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Maternal Mental Health and Quality of Midwifery Care in Hospital Based Maternity Services

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ABSTRACT

Mental ill-health of mothers during childbirth is one of the most serious problems at hospital maternity wards. The level of care provided by midwives can influence mental ill health of mothers. Cross-sectional analytical study was conducted to determine whether the level of person-centered midwifery care can be associated with the incidence of depression among 291 post-natal mothers. Number of participants was selected according to Cochran formula with addition of 10%. Care quality measurement tool used in this study was Person Centered Maternity Care Scale consisting of 30 items. Data analysis included the use of chi-square test, correlation, and multivariate logistic regression analyses with p-value of <0.05. The prevalence of depression among women was 22.7% and the mean PCMC score was 64.0 (SD=13.1). Scores of PCMC were negatively correlated with the EPDS scores (r=-0.28), and the prevalence of depression dropped from 32.7% to 11.7% with the increase in the quality of care. For an increment of 10 units in the PCMC score, there was a decrease in the odds of depression (AOR=0.63; 95%CI=0.49-0.81). Mental health issue in the past (AOR=4.79) and unwanted pregnancy (AOR=3.07) were also risk factors.

Keywords Mothers, depression, care, postpartum, mental, pregnancy, midwives, women, hospital, score

INTRODUCTION

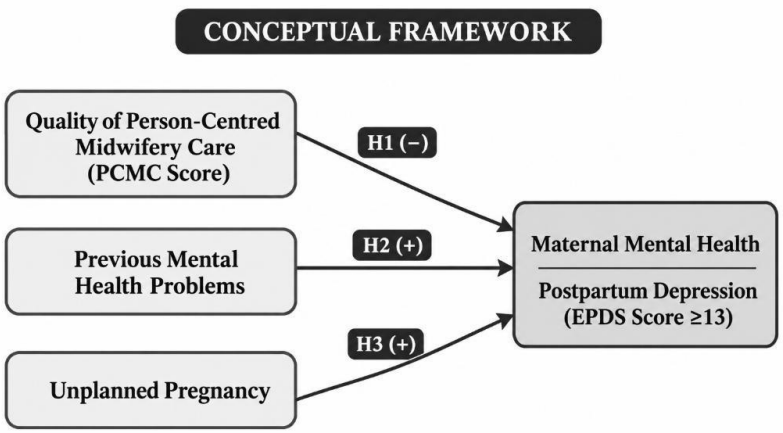
Pregnancy and the year after childbirth affect mental well-being and the outcomes of the psychological state of mothers, children, and families (Roddy Mitchell et al., 2023). Perinatal depression is observed in 1 out of 4 women living in LMIC (Roddy Mitchell et al., 2023). The pooled prevalence was 24.7% in 589 studies with 616708 women from 51 countries (Roddy Mitchell et al., 2023). On the worldwide scale, 10% of pregnant women and 13% of new mothers have mental health problems (Thakuri et al., 2026). The prevalence of perinatal depression in South Asians based on a meta-analysis of 29 studies is 28% (Thakuri et al., 2026). Maternity wards are critical locations for the early identification of the emotional problems of mothers. In a Polish maternity ward, 304 women had symptoms of postpartum depression at 5.9% and anxiety disorders at 11.9% (Furman et al., 2025). The women having Cesarean delivery had more anxiety and depression than those having normal childbirth (Furman et al., 2025). Among women admitted into maternity units in France, 24.9% among the 7189 women reported having been victims of disrespectful maternity care practices (Jacques et al., 2025). Among women in the same national sample, the prevalence of postpartum depression symptoms at 2 months is 16.6% (Jacques et al., 2025). These women had 37% greater risk of postpartum depression symptoms at 2 months (Jacques et al., 2025). In a narrative systematic review, continuity of care by midwives could help reduce perinatal depression and anxiety (Cibralic et al., 2023). Mothers who scored 10 to 12 on the Edinburgh Postnatal Depression Scale have 4.5 times greater risk of postpartum depression (Barr et al., 2024). Mothers who participated in a 2024 Australian study pointed out that they were distressed by seeing different clinicians during their pregnancies (Barr et al., 2024). Fewer than 29% of women in Australia receive perinatal continuity of care (Barr et al., 2024). An understanding of the above connections helps formulate the training of midwives, screening processes, and respectful care standards in hospital maternity units. This study focuses on the relationship between maternal mental health and midwife care quality in hospital based maternity services.

Problem Statement

It should be stressed that it is crucial to pay attention to the state of mind of the mother in maternity services in hospitals in India. The rate of postpartum depression in India was 22% (Panolan & Benson Thomas, 2024) in the survey conducted in 2024. Obstetric violence among 722 women in the hospitals of Gaza took place among 41.5% of women (Ismail et al., 2026). The survey revealed that out of those who experienced obstetric violence 78.7% suffered from postpartum depression and anxiety. It is known that

midwives deliver most of the bedside care to mothers during childbirth and recovery. The quality of midwifery care may affect the state of mind of mothers. However, there is no evidence on the effect of the quality of midwifery care on the well-being of mothers in Indian hospitals, which should be studied systematically in order to help maternity services identify mothers in need of early psychological support.

Conceptual Framework



RELATED WORK

The study by Tomita et al. (2023) included 595 mothers in the childbirth process in public institutions in Dhading, Nepal. According to the results obtained, higher person-centered maternity care quality is related to lower depressive symptom scores of urban and rural mothers. The prevalence rate of depressive symptoms more than the cut-off value was 12.2% for urban mothers and 8.4% for rural mothers. It can be assumed that Tomita et al. (2023) suggested that the improvement of person-centered maternity care in childbirth would be beneficial for the psychological state of women after childbirth. The survey carried out by Liu et al. (2021) included 4192 mothers who gave birth naturally and whose care was provided by midwives. Generally, mothers were highly satisfied with care and especially with prenatal counseling by midwives and postnatal advice by midwives. However, only 53.6% of women had midwifery continuity of care in prenatal counseling. In a cohort study, Cummins et al. (2023) included 3028 mothers with perinatal mental disorders. Only 11.6% of mothers received midwifery continuity of care. They also reported an adjusted odds ratio for pre-term delivery of 0.46 (95%CI 0.24 to 0.86). In their survey of 223 midwives in Greece on the knowledge of perinatal mental health, Karalia et al. (2024) found that the mean score was 52.1%. This value is rather moderate. Gaps were noted for bipolar disorders, schizophrenia, and anxiety disorders due to inadequate education. As mentioned by Dubreucq et al. (2024), after reviewing 66 studies, the perception of the role of a midwife was an important factor. The training programs increased the knowledge of midwives but affected inconsistently some outcomes, including referrals. Most of the chosen studies have poor or moderate quality, which undermines the credibility of these findings. All the presented studies show clearly that the quality of midwifery care and clinicians' preparation can influence the mental health outcomes. The studies concerning maternity care in hospitals in India are not numerous enough; therefore, the current study is justified.

METHOD

The design of the proposed research study is an analytical cross-sectional study conducted within the hospital setting using the postnatal mothers enrolled from a tertiary hospital. Using the Cochran formula to calculate the sample size using 22% prevalence, 5% margin of error, and 10% non-response rate results in 291 mothers (Panolan & Benson Thomas, 2024). The sampling method employed will be the systematic random sampling method where postpartum mothers aged 18 years and above who have given birth within 6 weeks will be used. The maternal psychological wellbeing was assessed by means of the Edinburgh Postnatal Depression Scale (with a cutoff score of ≥13). The midwifery quality of care was assessed using the 30-item Person Centred Maternity Care scale (Tomita et al., 2023). Other factors that could possibly confound such as sociodemographic, obstetric, and social support were collected using the questionnaire. Data analysis was done using chi square test and multivariable logistic regression in SPSS. Adjusted odds ratios and 95% confidence interval will be provided in addition to the statistical significance at P value <0.05. Institutional ethical approval is required before starting the data collection.

RESULTS

Who Screened Positive for Probable Depression

Table 1. Sociodemographic and Obstetric Characteristics of Mothers by EPDS Depression Status (N=291)

Characteristic	Depressed n=66	Not depressed n=225	Test	p value
Residence, Urban, n (% depressed)	42 (23.2)	139	χ^2=0.07	0.784
Education, Graduate or above	26 (23.2)	86	χ^2=3.42	0.332
Education, Secondary	23 (18.7)	100		
Education, Primary	11 (33.3)	22		
Education, No formal education	6 (26.1)	17		
Occupation, Employed	11 (16.2)	57	χ^2=2.14	0.143
Monthly income (INR), Below 10000	17 (19.5)	70	χ^2=0.89	0.642
Monthly income (INR), 10000 to 25000	32 (25.0)	96		
Monthly income (INR), Above 25000	17 (22.4)	59		
Parity, Primipara	38 (24.5)	117	χ^2=0.64	0.425
Mode of delivery, Cesarean	34 (27.6)	89	χ^2=2.99	0.084
Pregnancy or delivery complication, Yes	8 (26.7)	22	χ^2=0.30	0.582
Previous mental health problem, Yes	8 (57.1)	6	Fisher exact	**0.004**
Family support after delivery, No	13 (32.5)	27	χ^2=2.55	0.110
Planned pregnancy, No	24 (36.4)	42	χ^2=9.11	**0.003**
Baby sex, Male	27 (20.0)	108	χ^2=1.03	0.310
Age, years, mean (SD)	26.8 (4.7)	26.9 (4.6)	Welch t=-0.25	0.805
ANC visits, mean (SD)	5.1 (2.1)	5.4 (2.3)	t=-0.79	0.431
Gestational age, weeks, mean (SD)	38.1 (1.6)	38.4 (1.6)	t=-1.33	0.187
Birth weight, kg, mean (SD)	2.85 (0.47)	2.87 (0.44)	t=-0.31	0.755

Depression prevalence Formula

$$\mathbf{P} = \frac{\mathbf{66}}{\mathbf{291}} \times \mathbf{100} = \mathbf{22.7}\%$$

Out of 291 women, 66 (22.7%) scored 13 and above on EPDS and hence were diagnosed with probable depression. Probable depression was significantly associated with prior experience of mental illness, 57.1% versus 20.9% (Fisher exact p=0.004). Probable depression was significantly associated with unplanned pregnancy, 36.4% versus 18.7% for planned pregnancy (χ^2=9.11, df=1, p=0.003). Probability of depression was significantly associated with cesarean delivery, 27.6% compared to 19.0% for vaginal delivery, but this finding was insignificant (p=0.084). There was no significant association of probable depression with any variable in the 0.05 level of significance in terms of residence, educational level, occupation, income, parity, complications, family support and baby's gender. There was no significant difference between the two groups in age, antenatal clinic visitations, gestational age and birth weight. Consequently, prior history of mental illness and unplanned pregnancy emerged as the two key variables significantly associated with probable depression in bivariate analysis. These covariates were therefore taken to the multivariate logistic regression analysis.

Care Experience and Symptom Scores Side by Side

Table 2. Descriptive Statistics and Association Between PCMC and EPDS Scores

Measure	Value	Test	Result
PCMC total (0 to 90), mean (SD), range	64.0 (13.1), 26 to 89	Cronbach alpha	0.94
EPDS total (0 to 30), mean (SD), range	10.5 (2.8), 4 to 18	Cronbach alpha	0.25 (see note)
PCMC, depressed vs not depressed, mean	59.3 vs 65.4	Independent t test	t=3.42, df=289, p=0.001
Mean difference (95% CI)	6.2 (2.6 to 9.7)	Cohen d	0.48
PCMC vs EPDS, correlation	r=-0.28	Pearson, p<0.001	
PCMC vs EPDS, correlation	rho=-0.27	Spearman, p<0.001	

Pearson correlation coefficient

$$r = \frac{\sum (X - \bar{X})(Y - \bar{Y})}{\sqrt{\sum (X-\bar{X})^2 \sum (Y-\bar{Y})^2}}$$

Reported result: r=-0.28, p<0.001

The mean PCMC scale score was 64.0 (SD 13.1), out of a possible maximum of 90 points. The mean EPDS score was 10.5 (SD 2.8) out of a possible maximum of 30 points. The higher level of maternal depression was related to decreased ratings of care. Mothers with probable depression had a PCMC score that was 6.2 points lower (a mean PCMC score of 59.3 compared to 65.4). The mean difference was statistically significant t(289)=3.42, p=0.001, with 95% confidence interval of the mean difference being 2.6-9.7. The effect size was small to medium (Cohen d=0.48). There was a negative Pearson correlation between PCMC and EPDS totals r=-0.28, p<0.001, as well as the same for Spearman correlation rho=-0.27. It means that there was a reliable correlation between the better quality of experienced care and lower scores of depressive symptoms. However, only 8% of the variance can be explained by the correlation. The quality of care is an important predictor, but it is not the only determinant of maternal mood state. The internal consistency of PCMC scale was very high (Cronbach alpha=0.94).

Does Better Care Mean Fewer Positive Screens

Probable Depression Across Tertiles of PCMC Score

PCMC tertile (score range)	n	Depressed, n (%)	Not depressed, n (%)

Low (26 to 58)	98	32 (32.7)	66 (67.3)
Moderate (59 to 71)	99	23 (23.2)	76 (76.8)
High (72 to 89)	94	11 (11.7)	83 (88.3)
Test		χ^2=12.04, df=2, p=0.002	Linear trend p<0.001

Depression prevalence across PCMC tertiles

$$P = \frac{\text{Depressed cases}}{\text{Total group cases}} \times 100$$

Low PCMC: 32.7%

Moderate PCMC: 23.2%

High PCMC: 11.7%

Mother's samples were categorized into 3 groups according to their PCMC scores. These categories were ranging between 26 to 58, 59 to 71 and 72 to 89. Probable depression among mothers within the lowest level of care group was 32.7% (32 out of 98 mothers). This value reduced to 23.2% (23 out of 99 mothers) among mothers in the medium level of care. This value further reduced to 11.7% (11 out of 94 mothers) among mothers in the high level of care. The gradient was statistically significant (χ^2=12.04, df=2, p=0.002) as well as the trend test (p<0.001). The prevalence of probable depression within the lowest level of care category was almost three times more than within the highest level of care category. Thus, this represents the dose-response effect as every increment in care quality reduces the number of positive screening values. However, due to the cross-sectional nature of the study design, causality cannot be established.

Independent Predictors After Adjustment

Table 4. Crude and Adjusted Odds Ratios from Logistic Regression for Probable Depression (EPDS 13 or above)

Predictor	COR (95% CI)	p	AOR (95% CI)	p
PCMC score, per 10 points	0.70 (0.56 to 0.86)	0.001	**0.63 (0.49 to 0.81)**	<0.001
Age, per 5 years	0.96 (0.72 to 1.30)	0.802	0.98 (0.71 to 1.34)	0.887
Rural residence	0.92 (0.52 to 1.63)	0.784	0.94 (0.51 to 1.76)	0.853
Education primary or less	1.65 (0.86 to 3.17)	0.129	1.57 (0.76 to 3.24)	0.218
Employed	0.59 (0.29 to 1.20)	0.147	0.71 (0.33 to 1.52)	0.373
Multipara	0.80 (0.46 to 1.39)	0.425	0.65 (0.35 to 1.20)	0.169
Cesarean delivery	1.62 (0.94 to 2.82)	0.085	1.60 (0.87 to 2.93)	0.131
Complication	1.27 (0.54 to 3.01)	0.583	1.39 (0.55 to 3.53)	0.492
Previous mental health problem	5.03 (1.68 to 15.08)	0.004	**4.79 (1.49 to 15.44)**	0.009
No family support	1.80 (0.87 to 3.72)	0.114	2.08 (0.91 to 4.77)	0.083

Unplanned pregnancy	2.49 (1.36 to 4.55)	0.003	**3.07 (1.56 to 6.04)**	0.001

Model fit: likelihood ratio test p<0.001, Hosmer Lemeshow p=0.674, Nagelkerke R^2=0.20, AUC=0.75,

correct classification 79.4%, maximum VIF 1.05.

Binary logistic regression

$$\ln\left(\frac{p}{1-p}\right) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \cdots + \beta_k X_k$$

Where \(p\) represents the probability of postpartum depression.

The multivariate analysis results indicated the presence of significant association between PCMC score and probable depression after adjustment for ten other covariates. The odds ratio of depression declined by 37% with each 10-unit increment in PCMC score (AOR 0.63, 95% CI 0.49 to 0.81, p<0.001). PCMC score was the only significant protective factor found in the adjusted model. Presence of mental health problems in the past raised the odds almost five-fold (AOR 4.79, 95% CI 1.49 to 15.44, p=0.009). An unplanned pregnancy raised the odds threefold (AOR 3.07, 95% CI 1.56 to 6.04, p=0.001). No family support (AOR 2.08, p=0.083) and cesarean delivery (AOR 1.60, p=0.131) had raised odds that were not statistically significant. The model fit very well (Hosmer-Lemeshow test p=0.674), Nagelkerke R^2=0.20, and area under the curve of 0.75. It should be noted that the wide confidence interval for the past mental health problems is caused by the fact that only 14 mothers have reported on this issue before.

DISCUSSION

In this research, it was noted that 22.7% of mothers were screened positively for depression and care quality was a protective factor by itself. A 10-point increase in PCMC score lowered the probability of depression by 37% (AOR 0.63). That was the pattern in another study conducted in Brazil wherein 2 forms of disrespect tripled the odds (Conceição & Madeiro, 2024). The study used the same cutoff value of EPDS score and reported that a lower percentage of 16.3% of mothers out of 190 was reported. Reduction of the percentage from 32.7% to 11.7% as a function of tertiles of care shows a dose-response relationship. Poor interpersonal care could affect the safety and sense of control in the mother. The risks were more than four times higher for the presence of previous psychological problems and more than tripled for unplanned pregnancy. It is important to perform screening and monitoring of such women in advance. Midwives can offer respectful treatment and notice symptoms of stress at an early stage. Insufficient family support did not have statistically significant odds (AOR 2.08, p=0.083). Lack of sufficient female family support in rural Ghana was found to be associated with depression (Lillie et al., 2020). This could have been affected by the relatively small number of women without family support (n=40). This research possesses several strengths, including using the valid scales as well as adjustment for ten potential confounders in the final model. However, a cross-sectional nature of our research prevents us from establishing causality. Depressed mothers would likely assess the quality of care lower.

CONCLUSION

The higher level of midwifery care was an independent predictor of lower odds of PPD among women accessing maternity care services at hospitals. A 10 point increment in PCMC was associated with 37% decline in probability and decrease in prevalence across all care tertiles. History of prior mental difficulties and unplanned pregnancy were the remaining two risk group predictors. This calls for an urgent incorporation of EPDS in postpartum midwifery care services at hospitals. The training of midwives in respect and person-centered communication skills can be a potential solution to ensure that the psychological needs of the women are taken care of. Women who have prior histories of mental disorders and unplanned pregnancies should be handled with utmost caution by the healthcare professionals. Such approaches can easily be integrated into the hospital maternity services and will only attract minimal cost.

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