

Determinants of Postpartum Depression Among Postpartum Mothers: The Role of Family Support, Socioeconomic Status, and Access to Healthcare Services

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ABSTRACT

Background: Postpartum depressive symptoms can compromise maternal functioning, mother-infant relationships, and family well-being. Their occurrence reflects interacting psychosocial, economic, and healthcare-related conditions. This study focused on family support, socioeconomic status, and healthcare access because evidence regarding their combined contribution remains variable across developing settings. Purpose: To examine the independent associations of family support, socioeconomic status, and access to healthcare services with postpartum depression screening status among postpartum mothers. Methods: A cross-sectional quantitative study included 210 mothers attending maternal and child health services. Proportional random sampling was used. Postpartum depressive symptoms were screened with the Edinburgh Postnatal Depression Scale (EPDS); family support was assessed using the Multidimensional Scale of Perceived Social Support, and socioeconomic status and healthcare access were measured with structured questionnaires. Descriptive analysis, Chi-square testing, and multivariable logistic regression were performed, with $p < 0.05$ indicating statistical significance. Results: Fifty-one mothers (24.3%) had a positive EPDS screen. Poor family support was associated with higher odds of screening positivity (AOR = 3.72; 95% CI: 1.98-6.97). Higher odds were also observed for low socioeconomic status (AOR = 2.85; 95% CI: 1.54-5.29) and limited healthcare access (AOR = 2.41; 95% CI: 1.29-4.48). Family support showed the largest adjusted association after controlling for maternal age, education, parity, and employment status. Conclusion: Positive postpartum depression screening was independently associated with poor family support, socioeconomic disadvantage, and limited healthcare access. Postnatal strategies that strengthen family involvement, address economic vulnerability, and



improve equitable access to care may support earlier identification and appropriate intervention.

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INTRODUCTION

Postpartum depression (PPD) represents an important maternal mental health concern after childbirth because depressive symptoms can interfere with a mother's daily functioning, her interaction with the infant, and overall family well-being. Current evidence suggests that these symptoms emerge through a combination of biological, psychological, social, and structural influences rather than a single isolated cause (Munk-Olsen et al., 2021; Cameron et al., 2022). In low- and middle-income contexts, socioeconomic hardship, limited psychosocial resources, and unequal access to maternal health services may further increase vulnerability (Afulani et al., 2021).

Among the psychosocial factors considered in postpartum mental health, support from family and other close relationships appears to be particularly important. Choi et al. (2022), in a systematic review and meta-analysis, reported that greater social support was consistently related to lower levels of postpartum depression, and Xiong et al. (2023) described a similar protective association for family support. Such support can take the form of emotional reassurance, practical help, information, childcare, or assistance with household tasks. By sharing demands and reducing perceived stress, these resources may strengthen a mother's ability to cope with the transition to parenthood (Hahn-Holbrook et al., 2022; Luo et al., 2023).

Material and socioeconomic circumstances also shape the postpartum experience. Evidence indicates that mothers facing socioeconomic disadvantage tend to report a greater burden of depressive symptoms, partly because financial limitations can restrict access to adequate food, stable housing, transportation, childcare, and healthcare (Matsumura et al., 2022; Sun et al., 2022). Findings from developing-country settings further show that socioeconomic inequalities remain relevant to differences in maternal mental health outcomes (Yang et al., 2024).

The accessibility of healthcare may influence whether postpartum emotional difficulties are recognized and managed in a timely manner. Barriers to receiving care have been linked with maternal mental health outcomes (Liu et al., 2023), and Tang et al. (2023) also identified an association between access to maternal services and postpartum depressive symptoms. Access is broader than service availability alone; it also involves affordability, travel and transportation, waiting time, continuity, and opportunities for psychosocial assessment and referral. Consistent with this perspective, WHO guidance recommends embedding perinatal mental health care within maternal and child health services to facilitate earlier identification and appropriate follow-up (World Health Organization, 2022; World Health Organization, 2024).

Despite substantial evidence connecting postpartum depression with social support, socioeconomic conditions, and healthcare access, the relative importance of these factors may vary

across populations. Differences in household structure, local health systems, and economic circumstances can limit the direct transferability of findings from one setting to another. In addition, many previous studies have concentrated on a single domain: social support has been emphasized by Choi et al. (2022) and Xiong et al. (2023), socioeconomic circumstances by Matsumura et al. (2022) and Yang et al. (2024), and healthcare accessibility by Liu et al. (2023) and Tang et al. (2023). Examining these domains together is therefore useful for understanding their independent contributions within the same group of mothers.

Accordingly, the present study evaluates family support, socioeconomic status, and healthcare access within one multivariable model. Considering the three domains simultaneously makes it possible to estimate the association of each factor with postpartum depression screening status while accounting for selected maternal characteristics.

The study adds a multidimensional perspective by integrating psychosocial, economic, and service-access factors in a single analytical framework. Their associations are assessed after adjustment for maternal age, educational level, parity, and employment status. This approach may provide evidence that is directly relevant to family-centered postnatal care and to efforts aimed at improving equitable access to maternal mental health support.

The objective was to determine whether family support, socioeconomic status, and access to healthcare services were independently associated with postpartum depression screening status among postpartum mothers. It was hypothesized that poor family support, low socioeconomic status, and limited healthcare access would each be associated with higher odds of a positive screening result after adjustment for maternal demographic characteristics.

METHODS

A quantitative analytical cross-sectional design was used to assess factors associated with postpartum depression screening status among postpartum mothers. Data collection took place from January through April 2026 in maternal and child health (MCH) clinics and community health centers that provided postnatal services. This design allowed the outcome and the proposed determinants to be measured during the same study period in the defined population.

1. Study Population and Sample

The study population comprised mothers attending routine postnatal care within the first six weeks following childbirth. Women were eligible when they were at least 18 years old, had delivered a live infant, were able to communicate sufficiently for the interview, and provided written informed consent. Mothers were excluded if they had a documented severe psychiatric disorder, cognitive impairment, or a serious postpartum medical condition that required intensive care.

Sample size was estimated with the single-population proportion formula using a 95% confidence level, a 5% margin of error, and an expected prevalence of postpartum depression derived from prior research. A 10% allowance for possible non-response was then added, resulting in a target of 210 mothers. Proportional random sampling was applied so that each participating



facility contributed respondents in accordance with its average monthly volume of postpartum visits.

2. Study Variables

Postpartum depression screening status served as the dependent variable.

The main independent variables were:

- Family support
- Socioeconomic status
- Access to healthcare services

Maternal age, educational level, employment status, parity, and marital status were considered as potential confounding variables.

3. Research Instruments

Postpartum depressive symptoms were screened with the Edinburgh Postnatal Depression Scale (EPDS), a ten-item instrument that asks about symptoms experienced during the preceding seven days. Responses are scored from 0 to 3 for each item, producing a total score between 0 and 30. For this study, an EPDS score of 13 or above was categorized as a positive screen for risk of postpartum depression.

Perceived family support was assessed with the family subscale of the Multidimensional Scale of Perceived Social Support (MSPSS). The subscale captures emotional, informational, instrumental, and appraisal support received from family members, with higher scores reflecting stronger perceived support. Using the sample median as the cut point, participants were grouped into good or poor family support categories.

Socioeconomic status was measured with a structured questionnaire that included monthly household income, educational attainment, employment status, and household assets. Based on national socioeconomic classification standards, respondents were grouped into low, middle, or high socioeconomic status.

Healthcare access was measured using a structured questionnaire adapted from previous studies of maternal healthcare utilization. Items addressed service availability, travel distance, transportation, affordability, waiting time, and perceived quality of maternal health services. A composite score was calculated and dichotomized at the median into good access and limited access.

Where required, the questionnaires underwent translation and back-translation before field use. The instruments were then pilot tested with 30 postpartum mothers who were not included in the analytical sample. Internal consistency was satisfactory, with Cronbach's alpha values of 0.91 for the EPDS, 0.89 for the family support measure, and 0.87 for the healthcare access questionnaire.

4. Data Collection Procedures

Trained research assistants with maternal and child health experience collected the data during scheduled postnatal visits. Potential participants were screened for eligibility, after which

the purpose and procedures of the study were explained. Questionnaires were administered only after written informed consent had been obtained.

Interviews were conducted face to face in a private consultation room to protect confidentiality and reduce the likelihood of response bias. Each session lasted approximately 20-25 minutes. Completed forms were checked every day for completeness and internal consistency, assigned unique identification codes, and entered into a secure electronic database using double entry to reduce transcription errors. Ethical review of the protocol and data-collection instruments was provided by [full name of the ethics committee or institutional review board], Approval No. [approval number], dated [approval date]. Participation was voluntary, and respondents could decline or withdraw at any time without penalty. Confidentiality was maintained during data collection, data management, statistical analysis, and reporting.

5. Data Analysis

Statistical analysis was performed with IBM SPSS Statistics version 26.0 (IBM Corp., Armonk, NY, USA). Categorical characteristics were summarized as frequencies and percentages, whereas continuous variables were described using means and standard deviations. Associations between each independent variable and postpartum depression screening status were first examined with Chi-square tests. Variables with $p < 0.25$ at the bivariate stage were eligible for entry into the multivariable logistic regression model. Adjusted Odds Ratios (AORs) and 95% Confidence Intervals (95% CIs) were reported, and $p < 0.05$ was used as the threshold for statistical significance in the final model.

RESULTS

All 210 enrolled postpartum mothers were included in the analysis. Participants had a mean age of 28.9 ± 5.4 years (range, 18-42 years). Most were 20-35 years old (72.4%), had secondary education (58.1%), were unemployed or homemakers (63.3%), and were multiparous (55.7%). Low socioeconomic status was recorded for 40.0% of respondents. Fifty-one mothers (24.3%) had EPDS scores of at least 13 and were therefore classified as having a positive postpartum depression screen.

Table 1. Characteristics of the Respondents (n = 210)

Variables	Frequency (n)	Percentage (%)
Age (years)		
<20	18	8.6
20–35	152	72.4
>35	40	19.0
Education		
Primary	38	18.1
Secondary	122	58.1
Higher education	50	23.8
Employment Status		



Employed	77	36.7
Unemployed/Housewife	133	63.3
Parity		
Primiparous	93	44.3
Multiparous	117	55.7
Socioeconomic Status		
Low	84	40.0
Middle	83	39.5
High	43	20.5
Family Support		
Good	134	63.8
Poor	76	36.2
Access to Healthcare Services		
Good	141	67.1
Limited	69	32.9
Postpartum Depression (EPDS)		
Yes	51	24.3
No	159	75.7

Positive EPDS screening was substantially more frequent among mothers who reported poor family support: 33 of 76 (43.4%) screened positive, compared with 18 of 134 (13.4%) in the good-support group. A similar pattern was seen for socioeconomic status, with 31 of 84 mothers (36.9%) in the low-status group screening positive versus 20 of 126 (15.9%) among those in the middle/high group. Limited healthcare access was also accompanied by a higher proportion of positive screens (27/69; 39.1%) than good access (24/141; 17.0%). These distributions are consistent with the inferential results shown in the subsequent analyses.

Table 2. Bivariate Analysis of Factors Associated with Positive Postpartum Depression Screening (n = 210)

Variables	Positive EPDS n (%)	Negative EPDS n (%)	Crude OR	95% CI	p-value
Family support: Good	18 (13.4)	116 (86.6)	1.00	Reference	<0.001
Family support: Poor	33 (43.4)	43 (56.6)	4.95	2.42–10.11	
Socioeconomic status: Middle/High	20 (15.9)	106 (84.1)	1.00	Reference	<0.001
Socioeconomic status: Low	31 (36.9)	53 (63.1)	3.10	1.58–6.09	

Healthcare access: Good	24 (17.0)	117 (83.0)	1.00	Reference	<0.001
Healthcare access: Limited	27 (39.1)	42 (60.9)	3.13	1.60–6.15	

Note: A positive EPDS screen was defined as a score of 13 or higher. Crude ORs with 95% CIs compare each exposure category with the designated reference category. Counts and percentages in the bivariate table correspond to the descriptive results.

1. Multivariable Logistic Regression Analysis

Variables satisfying the $p < 0.25$ screening criterion in bivariate testing were evaluated in the multivariable logistic regression. Maternal age, education, parity, and employment status were included as adjustment variables in the final model. Of the principal determinants, family support showed the largest adjusted association with a positive postpartum depression screen.

Table 3. Multivariable Logistic Regression Analysis of Determinants of Positive Postpartum Depression Screening

Variables	Adjusted OR	95% CI	p-value
Poor Family Support	3.72	1.98–6.97	<0.001
Low Socioeconomic Status	2.85	1.54–5.29	0.001
Limited Healthcare Access	2.41	1.29–4.48	0.006
Maternal Age (>35 years)	1.32	0.71–2.46	0.372
Low Education	1.48	0.82–2.69	0.188
Primiparity	1.21	0.68–2.16	0.514
Unemployed	1.27	0.73–2.21	0.396

After adjustment, poor family support was associated with 3.72-fold higher odds of a positive postpartum depression screen compared with good family support (AOR = 3.72; 95% CI: 1.98–6.97; $p < 0.001$). Low socioeconomic status was associated with 2.85-fold higher odds (AOR = 2.85; 95% CI: 1.54–5.29; $p = 0.001$), and limited healthcare access with 2.41-fold higher odds (AOR = 2.41; 95% CI: 1.29–4.48; $p = 0.006$).

Family support had the strongest adjusted association among the variables examined. In contrast, maternal age above 35 years, low educational level, primiparity, and unemployment did not reach statistical significance after adjustment (all $p > 0.05$).

Taken together, the model indicates independent associations between a positive postpartum depression screen and each of the following: poor family support, low socioeconomic status, and limited healthcare access. Because exposure and outcome were measured cross-sectionally and the EPDS is a screening rather than diagnostic instrument, these estimates should be interpreted as associations with screening-positive depressive symptoms, not as evidence of confirmed clinical depression or causality.



DISCUSSION

In this sample, 51 of 210 mothers (24.3%) screened positive on the EPDS using the ≥ 13 cut point. After adjustment for selected maternal characteristics, poor family support, low socioeconomic status, and limited access to healthcare each remained associated with greater odds of a positive screen. The largest adjusted odds ratio was observed for family support. The following discussion interprets these findings in relation to the results in Tables 1-3 and to previous evidence.

The proportion of positive EPDS screens observed in this study falls within the wide range reported across postpartum populations, particularly in low- and middle-income settings. Cameron et al. (2022) documented marked differences in prevalence between populations, while Afulani et al. (2021) emphasized the role of social and structural circumstances in maternal mental health in low-resource contexts. Importantly, the 24.3% figure in the present study represents screening positivity on the EPDS and should not be equated with the prevalence of clinically diagnosed postpartum depression.

Family support emerged as the factor most strongly associated with screening status. At the bivariate level, 43.4% of mothers with poor support screened positive compared with 13.4% of those reporting good support ($p < 0.001$). The association persisted after adjustment (AOR = 3.72; 95% CI: 1.98-6.97). This pattern accords with the meta-analytic findings of Choi et al. (2022), who linked greater social support to lower postpartum depression, as well as with Xiong et al. (2023), who described a protective relationship for family support. Luo et al. (2023) likewise highlighted the relevance of family support to postpartum depressive symptoms. Emotional reassurance, help with childcare, and practical assistance may ease daily demands and enhance coping during the postpartum period.

A stress-buffering explanation may help clarify this relationship. The transition following childbirth involves considerable physical, emotional, and social adjustment, and supportive family members may lessen the perceived impact of these demands by providing reassurance, companionship, and tangible assistance. Such support may also reduce feelings of isolation. Nevertheless, the cross-sectional design does not demonstrate that increasing family support will necessarily reduce depressive symptoms; the results instead support considering family context as part of postnatal assessment and care.

Socioeconomic status showed a second important association. Positive screening occurred in 36.9% of mothers classified in the low socioeconomic group, compared with 15.9% among mothers in the combined middle/high group. This difference remained significant in the adjusted analysis (AOR = 2.85; 95% CI: 1.54-5.29; $p = 0.001$). The finding is consistent with reports linking socioeconomic disadvantage to poorer maternal mental health (Matsumura et al., 2022; Sun et al., 2022) and with more recent evidence from developing-country settings (Yang et al., 2024). Financial strain can intensify stress by constraining access to food, transport, childcare, and healthcare.

The Social Determinants of Health framework offers a broader way to understand this pattern because socioeconomic position influences the material and social resources available to mothers and their families. The observed association should not be interpreted as evidence that income alone causes postpartum depression. Rather, disadvantage may act through several

interconnected pathways, including material insecurity, barriers to healthcare, and heavier caregiving pressures. Prevention strategies may therefore need to combine mental health screening with attention to social and economic vulnerability.

Access to healthcare was also independently related to the outcome. Among mothers reporting limited access, 39.1% had a positive EPDS screen, whereas the corresponding proportion among those with good access was 17.0%. The adjusted association remained significant (AOR = 2.41; 95% CI: 1.29-4.48; $p = 0.006$). This result is in line with previous work connecting healthcare accessibility with maternal mental health (Liu et al., 2023; Tang et al., 2023). Difficulties involving transportation, cost, waiting time, continuity of care, or opportunities for psychosocial assessment may delay recognition of symptoms and access to referral.

These findings reinforce the importance of incorporating mental health assessment into routine postnatal care. WHO guidance recommends integrating perinatal mental health within maternal and child health services (World Health Organization, 2022; World Health Organization, 2024). In routine practice, a validated screening tool such as the EPDS can help identify mothers who may need further clinical assessment, counseling, or referral. Screening, however, should form part of a broader care pathway and should not be treated as a substitute for diagnostic evaluation.

Several demographic covariates were not significant after adjustment. The AORs for maternal age >35 years, low education, primiparity, and unemployment were 1.32, 1.48, 1.21, and 1.27, respectively, and every corresponding 95% CI included 1.0. Within this sample and model, the evidence for association was therefore stronger for family support, socioeconomic status, and healthcare access than for these demographic characteristics. This result does not imply that maternal demographic factors are unimportant in all populations or settings.

A key contribution of the study is that the three principal domains were assessed concurrently rather than in separate analyses. Each remained independently associated with screening positivity, but the magnitude of association differed, with poor family support producing the largest adjusted odds ratio. This combined perspective is consistent with literature describing postpartum mental health as the product of interacting psychosocial and structural conditions (Munk-Olsen et al., 2021; Matsumura et al., 2022).

From a service perspective, the results suggest that postpartum mental health care should extend beyond the act of screening. Routine postnatal encounters can include questions about the availability of family support, socioeconomic difficulties, and obstacles to obtaining care. When appropriate, spouses or other primary caregivers can be engaged in health education and practical support planning. Clear referral mechanisms are also needed so that women with positive screens can obtain timely assessment and suitable mental health care.

Several limitations should be considered. First, the cross-sectional design measures determinants and screening status at the same point in time and therefore cannot establish temporal or causal relationships. Second, depressive symptoms were measured with the self-reported EPDS rather than a structured psychiatric diagnostic interview, so screening positivity does not confirm a clinical diagnosis. Third, recruitment from selected health facilities may restrict the generalizability of the findings to other populations or regions. Fourth, family support and healthcare access relied



on self-report and may be affected by recall or reporting bias. Longitudinal research involving broader and more diverse samples is needed to clarify temporal relationships and to examine additional factors such as marital satisfaction, intimate partner violence, pregnancy intention, obstetric complications, and maternal resilience.

Overall, the findings portray postpartum depressive symptoms as related to multiple, interconnected domains rather than to a single individual characteristic. A comprehensive response would therefore combine routine identification of depressive symptoms with family-centered support, attention to socioeconomic vulnerability, and fair access to maternal healthcare services.

CONCLUSIONS

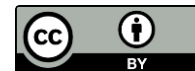
The analysis showed that family support, socioeconomic status, and healthcare access were each significantly associated with postpartum depression screening status among postpartum mothers. Approximately one in four participants had a positive EPDS screen. Poor family support had the strongest adjusted association, followed by low socioeconomic status and limited healthcare access. The pattern indicates that postpartum mental health is related not only to individual maternal characteristics but also to the social, economic, and service environments surrounding mothers after childbirth.

These findings support a broad, family-centered approach to postnatal care. Incorporating standardized postpartum depression screening, including use of the EPDS, may facilitate earlier recognition of mothers who require additional assessment or intervention. Maternal education may also benefit from appropriate involvement of spouses and family members to strengthen emotional and practical support. At the system level, efforts to improve equitable access to quality maternal services and to reduce socioeconomic barriers could complement clinical strategies for postpartum mental health.

The results may assist healthcare professionals, policymakers, and maternal health program managers in designing integrated approaches to postpartum mental health. Future studies should use longitudinal designs and recruit larger, more heterogeneous populations to examine temporal relationships and possible causal pathways. Further investigation of marital satisfaction, social networks, pregnancy intention, obstetric complications, and maternal resilience may also broaden understanding of postpartum depression and inform more comprehensive prevention and management strategies.

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