



Original Article

Effectiveness of Birth Planning in Preventing Postpartum Depression: Evidence from Independent Midwifery Practices in West Java, Indonesia

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ABSTRACT

Background: Postpartum depression is a common mental health disorder among women after childbirth, with high prevalence in developing countries, including Indonesia. Inadequate birth preparation may increase maternal stress and emotional disturbances during the postpartum period. This study aimed to examine the effect of a birth plan on the prevention of postpartum depression in independent midwifery practices in the Derwati Health Center area, Bandung City. **Methods:** A quasi-experimental study with a post-test-only control group design was conducted with 30 third-trimester pregnant women, divided into an experimental group (with a birth plan) and a control group (without a birth plan). Postpartum depression was measured using the Edinburgh Postnatal Depression Scale (EPDS). Data were analyzed using the Mann-Whitney test. **Results:** In the experimental group, 1 respondent (6.7%) experienced postpartum depression, compared with 2 respondents (13.3%) in the control group. The Mann-Whitney test indicated a statistically significant difference between groups ($p = 0.019$). However, the small sample size limits the generalizability of these findings. **Conclusion:** Birth planning may contribute to reducing the risk of postpartum depression; however, larger and more rigorous studies are required to confirm this finding.



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INTRODUCTION

Postpartum depression (PPD) is a major public health concern that affects maternal well-being and infant development. Globally, around 10–15% of women experience PPD, with variations across regions and contexts (Meltzer-Brody et al., 2018; Shorey & Chee, 2021). In Asia, prevalence has been reported between 20–40%, while in Indonesia, studies show that approximately 22–30% of mothers develop depressive symptoms during the postpartum period (Syamantha Putri et al., 2023; Ariasih et al., 2024). These conditions, if left untreated, can negatively affect maternal mental health, mother-child bonding, and long-term child outcomes.

Despite the relatively high prevalence of PPD in Indonesia, perinatal mental health services have not been fully integrated into maternal health programs. Current policies still

emphasize reducing maternal and infant mortality, while psychological aspects such as PPD receive less attention (World Health Organization, 2018). The national *Birth Planning and Complication Prevention Program (P4K)* is intended to improve preparedness for safe delivery, but its implementation has been inconsistent, especially in independent midwifery practices.

One promising strategy for supporting maternal mental health is the use of birth plans. A birth plan allows pregnant women to articulate their expectations and preferences for childbirth, in line with the philosophy of midwifery that emphasizes normal and natural birth, woman-centered care, empowerment, continuity of care, and informed decision-making (Brady et al., 2024). Evidence from international studies suggests that structured birth planning can enhance maternal satisfaction, strengthen communication with care providers, and potentially reduce anxiety and depressive symptoms postpartum (Hidalgo-Lopezosa et al., 2021; Alizadeh-Dibazari et al., 2024; Mohamed Nazeer et al., 2024).

Preliminary surveys in Bandung indicated that while most midwives recognize the importance of birth plans, many have not systematically introduced them to their clients. Likewise, many mothers reported limited knowledge and access to birth planning. This highlights a significant research gap: limited empirical evidence on the role of birth planning in supporting maternal mental health in the Indonesian midwifery context, particularly in community-based and independent practices (Backes et al., 2022).

Therefore, this study aims to examine the effect of birth preparation (birth plan) on the incidence of postpartum depression among mothers delivering in the work area of the Derwati Health Center, Bandung City. The findings are expected to provide evidence to strengthen midwifery care practices and inform the integration of birth planning into maternal health programs.

METHODS

This study employed a quasi-experimental design with a *Post-test Only Control Group Design*. The population included all pregnant women in the third trimester within the Derwati Health Center Area, Bandung City. The sample consisted of 30 women at 34–35 weeks gestation, recruited using non-random sampling techniques, and divided equally into an experimental group (n = 15) and a control group (n = 15). Participants were followed from pregnancy through childbirth and into the postpartum period.

The study was conducted at the Independent Midwife Practice of the Derwati Health Center in Bandung City, between May and July 2022.

Variables and Operational Definitions

1. Postpartum depression (dependent variable): emotional disturbance occurring during postpartum days 1–42, measured using the Edinburgh Postnatal Depression Scale (EPDS).
 - Depressed: EPDS score > 10
 - Not depressed: EPDS score ≤ 10
2. Birth plan (independent variable): a written document prepared by pregnant women to express their expectations for childbirth, aligned with their values and preferences.
 - Yes = presence of a birth plan
 - No = absence of a birth plan
3. Covariates:
 - Age: at risk (<20 or >35 years) vs. not at risk (20–35 years).
 - Parity: primipara (1 living child) vs. multipara (>1 living child).
 - Education: primary (elementary–junior high) vs. higher (high school–college).
 - Occupation: working vs. not working.
 - Income: < vs. ≥ regional minimum wage.

Instruments

Data were collected using questionnaires covering respondent characteristics, birth plan documentation, and postpartum depression (EPDS). Birth plan assessment involved evaluating the presence of a written plan addressing maternal expectations from stage I–IV of labor.

Procedures

Ethical approval was obtained from the Health Ethics Commission of STIKes Jendral Achmad Yani Cimahi (No. 057/KEPK/FITKES-UNJANI/VIII/2022). Permission was also secured from the Derwati Health Center. Researchers provided explanations to participants during childbirth preparation classes, obtained informed consent, and administered baseline questionnaires. The intervention for the experimental group consisted of a 90-minute session (60 minutes of education on birth planning and 30 minutes for participants to prepare their birth plans). Postpartum depression outcomes were measured using the EPDS.

Data Analysis

Data were analyzed using SPSS version 16. Normality was assessed with the Shapiro–Wilk test, and homogeneity with Levene’s test. Since data were not normally distributed and variances were not homogeneous ($p < 0.05$), non-parametric Mann–Whitney tests were used for group comparisons.

To strengthen interpretation beyond p -values, effect sizes were also calculated (Cohen’s d and relative risk/odds ratio where appropriate). Given the limited sample size, additional exploratory logistic regression was conducted to adjust for potential confounders (age, parity, education, occupation, and income), though results should be interpreted cautiously due to low statistical power.

RESULTS

Researchers conducted research at independent midwife practices in the Derwati Health Center Work area in Bandung City as many as 6 IMPs. The average report of deliveries to the Health Center per month in the first three months was 35-40 deliveries. Based on the results of the study conducted during May-July 2022 on 30 respondents of pregnant women, with a gestational age of 33-34 weeks, who were followed up to delivery to the postpartum period, the following research results were obtained.

Table 1. Characteristics of respondents and distribution of birth plan status

Characteristics	n	%
Age		
20–35 years	28	93.4
<20 or >35 years	2	6.6
Parity		
Primiparous	13	43.4
Multiparous	17	56.6
Education		
Higher education	28	93.4
Lower education	2	6.6
Income		
above minimum wage	22	73.4
below minimum wage	8	26.6
Birth Plan		
Birth plan (experimental)	15	50.0
No birth plan (control)	15	50.0

A total of 30 respondents participated, equally divided between the experimental group (with a birth plan) and the control group (without a birth plan). Most respondents were in the non-risk age group (20–35 years, 93.4%), multiparous (56.6%), had higher education (93.4%), and family income above the regional minimum wage (73.4%).

In the experimental group, 1 respondent (6.7%) experienced postpartum depression, compared to 2 respondents (13.3%) in the control group. Although the absolute difference was small (1 case), the Mann-Whitney test indicated a statistically significant difference between groups ($p = 0.019$).

Bivariate Analysis

Table 2. The Effect of Birth Plan on the Incidence of Postpartum Depression

	Birth Plan	N	Mean Rank	Sum of Ranks	Sig. (2-tailed)	alpha
Post Partum Depression	Yes	15	11.93	179.00	0.019	0.05
	No	15	19.07	286.00		
	Total	30				

Based on Table 6, the results of the analysis were obtained using the Mann-Whitney Test to see the effectiveness of the birth plan in preventing postpartum depression. The test results showed an influence with a significant value of $0.019 < 0.05$. It means that there was an influence of childbirth preparation on preventing postpartum depression at the independent midwife practice in the Darwati Health Center, Bandung City. Childbirth preparation can prevent postpartum depression.

DISCUSSION

This study explored the potential role of birth planning in reducing the risk of postpartum depression. Although the number of cases observed was very small (three in total), the findings suggest that women who engaged in structured birth preparation reported fewer symptoms of postpartum depression compared to those without a birth plan. These results align with earlier studies indicating that birth planning can enhance women's sense of preparedness, promote empowerment, and contribute to more positive birth experiences (Ahmadpour et al., 2020; Soliman et al., 2020; Putri et al., 2023).

However, the findings should be interpreted cautiously. The sample size was limited, respondents were recruited through non-random sampling, and there was no adjustment for potential confounding factors such as socioeconomic status, marital support, or previous mental health history. These methodological constraints reduce the generalizability of the findings and highlight the need for larger, more rigorous studies (Ariasih et al., 2024; Wurisastuti & Mubasyiroh, 2020).

From a psychological perspective, birth planning may reduce depressive symptoms by lowering perceived stress, increasing a woman's sense of control during childbirth, and fostering better communication with care providers. Previous research has shown that women who feel involved in decision-making and supported by their care team are less likely to report negative or traumatic birth experiences, which are known risk factors for postpartum depression (De Baets, 2017; Mohamed Nazeer et al., 2024). Conversely, unplanned or medically complicated births may contribute to feelings of helplessness and vulnerability, thereby increasing the risk of postpartum depression (Fitriani et al., 2023; Putri et al., 2025).

Interestingly, not all women in the experimental group reported outcomes consistent with their birth plan, and some women in the control group were nevertheless satisfied with their childbirth experience. This indicates that a birth plan should not be seen as a guarantee

of positive outcomes but rather as a tool to facilitate communication, preparedness, and informed decision-making. The effectiveness of a birth plan also depends on external factors, including the support system, the flexibility of healthcare providers, and the occurrence of obstetric complications (Alizadeh-Dibazari et al., 2024; Brady et al., 2024).

The present findings are broadly consistent with studies in Europe and Asia showing that structured birth planning is associated with reduced anxiety and more positive maternal experiences (Sardo, 2018; Soliman et al., 2020). However, some studies in different cultural contexts have found weaker or inconsistent associations, suggesting that the impact of a birth plan may depend on cultural expectations, health system practices, and the degree to which healthcare professionals respect and implement women's preferences (Backes et al., 2022; Amna & Khairani, 2024; Aadillah & Nurbaeti, 2023).

Overall, this study contributes preliminary evidence that birth planning may help support maternal mental health in the postpartum period. Yet, given the methodological limitations, further research using larger sample sizes, randomized controlled designs, and multi-center data collection is essential to confirm these findings and better understand the mechanisms involved (World Health Organization, 2018).

Limitations

The small sample size (n = 30) limits generalizability and statistical power. Findings should be considered preliminary and hypothesis-generating. Larger studies with multivariate analyses are needed to confirm the observed associations.

CONCLUSIONS

This study found that among 30 respondents, 13% of mothers in the control group and 6.6% in the experimental group experienced symptoms of postpartum depression. These findings suggest that birth preparation through a birth plan may have a potential role in reducing the risk of postpartum depression. However, given the small sample size, non-random sampling method, and lack of control for possible confounding factors, the results should be interpreted with caution and cannot be generalized to the wider population.

Despite these limitations, the study highlights the importance of encouraging birth preparedness as part of maternal health care. Midwives are encouraged to integrate structured birth plan counseling into routine antenatal care, for example through antenatal classes, integration with the *Program Perencanaan Persalinan dan Pencegahan Komplikasi* (P4K), and the use of digital tools to facilitate education. Such interventions could help women prepare for labor more comfortably, reduce psychological distress, and support maternal mental health in the postpartum period.

For broader implications, policymakers and health institutions could consider including birth plan education as a component of national maternal health programs and develop culturally adapted guidelines to support implementation in different health care settings. Future research is needed with larger sample sizes, randomized controlled trials, and inclusion of diverse cultural and geographic contexts to confirm the effectiveness of birth planning in preventing postpartum depression and to explore the mechanisms through which it may influence maternal mental health.

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