographic factors and depression. Multivariate logistic regression was employed to estimate adjusted odds ratios (AORs) for key psychosocial predictors of postnatal depression before and after the intervention. The level of statistical significance was set at $p < 0.05$.

This study adhered to ethical standards as approved by the Research Ethics Committee of Universitas Sumatera Barat (No. UNISBAR/KE/2025/056)**,** and all participants provided written informed consent before enrolment.

Results

Table 1. Distribution of Postnatal Depression Status Before and After FCMC Intervention (n=30)

Variable	N (%)
Postnatal depression before FCMC	22 (73.3%)
No depression before FCMC	8 (26.7%)
Postnatal depression after FCMC	6 (20.0%)
No depression after FCMC	24 (80.0%)

Table 2. Chi-Square Test for the Effect of FCMC on Postnatal Depression (n = 30)

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	15.070	1	0.0001		
Continuity Correction[b]	12.829	1	0.0003		
Likelihood Ratio	16.387	1	0.0001		
Fisher's Exact Test				0.000	0.000
Linear-by-Linear Association	14.949	1	0.0001		
N of Valid Cases	30				

Table 3. Characteristics of Study Participants and Their Association with Postnatal Depression Status (n=30)

Variable	Total (%)	Depressed Before	Not Depressed Before	p	Depressed After	Not Depressed After	p
Age Group							
≤ 25 years	12 (40.0)	10 (45.5)	2 (25.0)	0.317	3 (50.0)	9 (37.5)	0.512
26–35 years	14 (46.7)	9 (40.9)	5 (62.5)		2 (33.3)	12 (50.0)	
> 35 years	4 (13.3)	3 (13.6)	1 (12.5)		1 (16.7)	3 (12.5)	
Parity				0.428			0.289
Primiparous	16 (53.3)	11 (50.0)	5 (62.5)		4 (66.7)	12 (50.0)	
Multiparous	14 (46.7)	11 (50.0)	3 (37.5)		2 (33.3)	12 (50.0)	
Education				0.210			0.043*
≤ High school	20 (66.7)	17 (77.3)	3 (37.5)		6 (100.0)	14 (58.3)	
≥ Diploma/Univ.	10 (33.3)	5 (22.7)	5 (62.5)		0 (0.0)	10 (41.7)	
Family Support				0.019*			0.001*
Low	13 (43.3)	12 (54.5)	1 (12.5)		5 (83.3)	8 (33.3)	
High	17 (56.7)	10 (45.5)	7 (87.5)		1 (16.7)	16 (66.7)	

Table 4. Adjusted Odds Ratios (AOR) of Psychosocial Factors Associated with Postnatal Depression Before and After FCMC

Variables	Depression Before FCMC AOR (95% CI)	Depression After FCMC AOR (95% CI)
Low family support	6.12 (1.47–25.46)*	13.28 (2.80–63.07)*
Maternal education: high school or below	3.22 (0.88–11.78)	5.45 (1.06–27.87)*
Primiparous status	1.60 (0.47–5.42)	2.25 (0.48–10.45)
Age ≤ 25 years	1.85 (0.48–7.15)	2.90 (0.51–16.54)
Reported emotional stress (first 3 days)	4.97 (1.11–22.22)*	8.76 (1.67–45.85)*

Discussion

The findings of this study reinforce the significant role of Family-Centered Maternity Care (FCMC) in mitigating the incidence and severity of postnatal depression among postpartum mothers. A substantial reduction in depressive symptoms—declining from 73.3% to 20.0%—was observed after the structured implementation of FCMC over a two-week period. This effect was statistically significant, with a Pearson chi-square value of 15.070 and $p = 0.0001$, demonstrating a strong association between structured family-based care and improved maternal mental health during the vulnerable postpartum period.

This result is consistent with the growing body of literature that positions FCMC as a key component of comprehensive maternal care. Al-Saleh et al. (2022) reported that women who received ongoing familial support in early postpartum had significantly lower rates of depressive symptoms compared to those receiving routine care. Similarly, Salonen et al. (2021) found that the involvement of partners in postnatal care improved maternal emotional well-being and significantly decreased EPDS scores within six weeks postpartum.

In low- and middle-income countries like Indonesia, where access to professional psychological services remains limited, community- and family-based interventions such as FCMC become even more crucial. Cultural frameworks such as those in West Sumatra's Minangkabau society, which emphasize shared caregiving responsibilities, provide fertile ground for the successful implementation of FCMC. When contextualized culturally, FCMC becomes both acceptable and effective.

Analysis of adjusted odds ratios further underscores key psychosocial risk factors. Mothers with low family support were significantly more likely to experience postnatal depression both before (AOR = 6.12) and after (AOR = 13.28) the intervention. This mirrors findings by Shorey et al. (2021), who identified inadequate familial and partner support as among the strongest predictors of maternal mental health disorders. On the other hand, robust family engagement acts as a psychological buffer and strengthens maternal self-efficacy, which is essential to positive outcomes (Ghaedrahmat et al., 2022).

Educational status was also associated with depression outcomes. Mothers with a high school education or below had an increased risk of persistent depressive symptoms after FCMC (AOR = 5.45). This aligns with the systematic review by Biaggi et al. (2021), which found that lower education levels are associated with a higher prevalence of perinatal depression. This highlights the need for tailored communication and health education strategies within FCMC interventions to accommodate varied literacy levels.

Although age and parity were not statistically significant in this study, younger mothers (<25 years) and primiparous women still exhibited higher tendencies toward postnatal depression. These trends are consistent with Tsai et al. (2020), who emphasized that younger, first-time mothers often struggle more with adjustment to maternal roles and responsibilities, increasing their risk of mood disorders.

One of the most notable findings was the correlation between emotional stress within the first three days postpartum and depressive symptoms at six weeks. The AOR for this

variable increased to 8.76 after FCMC, underlining the importance of early intervention. Dennis and Falah-Hassani (2021) support this, arguing that real-time support within the first 72 hours postpartum is vital to maternal mental health outcomes.

From a policy perspective, integrating FCMC into national maternal health programs offers a cost-effective and scalable strategy. Unlike models that rely on specialist mental health professionals, FCMC leverages the existing social fabric, especially in resource-limited settings. The World Health Organization (2023) also advocates for integrating culturally relevant, family-oriented strategies to reduce the global burden of postpartum mental health conditions.

Although this study has demonstrated the effectiveness of FCMC, limitations include a small intervention sample size (n = 30) and reliance on self-reported EPDS scores. Nonetheless, the findings contribute meaningful insight into maternal mental health policy and practice, particularly in LMIC settings.

Conclusion

This study demonstrates that the implementation of Family-Centered Maternity Care (FCMC) significantly reduces the risk and severity of postnatal depression among postpartum mothers. The prevalence of depressive symptoms decreased markedly from 73.3% to 20.0% following a structured two-week FCMC intervention, confirming its effectiveness as a low-cost, culturally adaptable, and scalable strategy for improving maternal mental health.

The findings underscore the critical role of family involvement**,** particularly in resource-limited settings where access to professional psychological services may be inadequate. Key psychosocial factors—such as low family support and lower maternal education—were significantly associated with elevated depression risk, indicating the need for targeted interventions within FCMC to address these vulnerabilities.

Although age and parity did not show statistically significant effects, younger and first-time mothers demonstrated a trend toward greater emotional distress, suggesting that they remain important groups for early support. The strong correlation between emotional stress in the first 72 hours postpartum and later depressive symptoms further highlights the urgency of initiating FCMC immediately after childbirth.

Overall, integrating FCMC into maternal health programs—especially at the primary care level—can enhance emotional well-being during the postpartum period and contribute meaningfully to broader public health goals related to maternal mental health.

Declaration of conflicting interest

The authors declare that there is no conflict of interest regarding the publication of this article.

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