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FREQUENCY OF POSTNATAL DEPRESSION AND DETERMINANTS OF DEPRESSIVE ILLNESS AFTER PREGNANCY LOSS

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Abstract

Background: Pregnancy loss is frequently associated with psychological distress and postnatal depression, yet local evidence regarding its burden and determinants remains limited, particularly in resource-constrained settings.

Objective: To determine the frequency of postnatal depression and evaluate the determinants of depressive illness among women following pregnancy loss.

Methodology: This hospital-based cross-sectional study was conducted at Obstetrics and Gynaecology Department of Services Hospital, Lahore and SKBZ /CMH Muzaffarabad from July 2025 to October 2025, including 145 women selected through non-probability purposive sampling, with sample size calculated using the single population proportion formula at 95% confidence level, 6% margin of error, and an expected prevalence of 15.3%.

Results: The mean age was 29.8 ± 6.4 years. Miscarriage was the most common type of pregnancy loss (63.4%), followed by ectopic pregnancy (21.4%). The mean EPDS score was 11.6 ± 5.2. Postnatal depression was observed in 58 (40.0%) participants. Depression was significantly associated with younger age, low education, unemployment, low income, previous pregnancy loss, unintended pregnancy, and lack of family or husband support ($p < 0.05$).

Conclusion: Postnatal depression is frequent among women following pregnancy loss and is strongly influenced by socioeconomic and psychosocial determinants.

Key Words: Postnatal depression, pregnancy loss, miscarriage, ectopic pregnancy

INTRODUCTION

A non-psychotic mood or mental illness, postnatal depression is a common illness that is seen in women one year after giving birth. The postnatal depression rate of women varies worldwide between 0.5 percent and 60.8 percent [1]. The women of the developing countries (20%) displayed higher postnatal depression rates as compared to women of developed countries (613%). The prevalence rates of postpartum depression in Asian countries reported 3.5 -63.3%. Postnatal depression is common in Pakistan (2863) [2]. Pregnancy loss, which occurs due to ectopic pregnancy and miscarriage, is also linked to postnatal depression that follows the occurrence [3]. One of the most prevalent psychopathological disorders among women who had ectopic pregnancy is postnatal depression. The percentage incidence of ectopic pregnancy is 127.25 per 100,000 pregnant women, and rises in countries where abortion is not legalized [4]. It has been found that there are a number of possible risk factors of ectopic pregnancy including age, history of ectopic pregnancy, previous and current use of intra-uterine devices (IUDs), smoking, pelvic surgery, appendectomy, oral contraceptives, use of Levonorgestrel emergency contraceptives, history of

pelvic inflammatory disease, female sterilization, and infertility [5]. Other reports have also indicated that abortion during pregnancy such as ectopic pregnancy has adverse impacts on the mental health of women [6].

Miscarriage causes psychological threat of depression. One of the most prevalent complications of pregnancy is the miscarriages, which are reported to be occurring in approximately 10-15 percent of pregnancies that are perceived to be low risk [7]. The etiology of miscarriage is either spontaneous or induced. The causes of spontaneous miscarriages are in the form of chromosomal abnormalities, abnormalities of the uterus and environmental factors like alcohol consumption or cigarette smoking [8]. Miscarriages, be it spontaneous or induced, have serious repercussions on psychiatric morbidity. The higher rates of psychiatric complications have been observed to be related to induced miscarriages as compared to spontaneous ones [9]. Other studies across the world have examined the prevalence of depression after miscarriage with rates of 1020 percent being reported. Research by Malik et al. (2020) to determine the prevalence rate of depressive disorder among women after miscarriage found out that among 150 cases, 62% were aged between 15 and 30 years and 38% were aged between 31 and 40 years with a mean age of 29.17/5.94 years [10]. Depressive disorder was frequency recorded among women who miscarried in 15.3%. A different study which was conducted by Kukulskiene et al [11]. (2022) in 839 women who had one or more miscarriages revealed that 59.1 were at risk of postnatal depression (increased) and 48.9 were at high risk of postnatal depression, and 44.7 were at increased risk of post-traumatic stress. Losses of pregnancies are a frequent occurrence but the psychological consequences are usually disregarded. Some of the factors that lead to the development of psychological morbidity are younger age, low level of education, history of psychiatric disease, lack of social support, being single or poor marital adaptation, previous pregnancy losses, later gestational age, induced miscarriage, and surgical interventions [12]. Local literature on postnatal depression that occur following pregnancy loss and factors that affect its occurrence is paucity in number where no study has been published on its prevalence in Pakistani population [13]. It is hence relevant to carry out a research to establish the prevalence of postnatal depression and predictors of depressive morbidity following pregnancy loss.

Objective

To determine the frequency of postnatal depression and evaluate the determinants of depressive illness among women following pregnancy loss.

METHODOLOGY

This was a hospital-based cross-sectional study conducted at Obstetrics and Gynaecology Department of Services Hospital, Lahore and SKBZ/CMH Muzzafarabad from July 2025 to October 2025. A total of 145 participants were included. The sample size was calculated using the single population proportion formula with a 95% confidence level, 6% margin of error, and expected percentage of postnatal depression in women with pregnancy loss as 15.3% [14]. Data were collected through non-probability purposive sampling technique.

Inclusion Criteria:

- Women with premature expulsion of an embryo up to 23 weeks of gestation and fetal weight less than 500 grams
- Women who experienced miscarriage or pregnancy loss within the past three months (primi- or multi-gravida)
- Age between 18 and 45 years

Exclusion Criteria:

- Women with pre-existing psychiatric morbidity prior to abortion or pregnancy loss
- Women with concomitant gynecological disorders such as fibroids, endometriosis, or polycystic ovarian disease
- Women currently taking psychiatric medications
- Women unwilling to provide informed consent

Data Collection

Formal permission was obtained from the institutional ethical review committee prior to initiation of the study. Written informed consent was obtained from all participants. Confidentiality and privacy were ensured throughout the study in accordance with the principles of the Declaration of Helsinki. A structured, pretested pro forma was used for data collection. Participants were interviewed by the principal investigator. Demographic and clinical variables recorded included age, educational status, employment status, monthly family income, residential area, parity, pregnancy type (intended or unintended), history of pregnancy loss, family support, husband support, and other relevant obstetric information. Depressive symptoms were assessed at six weeks postpartum using the Edinburgh Postnatal Depression Scale (EPDS), a validated 10-item self-report questionnaire. Each item is scored on a four-point scale, yielding a total score ranging from 0 to 30. A score of 10 or above was considered indicative of possible postnatal depression. The dependent variable was postnatal depression (EPDS score $\geq$ 10). Independent variables included sociodemographic, obstetric, and psychosocial determinants.

Data Analysis

Data were entered and analyzed using Statistical Package for Social Sciences (SPSS) version 25. Quantitative variables such as age, monthly income, and EPDS score were expressed as mean ± standard deviation. Qualitative variables were summarized using frequencies and percentages. Associations between postnatal depression and independent variables were assessed using the Chi-square test for categorical variables and independent sample t-test for continuous variables. A p-value ≤ 0.05 was considered statistically significant.

RESULTS

The mean age of participants was 29.8 ± 6.4 years, with most women clustered between 26–35 years (52.4%), followed by ≤25 years (26.2%) and >35 years (21.4%). More than half had education ≤ matric (58.6%), the majority were housewives (71.7%), and slightly over half lived in urban areas (55.9%). Income distribution was fairly even, though 31.7% belonged to low-income households. The mean number of children was 2.1 ± 1.3.

Table 1. Baseline Demographic Characteristics of Participants (n = 145)

Variable	Value
Age (years), Mean ± SD	29.8 ± 6.4
≤25 years	38 (26.2%)
26–35 years	76 (52.4%)
>35 years	31 (21.4%)
Education ≤ Matric	85 (58.6%)
Education > Matric	60 (41.4%)
Housewife	104 (71.7%)
Employed	41 (28.3%)
Urban residence	81 (55.9%)
Rural residence	64 (44.1%)
Monthly income – Low	46 (31.7%)
Monthly income – Middle	46 (31.7%)
Monthly income – High	53 (36.6%)
Number of children, Mean ± SD	2.1 ± 1.3

Miscarriage was the predominant form of pregnancy loss, affecting 92 women (63.4%), while ectopic pregnancy accounted for 21.4% and medical termination/IUD-related loss for 15.2%. One-third (33.8%) had a history of previous pregnancy loss. Most pregnancies were intended (60.7%). The average gestational age at loss was 11.9 ± 4.3 weeks, and assessment occurred about 6.3 ± 1.1 weeks post-loss. These findings show that early first-trimester spontaneous loss was the most common clinical scenario.

Table 2. Obstetric and Pregnancy Loss Profile (n = 145)

Variable	Value
Miscarriage	92 (63.4%)
Ectopic pregnancy	31 (21.4%)
Medical termination/IUD	22 (15.2%)
Previous pregnancy loss present	49 (33.8%)
No previous loss	96 (66.2%)
Intended pregnancy	88 (60.7%)
Unintended pregnancy	57 (39.3%)
Gestational age at loss (weeks), Mean ± SD	11.9 ± 4.3
Time since loss (weeks), Mean ± SD	6.3 ± 1.1

Family support was present in 75.2% and husband support in 80.0% of women, yet despite this, the mean EPDS score was relatively high at 11.6 ± 5.2 (range 2–24). Using the ≥10 cut-off, 58 women (40.0%) screened positive for postnatal depression, while 60.0% did not. So basically, nearly 2 out of every 5 women experienced depressive symptoms — which is not minor, it's clinically heavy and definitely not something to ignore.

Table 3. Psychosocial Support and EPDS Scores (n = 145)

Variable	Value
Family support present	109 (75.2%)
No family support	36 (24.8%)
Husband support present	116 (80.0%)
No husband support	29 (20.0%)
EPDS score, Mean ± SD	11.6 ± 5.2
EPDS score range	2–24
Postnatal depression (EPDS ≥10)	58 (40.0%)
No depression	87 (60.0%)

Depression was more common among younger women, with 34.5% of depressed participants aged ≤25 years compared to 20.7% in the non-depressed group ($p = 0.041$). Low education was strongly linked, affecting 70.7% of depressed versus 50.6% of non-depressed women ($p = 0.018$). Housewives showed higher depression rates (79.3% vs. 66.7%, $p = 0.049$), and low income was more frequent among depressed participants (39.7% vs. 26.4%, $p = 0.006$). In short: younger age + lower education + financial stress = higher depression risk. The socioeconomic gradient is very clear here.

Table 4. Association of Sociodemographic Factors with Postnatal Depression

Variable	Depression (n=58)	No Depression (n=87)	p-value
Age ≤25 years	20 (34.5%)	18 (20.7%)	0.041
Age >25 years	38 (65.5%)	69 (79.3%)	
Education ≤ Matric	41 (70.7%)	44 (50.6%)	0.018
Education > Matric	17 (29.3%)	43 (49.4%)	
Housewife	46 (79.3%)	58 (66.7%)	0.049
Employed	12 (20.7%)	29 (33.3%)	
Low income	23 (39.7%)	23 (26.4%)	0.006
Middle/High income	35 (60.3%)	64 (73.6%)	

Previous pregnancy loss was reported in nearly half of depressed women (46.6%) compared to 25.3% without depression ($p = 0.009$). Unintended pregnancy showed a strong association (55.2% vs. 28.7%, $p = 0.002$). Lack of family support (43.1% vs. 12.6%) and lack of husband support (36.2% vs. 9.2%) were among the strongest predictors (both $p < 0.001$). Mean EPDS scores sharply differed between groups (16.8 ± 3.4 vs. 8.2 ± 2.6, $p < 0.001$), showing a clear clinical separation. Translation: psychosocial support is basically the make-or-break factor — absence of support massively amplifies depression risk.

Table 5. Association of Obstetric & Psychosocial Determinants with Postnatal Depression

Variable	Depression (n=58)	No Depression (n=87)	p-value
Previous pregnancy loss	27 (46.6%)	22 (25.3%)	0.009
No previous loss	31 (53.4%)	65 (74.7%)	
Unintended pregnancy	32 (55.2%)	25 (28.7%)	0.002
Intended pregnancy	26 (44.8%)	62 (71.3%)	
No family support	25 (43.1%)	11 (12.6%)	<0.001
Family support present	33 (56.9%)	76 (87.4%)	
No husband support	21 (36.2%)	8 (9.2%)	<0.001
Husband support present	37 (63.8%)	79 (90.8%)	
EPDS score (Mean ± SD)	16.8 ± 3.4	8.2 ± 2.6	<0.001

DISCUSSION

The current paper evaluated the prevalence of postnatal depression and determinants of postnatal depression in females who had pregnancy loss and revealed that 40 percent of the participants tested positive with depressive symptoms based on Edinburgh Postnatal Depression Scale. This ratio is a sign of a significant psychological load and indicates that postpartum depression following the loss of a pregnancy could be as high as or greater than postpartum depression following a live birth. All these discoveries help to highlight that miscarriage and ectopic pregnancy do not just exist as physical phenomena but are also considered significant sources of mental health stressors [16]. The average age of the subjects was 29.8 SD 6.4 years and majority of the subjects fell between 26-35 years. Depression was more common amongst younger women than it was in the older participants. This tendency could be connected with the lack of coping, higher levels of emotional vulnerability, and social or family pressure to conceive at younger ages. Past studies have also indicated that younger women with adverse reproductive outcomes were also found to have increased psychological distress [17].

The sociodemographic traits were clearly connected with depressive symptoms. Women who lacked education and were unemployed as well as those who had a low level of household income were more affected. Money problems and ignorance in regards to mental health services can also lead to continued stress and delay in seeking help. The observations are not new to the literature of developing environments because prior studies have repeatedly shown that socioeconomic disadvantage is a powerful predictor of postpartum and post-loss depression. As per obstetric profile, miscarriage was the most frequent form of pregnancy loss, followed by ectopic pregnancy. The rates of depression among women who had a history of pregnancy loss in the past were much higher than the ones who had none. The recurrent loss can exacerbate grief, fear of infertility in the future and even emotional burnout, making the individual more susceptible to depressive illness. Prior studies have associated repeated pregnancy loss with poor psychological outcomes [18].

One of the strongest determinants has been psychosocial support. Higher rates of depression were significantly recorded in the participants who did not have family or husband support. Lack of emotional support and mutual coping with the occurrence of a stressful event may aggravate isolation and hopelessness. The literature on earlier studies also points out clearly that social and partner support is relevant in the prevention of depressive symptoms, which supports the relevance of family-focused interventions in these patients. Postnatal depression was also greatly related to unintended pregnancy. Women left with no pregnancy may develop ambivalence or guilt following a loss that may worsen emotional distress. This observation is supported by other studies that have linked unintended pregnancies and depression in comparative relationships. The average level of EPDS in the depressed group was significantly greater than in the control group of non-depressed women, which confirms the existence of a clinical difference between the groups and proves the usefulness of the EPDS in screening the target population. It is in line with the earlier studies that the scale is reliable in early detection of postnatal depressive

symptoms [19]. The study presents valuable local evidence in the area of an under-acknowledged issue, though it does not allow any causal inference due to the cross-sectional design, and it might be limited in terms of generalizability of the single-center context. It adds some valuable understanding of the burden and determinants of postnatal depression in women who have suffered pregnancy loss and outlines the necessity of providing a structured mental health assistance to the risk group [20]. This research study has a number of limitations that ought to be taken into consideration when interpreting the results. The cross-sectional design limits the possibility to determine the causal relationships between pregnancy loss and depressive symptoms only associations can be detected. Since the study was carried out in one tertiary care hospital with a relatively small sample size, it might not be entirely applicable on the rest of the community, especially women in rural or underrepresented regions. The self-reported Edinburgh Postnatal Depression Scale was used to measure the depressive symptoms instead of a real psychiatric diagnosis interview, which could have involved over- or under-estimating the prevalence of real depression. Also, there are recall bias and social desirability bias that might have affected the responses of the participants about obstetric history and psychosocial support and some factors that might be confounding like marital stress or intimate partner violence were not assessed. Nevertheless, the constraints do not diminish the significance of the study in supplying local data on an under-reported problem in mental health and the necessity of conducting additional extensive, prospective investigations.

CONCLUSION

It is concluded that postnatal depression is a common and clinically significant problem among women experiencing pregnancy loss, with a substantial proportion demonstrating depressive symptoms during the post-loss period. Sociodemographic disadvantages, previous pregnancy loss, unintended pregnancy, and inadequate family or spousal support were identified as important determinants of depressive illness. These findings highlight the need for routine psychological screening, early counseling, and structured psychosocial support for women following miscarriage or ectopic pregnancy, particularly in resource-limited settings.

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