

Prospective Evaluation of A Structured Nurse-Led Counseling And Follow-Up Program For Early Detection And Reduction of Postpartum Depression Among Postnatal Mothers

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ABSTRACT

Background: Postpartum depression is an important maternal mental health problem that can adversely affect maternal wellbeing, breastfeeding, mother–infant bonding, family relationships, and infant care. Early identification of depressive symptoms and timely psychosocial support are essential components of comprehensive postnatal care. Nurse-led screening, counseling, and follow-up may provide a practical strategy for improving maternal psychological wellbeing.

Aim: To evaluate the effectiveness of a structured nurse-led counseling and follow-up program for early detection and reduction of postpartum depression among postnatal mothers.

Material and Methods: This prospective interventional study included 110 postnatal mothers attending a tertiary care hospital. Demographic, obstetric, neonatal, and psychosocial characteristics were recorded using a structured proforma. Postpartum depressive symptoms were assessed using the Edinburgh Postnatal Depression Scale (EPDS). All participants received structured nurse-led counseling addressing postpartum emotional changes, stress management, sleep, nutrition, breastfeeding difficulties, family support, mother–infant bonding, and indications for professional mental health referral. EPDS and selected psychosocial parameters were reassessed during follow-up. Data were analyzed using IBM SPSS Statistics version 27.0, with $p < 0.05$ considered statistically significant.

Results: The mean age of participants was 27.64 ± 4.62 years. At baseline, 32 mothers (29.09%) had EPDS scores ≥ 10 . The mean EPDS score decreased significantly from 9.18 ± 5.06 at baseline to 5.74 ± 3.82 at follow-up, with a mean reduction of 3.44 ± 3.61 points ($p < 0.001$). The proportion with EPDS ≥ 10 decreased from 29.09% to 11.82% ($p < 0.001$). Significant reductions were also observed in sleep disturbance, anxiety symptoms, breastfeeding difficulties, and inadequate perceived family support. Anxiety symptoms, poor family support, sleep disturbance, breastfeeding difficulties, and unplanned pregnancy were independent predictors of elevated baseline EPDS scores.

Conclusion: Structured nurse-led counseling and follow-up were associated with significant reductions in postpartum depressive symptoms and improvement in important psychosocial outcomes. Integrating routine EPDS screening with structured nursing support may facilitate early detection and timely management of postpartum depression.

Keywords: Postpartum depression; EPDS; nurse-led counseling; postnatal mothers; maternal mental health.

INTRODUCTION

Postpartum depression (PPD) is an important mental health disorder occurring during the postnatal period and represents a major concern for maternal, neonatal, and family wellbeing. The transition to motherhood involves substantial biological, psychological, social, and lifestyle changes, and some women experience persistent sadness, loss of interest, emotional instability, anxiety, sleep disturbances, feelings of guilt or worthlessness, impaired concentration, and difficulties in coping with the responsibilities of motherhood. Unlike transient postpartum emotional changes, depressive symptoms may persist and interfere with maternal functioning, interpersonal relationships, breastfeeding, and the ability to provide appropriate infant care. PPD is therefore increasingly recognized as an important component of comprehensive postnatal healthcare rather than an isolated psychiatric problem.¹ The development of postpartum depression is multifactorial and may involve interaction between biological vulnerability and numerous obstetric, psychological, and social factors. Previous depression or anxiety, depressive symptoms during pregnancy, stressful life events, inadequate social support, poor marital relationships, unintended pregnancy, financial problems, sleep disturbances, breastfeeding difficulties, complicated pregnancy or childbirth, and concerns regarding neonatal health may increase psychological vulnerability following delivery. Identification of these factors during routine postnatal assessment can help healthcare professionals recognize women who may require closer observation, supportive counseling, or mental health referral. Risk assessment is particularly important because mothers may hesitate to

spontaneously disclose emotional difficulties owing to stigma, lack of awareness, family expectations, or fear of being judged regarding their ability to care for their newborn.² Systematic screening provides an opportunity to identify depressive symptoms that may otherwise remain unrecognized during routine postnatal care. The Edinburgh Postnatal Depression Scale (EPDS) is among the most widely used instruments for assessing depressive symptoms during pregnancy and the postpartum period. It is a brief, structured, 10-item self-report tool that can be incorporated into routine maternal healthcare without requiring extensive resources. The scale evaluates important emotional and cognitive symptoms and includes an item addressing thoughts of self-harm. Nevertheless, screening alone does not constitute a diagnosis, and mothers with elevated scores require appropriate clinical assessment and, when indicated, referral for further evaluation and treatment. The value of screening therefore depends not only on administering a validated instrument but also on establishing a clearly defined pathway for follow-up and intervention.³ Contemporary recommendations for perinatal mental healthcare emphasize early recognition of mood and anxiety disorders, systematic assessment of risk factors, appropriate use of validated screening tools, and timely linkage to treatment services. Screening should be integrated with clinical evaluation, assessment of suicidality and other serious psychiatric symptoms, patient education, and appropriate referral pathways. Postnatal care provides several opportunities for such assessment because mothers have repeated contact with obstetricians, nurses, pediatric services, and other healthcare professionals. A coordinated approach can facilitate continuity between screening, supportive intervention, and specialist management when required. Integrating maternal mental health evaluation into routine postpartum services may also normalize discussion of emotional wellbeing and encourage mothers to seek assistance at an earlier stage.⁴ Nurses have a particularly important position in postpartum mental health services because they maintain close and frequent contact with mothers during hospitalization, discharge education, breastfeeding support, and subsequent follow-up. Nurse-led screening programs can combine assessment of depressive symptoms with education regarding postpartum emotional changes, identification of warning signs, and referral to appropriate services. Structured nurse training and standardized screening pathways can strengthen consistency in identifying women who require additional psychosocial or mental health support. The accessibility of nursing personnel also provides an opportunity to address barriers to disclosure by creating a supportive environment in which mothers can discuss emotional concerns, family problems, anxiety, sleep difficulties, and challenges related to newborn care.⁵ Counseling represents another important component of supportive postpartum mental healthcare. A structured nurse-led program may include psychoeducation about postpartum depression, stress-management strategies, relaxation techniques, promotion of adequate sleep and nutrition, support for breastfeeding difficulties, strengthening of partner and family involvement, enhancement of mother-infant interaction, and guidance regarding professional mental health services. Nurses can be trained to deliver structured psychological interventions and supportive approaches within appropriately designed care pathways. Such task-sharing is particularly relevant in healthcare settings where specialist mental health resources are limited or where mothers may experience difficulty accessing psychiatric or psychological services after discharge from maternity care.⁶

MATERIALS AND METHODS

This prospective interventional study was conducted among postnatal mothers attending the Department of Obstetrics and Gynaecology and postnatal services of a tertiary care hospital. The study evaluated the effectiveness of a structured nurse-led counseling and follow-up program for early identification of mothers at risk of postpartum depression and for reducing depressive symptoms during the postnatal period. A total of **110 postnatal mothers** fulfilling the eligibility criteria were enrolled. Postnatal mothers who delivered at the study hospital and were available for postpartum assessment and follow-up were considered for participation. Participants were recruited using a consecutive sampling technique until the required sample size of 110 was achieved. Eligible mothers were approached after they were clinically stable, the purpose and procedure of the study were explained, and written informed consent was obtained before data collection.

Inclusion and Exclusion Criteria: Postnatal mothers aged 18 years or above who had delivered a live baby, were clinically stable, were able to understand the counseling instructions, and provided informed consent were included. Mothers with a previously diagnosed severe psychiatric disorder, active psychosis, severe cognitive impairment, serious postpartum medical or surgical complications requiring intensive care, critically ill neonates where participation was not feasible, or inability to complete the planned follow-up assessments were excluded.

Methodology

A structured data collection proforma was used to record demographic, obstetric, neonatal, and psychosocial characteristics. Demographic parameters included maternal age, residence, educational status, occupation, socioeconomic status, type of family, and availability of family support. Obstetric variables included parity,

gravidity, planned or unplanned pregnancy, mode of delivery, pregnancy complications, previous obstetric loss, breastfeeding status, and postpartum complications. Neonatal parameters included gestational age, birth weight, neonatal complications, and requirement for neonatal intensive care. Psychosocial variables included perceived family support, marital relationship, financial stress, sleep disturbance, previous stressful life events, anxiety symptoms, and previous history of depression.

Assessment of Postpartum Depression: Depressive symptoms were assessed using the Edinburgh Postnatal Depression Scale (EPDS), a 10-item self-reported screening instrument specifically designed to identify depressive symptoms during the postnatal period. Each item was scored from 0 to 3, providing a total score ranging from 0 to 30, with higher scores indicating greater depressive symptom severity. Mothers with elevated EPDS scores were considered at increased risk of postpartum depression and underwent further clinical evaluation or referral according to institutional protocol. Any response suggestive of self-harm or suicidal ideation was treated as requiring immediate clinical assessment.

Structured Nurse-Led Counseling Program: All enrolled mothers received structured counseling conducted by trained nursing personnel. Counseling consisted of education regarding postpartum emotional changes, signs and symptoms of postpartum depression, importance of early reporting, sleep and rest, nutrition, breastfeeding-related difficulties, stress management, relaxation techniques, strengthening family and partner support, mother-infant bonding, and available professional mental health services. Mothers were encouraged to discuss emotional concerns freely and were provided individualized advice based on identified psychosocial and obstetric risk factors. Family members were also encouraged, wherever appropriate, to provide emotional and practical support to the mother.

Follow-Up Assessment: Participants were followed through scheduled postnatal contacts, during which depressive symptoms, emotional wellbeing, adherence to counseling advice, breastfeeding difficulties, sleep quality, perceived social support, stressful events, and requirement for mental health referral were reassessed. The EPDS was repeated during follow-up to determine changes in depressive symptom scores after the nurse-led intervention. Mothers with persistent or increasing depressive symptoms were referred to an appropriate mental health professional for further evaluation and management.

Outcome Measures: The primary outcome measures were the proportion of mothers identified as being at risk for postpartum depression and the change in mean EPDS score from baseline to follow-up after structured nurse-led counseling. Secondary outcome measures included reduction in the proportion of mothers with elevated EPDS scores, identification of demographic, obstetric, neonatal, and psychosocial factors associated with postpartum depressive symptoms, adherence to follow-up, requirement for psychiatric or psychological referral, and maternal satisfaction with the counseling program.

Quality Control: Nursing personnel involved in the intervention were oriented to the standardized counseling protocol and administration of the EPDS before participant recruitment. Data collection forms were checked for completeness and consistency. Counseling content and follow-up assessment procedures were standardized for all participants to minimize inter-observer variation.

Statistical Analysis: Data were entered into Microsoft Excel and analyzed using IBM SPSS Statistics version 27.0. Continuous variables were expressed as mean $\pm$ standard deviation or median with interquartile range, depending on data distribution, while categorical variables were presented as frequencies and percentages. Normality was assessed using the Shapiro-Wilk test. Paired t-test or Wilcoxon signed-rank test was used to compare baseline and follow-up EPDS scores. Chi-square test or Fisher's exact test was used to assess associations between categorical variables and postpartum depression risk. Independent t-test or Mann-Whitney U test was applied for appropriate between-group comparisons. Multivariable logistic regression was performed to identify independent predictors of elevated postpartum depression risk. A p value <0.05 was considered statistically significant.

RESULTS

Table 1. Baseline Demographic, Obstetric and Neonatal Characteristics: The mean age of the study participants was 27.64 ± 4.62 years. The largest proportion of mothers belonged to the 25–29-year age group, comprising 47 (42.73%) participants, followed by 28 (25.45%) aged 18–24 years, 26 (23.64%) aged 30–34 years, and 9 (8.18%) aged 35 years or above. Of the 110 participants, 63 (57.27%) were from urban areas and 47 (42.73%) were from rural areas. Regarding educational status, 35 (31.82%) had education up to secondary level, 41 (37.27%) had completed senior secondary education, and 34 (30.91%) were graduates or had higher educational qualifications. Most participants were homemakers, accounting for 78 (70.91%), while 32 (29.09%) were employed. Nuclear families were reported by 62 (56.36%) mothers, whereas 48 (43.64%) belonged to joint families. With regard to obstetric characteristics, 59 (53.64%) participants were primiparous and 51 (46.36%)

were multiparous. Pregnancy was planned in 84 (76.36%) mothers, while 26 (23.64%) reported an unplanned pregnancy. Vaginal delivery was recorded in 67 (60.91%) participants and cesarean section in 43 (39.09%). Pregnancy-related complications were present in 27 (24.55%) mothers, while 18 (16.36%) had a previous obstetric loss. Exclusive breastfeeding was reported by 82 (74.55%) mothers, whereas breastfeeding difficulties were noted in 27 (24.55%). Neonatal intensive care unit admission was required in 14 (12.73%) newborns.

Table 2. Association of Obstetric and Psychosocial Factors With Elevated Baseline EPDS Score: At baseline, 32 mothers had an EPDS score ≥ 10 , while 78 had an EPDS score below 10. Among mothers with elevated EPDS scores, an unplanned pregnancy was reported in 13 (40.63%), compared with 13 (16.67%) among those with EPDS scores below 10, and the difference was statistically significant ($p=0.007$). Poor perceived family support was reported in 15 (46.88%) mothers with elevated EPDS compared with 10 (12.82%) in the lower-score group ($p<0.001$). Financial stress was present in 14 (43.75%) versus 15 (19.23%) participants, respectively, with a significant association ($p=0.008$). Significant sleep disturbance was observed in 21 (65.63%) mothers with elevated EPDS scores compared with 22 (28.21%) mothers with scores below 10 ($p<0.001$). Anxiety symptoms were present in 17 (53.13%) and 12 (15.38%) participants, respectively, and this difference was statistically significant ($p<0.001$). A recent stressful life event was reported by 13 (40.63%) mothers in the elevated EPDS group and 14 (17.95%) in the EPDS <10 group ($p=0.012$). Previous obstetric loss was observed in 9 (28.13%) versus 9 (11.54%) mothers ($p=0.033$). Neonatal intensive care admission occurred in 8 (25.00%) mothers with elevated EPDS scores compared with 6 (7.69%) in the lower-score group ($p=0.024$). Breastfeeding difficulties were recorded in 14 (43.75%) and 13 (16.67%) mothers, respectively ($p=0.003$). Cesarean delivery was recorded in 16 (50.00%) mothers with elevated EPDS scores compared with 27 (34.62%) mothers with EPDS <10 ; however, this difference was not statistically significant ($p=0.133$).

Table 3. Effect of Structured Nurse-Led Counseling on EPDS Scores: The mean EPDS score decreased from 9.18 ± 5.06 at baseline to 5.74 ± 3.82 at follow-up, corresponding to a mean reduction of 3.44 ± 3.61 points. This reduction was statistically significant ($p<0.001$). Similarly, the median EPDS score decreased from 8 (IQR 5–13) at baseline to 5 (IQR 3–8) at follow-up, with a statistically significant difference ($p<0.001$). At baseline, 32 of 110 mothers (29.09%) had an EPDS score ≥ 10 . At follow-up, this number decreased to 13 (11.82%), representing an absolute reduction of 17.27 percentage points, which was statistically significant ($p<0.001$). Conversely, the proportion of mothers with EPDS scores below 10 increased from 78 (70.91%) at baseline to 97 (88.18%) at follow-up, corresponding to an increase of 17.27 percentage points ($p<0.001$).

Table 4. Change in Psychosocial and Maternal Outcomes Following Nurse-Led Counseling: Significant changes were recorded in several psychosocial and maternal parameters between baseline and follow-up. The number of mothers reporting significant sleep disturbance decreased from 43 (39.09%) at baseline to 24 (21.82%) at follow-up ($p<0.001$). Anxiety symptoms decreased from 29 (26.36%) to 13 (11.82%), and the difference was statistically significant ($p<0.001$). Breastfeeding difficulties were reported by 27 (24.55%) mothers at baseline and by 13 (11.82%) at follow-up, showing a significant reduction ($p=0.001$). Inadequate perceived family support was recorded in 25 (22.73%) mothers at baseline compared with 14 (12.73%) at follow-up, with a statistically significant change ($p=0.007$). Similarly, the proportion of mothers with an elevated EPDS score decreased from 32 (29.09%) at baseline to 13 (11.82%) at follow-up ($p<0.001$). Thus, significant differences between baseline and follow-up assessments were observed for all the psychosocial and maternal parameters evaluated in this table.

Table 5. Multivariable Logistic Regression for Predictors of Elevated Baseline EPDS Score: Multivariable logistic regression analysis identified several variables that were independently associated with an elevated baseline EPDS score. Anxiety symptoms had an adjusted odds ratio (AOR) of 4.48 with a 95% confidence interval (CI) of 1.72–11.66, and the association was statistically significant ($p=0.002$). Poor perceived family support was also significantly associated with elevated EPDS scores, with an AOR of 3.62 (95% CI: 1.39–9.42; $p=0.008$). Significant sleep disturbance showed an AOR of 3.29 (95% CI: 1.31–8.26; $p=0.011$). Breastfeeding difficulties were significantly associated with elevated EPDS scores, with an AOR of 2.86 (95% CI: 1.09–7.50; $p=0.033$). An unplanned pregnancy was also independently associated with an elevated score, with an AOR of 2.69 (95% CI: 1.03–7.04; $p=0.043$). Financial stress had an AOR of 2.31 (95% CI: 0.91–5.88) but did not reach statistical significance ($p=0.079$). Similarly, neonatal intensive care admission showed an AOR of 2.39 (95% CI: 0.73–7.82) and was not statistically significant in the adjusted analysis ($p=0.149$).

Table 1. Baseline Demographic, Obstetric and Neonatal Characteristics of the Study Participants (n=110)

Characteristic	Number (n)	Percentage (%)
Age group (years)		
18–24	28	25.45

25–29	47	42.73
30–34	26	23.64
≥35	9	8.18
Mean age (years)	27.64 ± 4.62	—
Residence		
Urban	63	57.27
Rural	47	42.73
Educational status		
Up to secondary	35	31.82
Senior secondary	41	37.27
Graduate and above	34	30.91
Occupation		
Homemaker	78	70.91
Employed	32	29.09
Type of family		
Nuclear	62	56.36
Joint	48	43.64
Parity		
Primiparous	59	53.64
Multiparous	51	46.36
Pregnancy status		
Planned pregnancy	84	76.36
Unplanned pregnancy	26	23.64
Mode of delivery		
Vaginal delivery	67	60.91
Cesarean section	43	39.09
Pregnancy complications	27	24.55
Previous obstetric loss	18	16.36
Exclusive breastfeeding	82	74.55
Breastfeeding difficulties	27	24.55
Neonatal intensive care admission	14	12.73

Table 2. Association of Obstetric and Psychosocial Factors With Elevated Baseline EPDS Score

Risk factor	Elevated EPDS (n=32), n (%)	EPDS <10 (n=78), n (%)	P value
Unplanned pregnancy	13 (40.63)	13 (16.67)	0.007
Poor perceived family support	15 (46.88)	10 (12.82)	<0.001
Financial stress	14 (43.75)	15 (19.23)	0.008
Significant sleep disturbance	21 (65.63)	22 (28.21)	<0.001
Anxiety symptoms	17 (53.13)	12 (15.38)	<0.001
Recent stressful life event	13 (40.63)	14 (17.95)	0.012
Previous obstetric loss	9 (28.13)	9 (11.54)	0.033
Neonatal intensive care admission	8 (25.00)	6 (7.69)	0.024
Breastfeeding difficulties	14 (43.75)	13 (16.67)	0.003
Cesarean delivery	16 (50.00)	27 (34.62)	0.133

Chi-square test was used as appropriate; Fisher's exact test was used for neonatal intensive care admission.

Table 3. Effect of Structured Nurse-Led Counseling on EPDS Scores

EPDS parameter	Baseline	Follow-up	Mean/absolute change	P value
Mean EPDS score	9.18 ± 5.06	5.74 ± 3.82	3.44 ± 3.61 reduction	<0.001
Median EPDS score (IQR)	8 (5–13)	5 (3–8)	—	<0.001
EPDS ≥10	32 (29.09%)	13 (11.82%)	–17.27 percentage points	<0.001
EPDS <10	78 (70.91%)	97 (88.18%)	+17.27 percentage points	<0.001

Table 4. Change in Psychosocial and Maternal Outcomes Following Nurse-Led Counseling

Parameter	Baseline, n (%)	Follow-up, n (%)	P value
Significant sleep disturbance	43 (39.09)	24 (21.82)	<0.001
Anxiety symptoms	29 (26.36)	13 (11.82)	<0.001
Breastfeeding difficulties	27 (24.55)	13 (11.82)	0.001
Inadequate perceived family support	25 (22.73)	14 (12.73)	0.007
Elevated EPDS score	32 (29.09)	13 (11.82)	<0.001

Table 5. Multivariable Logistic Regression for Predictors of Elevated Baseline EPDS Score

Predictor	Adjusted Odds Ratio (AOR)	95% CI	P value
Anxiety symptoms	4.48	1.72–11.66	0.002
Poor perceived family support	3.62	1.39–9.42	0.008
Significant sleep disturbance	3.29	1.31–8.26	0.011
Breastfeeding difficulties	2.86	1.09–7.50	0.033
Unplanned pregnancy	2.69	1.03–7.04	0.043
Financial stress	2.31	0.91–5.88	0.079
Neonatal intensive care admission	2.39	0.73–7.82	0.149

DISCUSSION

The baseline screening in the present study showed that 32 of 110 mothers (29.09%) had an EPDS score ≥ 10 , while 78 (70.91%) had scores below 10. The mean age was 27.64 ± 4.62 years, with the largest proportion aged 25–29 years (42.73%); 53.64% were primiparous and 70.91% were homemakers. The observed proportion of mothers with elevated depressive symptoms was comparable with the Indian hospital-based findings of Lanjewar et al. (2021), who evaluated 240 urban postnatal mothers and reported that 63 women (26.3%) had EPDS scores ≥ 13 . Although a higher EPDS threshold was used in their study, the prevalence was close to the 29.09% screening positivity observed in the present study, indicating a substantial burden of depressive symptoms among postnatal mothers in hospital-based populations.⁷ Among obstetric and socioeconomic factors in the present study, unplanned pregnancy was present in 40.63% of mothers with elevated EPDS scores compared with 16.67% of those with EPDS < 10 ($p=0.007$), while financial stress was reported in 43.75% versus 19.23%, respectively ($p=0.008$). An unplanned pregnancy also remained independently associated with elevated EPDS scores with an AOR of 2.69 (95% CI: 1.03–7.04; $p=0.043$). These findings were comparable with Abdollahi et al. (2014), who followed 1,801 women without antenatal depression and reported that unwanted pregnancy increased the odds of postpartum depression 2.50-fold (95% CI: 1.69–3.70) and low household income increased the odds 3.57-fold (95% CI: 1.49–8.50). In the present study, cesarean delivery was more frequent among mothers with elevated EPDS scores (50.00% vs 34.62%), although the association was not statistically significant ($p=0.133$).⁸ Perceived family support showed a marked relationship with depressive symptoms in the present study. Poor perceived family support was recorded in 46.88% of mothers with elevated EPDS scores compared with 12.82% among those with EPDS < 10 ($p<0.001$) and remained independently associated with elevated EPDS after adjustment (AOR 3.62; 95% CI: 1.39–9.42; $p=0.008$). At follow-up, inadequate perceived family support declined from 22.73% to 12.73% ($p=0.007$). Similar findings were reported by Gan et al. (2019) in a prospective cohort of 3,310 women, where postpartum depressive symptoms occurred in 11.4% using an EPDS cut-off ≥ 10 . Low perceived social support was significantly associated with postpartum depressive symptoms, with an adjusted OR of 1.77 (95% CI: 1.24–2.52) in the fully adjusted model.⁹ Sleep disturbance and anxiety represented prominent psychosocial correlates in the present study. Significant sleep disturbance was found in 65.63% of mothers with elevated EPDS scores compared with 28.21% of those with scores < 10 ($p<0.001$), and sleep disturbance remained independently associated with elevated EPDS (AOR 3.29; 95% CI: 1.31–8.26; $p=0.011$). Anxiety symptoms were present in 53.13% versus 15.38% ($p<0.001$) and had the strongest adjusted association with elevated EPDS (AOR 4.48; 95% CI: 1.72–11.66; $p=0.002$). Following counseling, sleep disturbance decreased from 39.09% to 21.82% and anxiety symptoms from 26.36% to 11.82%. Stremler et al. (2020) similarly studied 217 first-time mothers and found that sleep disturbance at 6 weeks postpartum was associated with 3.56-fold greater odds of depressive symptoms (95% CI: 1.73–7.33); women who perceived sleep as a “big problem” had an OR of 8.29 (95% CI: 2.41–28.59) for depressive symptoms.¹⁰ Breastfeeding-related parameters also showed significant associations with maternal psychological status. In the present study, 82 mothers (74.55%) were exclusively breastfeeding, whereas 27 (24.55%) experienced breastfeeding difficulties. Such difficulties were considerably more frequent in mothers with elevated EPDS scores (43.75% vs 16.67%; $p=0.003$) and independently increased the odds of an elevated EPDS score (AOR 2.86; 95% CI: 1.09–7.50; $p=0.033$). Following

the nurse-led program, breastfeeding difficulties decreased from 24.55% to 11.82% ($p=0.001$). Gregory et al. (2015) evaluated 1,501 women intending exclusive breastfeeding and reported that 346 (23.1%) had EPDS scores ≥ 10 at two months postpartum. Women who met their prenatal expectations for exclusive breastfeeding had significantly lower adjusted odds of depressive symptoms (OR 0.71; 95% CI: 0.52–0.96) than women whose breastfeeding expectations were not met.¹¹ A major finding of the present study was the reduction in depressive symptom severity after structured nurse-led counseling and follow-up. The mean EPDS score decreased significantly from 9.18 ± 5.06 at baseline to 5.74 ± 3.82 at follow-up, representing a mean reduction of 3.44 ± 3.61 points ($p<0.001$). The median score also declined from 8 (IQR 5–13) to 5 (IQR 3–8; $p<0.001$). These findings were consistent with Koç et al. (2024), who conducted a randomized controlled trial involving 100 primiparous mothers. Among women receiving six weeks of telecounseling, mean EPDS scores decreased from 7.12 ± 3.96 to 6.34 ± 3.73 ($p<0.001$), whereas scores in the control group increased from 6.62 ± 3.55 to 7.90 ± 4.65 ($p=0.002$). The magnitude of reduction in the present study was greater, with a 3.44-point mean decrease following the structured intervention.¹² The proportion of women screening positive for postpartum depressive symptoms also decreased substantially following the nurse-led intervention. Mothers with EPDS ≥ 10 declined from 29.09% at baseline to 11.82% at follow-up, an absolute reduction of 17.27 percentage points ($p<0.001$), while the proportion with EPDS <10 increased from 70.91% to 88.18%. Improvements were also recorded in anxiety, sleep disturbance, breastfeeding difficulties, and perceived family support. Comparable results were demonstrated by Dennis et al. (2020) in a nationwide randomized controlled trial of 241 postpartum women with major depression receiving nurse-delivered telephone interpersonal psychotherapy. At 12 weeks, only 10.6% of women receiving nurse-delivered psychotherapy remained clinically depressed compared with 35.0% receiving standard care, while EPDS scores >12 were present in 21.2% versus 51.0%, respectively. Their intervention additionally produced significant improvements in anxiety and partner relationship quality.¹³ Multivariable analysis in the present study identified anxiety symptoms (AOR 4.48), poor family support (AOR 3.62), sleep disturbance (AOR 3.29), breastfeeding difficulties (AOR 2.86), and unplanned pregnancy (AOR 2.69) as independent predictors of an elevated baseline EPDS score. Financial stress (AOR 2.31; $p=0.079$) and neonatal intensive care admission (AOR 2.39; $p=0.149$) did not retain statistical significance after adjustment. These findings were comparable with those of Youn et al. (2013), who prospectively assessed 215 women and reported postpartum depression rates of 36.3% at 2 weeks and 36.7% at 6 weeks. Their multivariable analysis identified prenatal depression with ORs of 4.32 and 5.19, social support with ORs of 1.40 and 1.27, and maternity blues with ORs of 4.75 and 4.22 at the respective follow-up assessments; pregnancy intendedness was also associated with postpartum depression at 6 weeks (OR 1.57; 95% CI: 1.09–2.27).¹⁴

CONCLUSION

The structured nurse-led counseling and follow-up program was associated with a significant reduction in postpartum depressive symptoms among postnatal mothers. Mean EPDS scores and the proportion of mothers with elevated EPDS scores decreased markedly after the intervention. Improvements were also observed in anxiety, sleep disturbance, breastfeeding difficulties, and perceived family support. Early screening combined with structured nursing support may therefore be a practical approach for timely identification and reduction of postpartum depression in routine postnatal care.

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