Original article

Frequency of Postpartum Depression among Women with Placenta Accreta Spectrum with and without Hysterectomy

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ABSTRACT

Background: Women with placenta accreta spectrum (PAS) are at increased risk for postpartum depression (PPD). Prevalence of postpartum depression in women with placenta accreta spectrum is 50% whereas the general prevalence is 21%. This suggests a significant impact of PAS on maternal mental health. The objective of this study is to evaluate the risk of PPD among women with and without hysterectomy in PAS.

Methods: This comparative cross-sectional study was conducted at Department of Obstetrics & Gynecology, Jinnah Hospital, Lahore from June to December 2024. A total of 168 women with placenta accreta spectrum were included in the study. Hysterectomy was only done in those patients where all the uterine conservative techniques failed. The Edinburgh postpartum scale (EPDS) was used to assess the risk of postpartum depression in both groups. Data was analyzed in SPSS. Quantitative variables were presented as means + SD. Frequency and percentages were calculated for qualitative variables. Cross tabulation was made for EPDS for the independent variable. A chi-square test was applied, with $p < .05$ as statistical significance.

Results: This study analyzed 168 women with placenta accreta spectrum, divided into hysterectomy and non-hysterectomy groups. Although the overall prevalence of depression was high in both groups, the severity of symptoms was greater in the hysterectomy group (p=0.043).

Conclusion: The risk of postpartum depression is high in women with placenta accreta spectrum undergone hysterectomy as compared to those without hysterectomy.

Keywords:
Edinburgh Postpartum Depression Scale**,** Postpartum depression, Placenta accreta spectrum.

INTRODUCTION

Placenta accreta spectrum is a life-threatening obstetric condition characterized by abnormal placental adherence. It involves a range of pathological conditions where placenta adheres to or invades the uterine wall with varying degrees including placenta accreta where placental villi adhere to myometrium, placenta increta where the placental tissue invades deeper into the myometrium and percreta where it penetrates through the myometrium, uterine serosa and invades adjacent organs, commonly bladder.[1] Over the past four decades, the cesarean section rate has increased drastically from 10% to 30%, resulting in a tenfold rise in the incidence of placenta accreta spectrum. [2] Among women with placenta accreta spectrum the prevalence of postpartum depression can reach up to 50%, which is up to 21% in general population.[3,4] Placenta accreta spectrum can lead to significant maternal morbidity and mortality due to hemorrhage, organ damage and surgery related complications.[5] While PAS itself can be traumatic, the need for a hysterectomy, particularly an emergency one to save life in view of life-threatening hemorrhage, can heighten the risk of negative mental health impacts and is associated with 40-50% morbidity and 7-10% mortality. This is likely due to factors like prolonged bleeding, emergency interventions, and the loss of future fertility.[6] A local study found higher depression risk among women who underwent hysterectomy due primarily to loss of future fertility.[7] To the best of our knowledge, no study from Pakistan has specifically examined the prevalence of postpartum depression among women with placenta accreta spectrum. This study addresses this gap by evaluating the risk of postpartum depression in women with placenta accreta spectrum, comparing outcomes in those managed with peripartum hysterectomy versus uterine conservation at Jinnah Hospital, Lahore.

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PATIENTS AND METHODS

A comparative cross-sectional study was conducted in the Department of Obstetrics and Gynecology Jinnah Hospital Lahore from June to December 2024. Ethical approval was sought from the ethical review board of Allama Iqbal Medical College/Jinnah Hospital Lahore (ERB164/10/16-05-2024/S1ERB).

Women diagnosed with placenta accreta spectrum at or beyond 28 weeks of gestation, regardless of parity, undergoing C-section were included. PAS diagnosis was based on preoperative ultrasound or intraoperative finding. Patients with known psychiatric history, incomplete records, or loss of follow-up were excluded. Patients undergoing peripartum hysterectomy for causes unrelated to PAS were also excluded.

A sample of 168 was calculated with WinPepi to estimate a mean with a confidence level of 95%, a power of study of 80%, with sample ratio BA of 1 to detect a difference of 1, assuming scores on the Edinburgh post-natal depression scale in Group A (hysterectomy group) of 11.61±2.48 and in Group B (non-hysterectomy group) of 6.79±2.13.[8]

Patients were selected through a non-probability/ consecutive sampling with placenta accreta spectrum diagnosed using standard ultrasonographic features such as placental lacunae, loss of the retroplacental clear zone, myometrial thinning, and increased vascularity, consistent with FIGO criteria. Categorization into accreta, increta, or percreta was done based on intraoperative findings. Difficulty or inability to separate the placenta manually after delivery of the fetus, excessive bleeding from the placental bed after attempted removal or presence of placental tissue visible outside the uterine serosa (in percreta) were used to diagnose PAS intraoperatively.[9] In patients lacking antenatal imaging, especially those presenting in emergency, PAS was diagnosed intra-operatively when the placenta failed to separate from the uterine wall.

Conservative surgical techniques included focal resection of the adherent placental site, bilateral uterine artery ligation, B-Lynch sutures in the presence of uterine atony, A. Chohan Continuous Squeezing Suture (ACCSS) and direct suturing of the placental bed. Placenta left in situ and embolization were not practiced due to safety concerns and unavailability, respectively. Peripartum hysterectomy was performed in cases of life-threatening hemorrhage, confirmed percreta, failure of conservative measures, or when the woman had completed her family. All surgeries were performed by senior consultants or assistant professors in gynecologic surgery. Demographic and clinical data, including operative complications were recorded.

EPDS was administered by psychiatrist co-authors at 6 weeks postpartum. A validated Urdu version was used, and interviews were conducted in person at follow-up visits or via telephone when necessary. A score of ≥12 on EPDS was considered positive for risk of postpartum depression. Women screening positive were referred to a psychiatrist for further evaluation and management

Data was entered and analyzed in SPSS ver. 21.0. Quantitative variables like Edinburgh depression scale scoring, were presented as Means + SD. Frequency and percentages were calculated for qualitative variables. Cross tabulations were done for EPDS and independent variables. A chi-square test was applied to assess statistical significance with $p<0.05$ as statistical significance.

RESULTS

This study analyzed 168 women with placenta accreta spectrum for the development of postpartum depression. Patients who undergone hysterectomy despite every effort to save uterus ware labelled as Group A and Group B represented the non-hysterectomy group. Socio-demographic profiles of respondents are shown in Table 1. Most women in the hysterectomy group were above 30 years 55 (65.5%), while the majority in the non-hysterectomy group were under 30 years 68 (81.0%). Planned pregnancies were reported by 72 (85.7%) women in the hysterectomy group and 80 (95.2%) in the non-hysterectomy group. Breastfeeding was significantly lower in the hysterectomy group 55(34.5%) compared to non-hysterectomy group 29 (83.3%) ($p = 0.000$), likely due to delayed post op recovery, surgical complications, death of infant or psychological distress.

Postpartum depression (EPDS >12) was present in 72 (85.7%) women in the hysterectomy group and 64 (76.2%) in the non-hysterectomy group ($p = 0.116$), but mean EPDS scores were significantly higher in the Hysterectomy group (17.64 ± 5.44 vs. 15.80 ± 5.95; $p = 0.043$) (Figure 1). Cross-tabulation analyses further highlighted the key associations (Table 4). A significant relationship was observed between postpartum depression and the gender of the newborn ($p=0.000$), with all mothers of male infants in hysterectomy Group exhibiting depression. Among mothers of female infants' depression was more prevalent in the Hysterectomy group (72.1% vs. 27.9%; $p = 0.038$. All women with unplanned pregnancies (16/16, 100%) and those unable to breastfeed (69/69, 100%) exhibited symptoms of depression (both $p = 0.000$). Neonatal death, reported in 23.8% of the Hysterectomy group versus 4.8% of the non-hysterectomy group, may represent a confounding factor for postpartum depression. Unplanned pregnancies were also significantly

Table 1: Socio-demographic profile of respondents

Characteristics	Group A (Hysterectomy)		Group B (Non Hysterectomy)	
	Frequency	Percentage	Frequency	Percentage
Age Respondent				
< 30 years	29	34.5%	68	81.0%
> 30 years	55	65.5%	16	19.0%
Education Respondent				
Bachelor	12	14.3%	17	20.2%
Intermediate	16	19.0%	22	26.2%
Masters	4	4.8%	16	19.0%
Matric	22	26.2%	21	25.0%
Under Matric	22	26.2%	8	9.5%
Uneducated	8	9.5%	0	0.0%
Occupation Respondent				
Domestic / Housewife	80	95.2%	76	90.5%
Job	4	4.8%	8	9.5%
Household Income				
Rs: ≤ 25000	31	36.9%	12	14.3%
Rs: 25001 – 50000	53	63.1%	56	66.7%
Rs: 50001 – 75000	0	0.0%	8	9.5%
Rs: > 75000	0	0.0%	8	9.5%
Residential Status				
Rural	60	71.4%	36	42.9%
Urban	24	28.6%	48	57.1%
Family System				
Nuclear	22	26.2%	20	23.8%
Joint	62	73.8%	64	76.2%

Table 2: Comparison of Clinical Parameters of Respondents

Characteristics	Group A (Hysterectomy)		Group B (Non-Hysterectomy)	
	Frequency	Percentage	Frequency	Percentage
Gender of the newborn baby				
Boy	41	48.8%	72	85.7%
Girl	43	51.2%	12	14.3%
Gender of your wish or not?				
Yes	72	85.7%	55	65.5%
No	12	14.3%	29	34.5%
Planned/unplanned pregnancy				
Planned	72	85.7%	80	95.2%
Unplanned	12	14.3%	4	4.8%
Complications				
No	38	45.2%	60	71.4%
Yes	46	54.8%	24	28.6%
Newborn Baby alive or not at the time of the interview				
Dead	20	23.8%	4	4.8%
Alive	64	76.2%	80	95.2%
Newborn Breastfed or not				
No	55	65.5%	14	16.7%
Yes	29	34.5%	70	83.3%

*Blood Transusion, Preterm delivery, transfusion reaction and bladder injuy. Any of four complications present was counted

Table 3: Edinburgh Postnatal Depression Scale among Group Cross tabulations

Edinburgh Postnatal Depression Scale N= 168	Group		Total	p value
	Group A (Hysterectomy)	Group B (Non-Hysterectomy)		
Normal / No Depression (EPDS Score < 12)	12 (37.5%)	20 (62.5%)	32 (100%)	0.116
Depression (EPDS Score > 12)	72 (52.9%)	64 (47.1%)	136 (100%)	

Table 4: Edinburgh postnatal depression scale among group characteristics cross tabulation

Characteristics	Edinburgh Postnatal Depression Scale	Group		Total	p-value
		Group A (Hysterectomy) n = 84	Group B (Non-Hysterectomy) n = 84		
Gender Wish					
Yes	Normal / No Depression (EPDS Score ≥ 12)	8 (33.3%)	16 (66.7%)	24 (100%)	0.010
	Depression (EPDS Score ≥12)	64 (62.1%)	39 (37.9%)	103 (100%)	
No	Normal / No Depression (EPDS Score < 12)	4 (50.0%)	4 (50.0%)	8 (100%)	0.151
	Depression (EPDS Score ≥ 12)	8 (24.2%)	25 (75.8%)	33 (100%)	
Gender of the newborn					
Boy	Normal / No Depression (EPDS Score < 12)	0 (0.0%)	20 (100%)	20 (100%)	0.000
	Depression (EPDS Score ≥ 12)	41 (44.1%)	52 (55.9%)	93 (100%)	
Girl	Normal / No Depression (EPDS Score < 12)	12 (100%)	0 (0.0%)	12 (100%)	0. 038
	Depression (EPDS Score ≥12)	31 (72.1%)	12 (27.9%)	43 (100%)	
Planned/unplanned pregnancy					
Planned	Normal / No Depression (EPDS Score < 12)	12 (37.5%)	20 (62.5%)	32 (100%)	0.208
	Depression (EPDS Score ≥ 12)	60 (50.0%)	60 (50.0%)	120 (100%)	
Unplanned	Normal / No Depression (EPDS Score < 12)	0 (0.0%)	0 (0.0%)	0 (0.0%)	----
	Depression (EPDS Score ≥12)	12 (75.0%)	4 (25.0%)	16 (100%)	
Newborn Baby					
Dead	Normal / No Depression (EPDS Score < 12)	20 (83.3%)	4 (16.7%)	24 (100%)	-----
	Depression (EPDS Score ≥12)	0 (0.0%)	0 (0.0%)	0 (0.0%)	
Alive	Normal / No Depression (EPDS Score < 12)	12 (37.5%)	20 (62.5%)	32 (100%)	0.370
	Depression (EPDS Score ≥12)	52 (46.4%)	60 (53.6%)	112 (100%)	
Breast Feeding					
No	Normal / No Depression (EPDS Score < 12)	0 (0.0%)	0 (0.0%)	0 (0.0%)	----
	Depression (EPDS Score ≥ 12)	55 (79.7%)	14 (20.3%)	69 (100%)	
Yes	Normal / No Depression (EPDS Score < 12)	12 (37.5%)	20 (62.5%)	32 (100%)	0.215
	Depression (EPDS Score ≥12)	17 (25.4%)	50 (74.6%)	67 (100%)	
Residential Status					
Rural	Normal / No Depression (EPDS Score < 12)	12 (50.0%)	12 (50.0%)	24 (100%)	0.144
	Depression (EPDS Score ≥12)	48 (66.7%)	24 (33.3%)	72 (100%)	
Urban	Normal / No Depression (EPDS Score < 12)	0 (0.0%)	2 (100%)	2 (100%)	0.034
	Depression (EPDS Score ≥12)	6 (40.0%)	9 (60.0%)	15 (100%)	

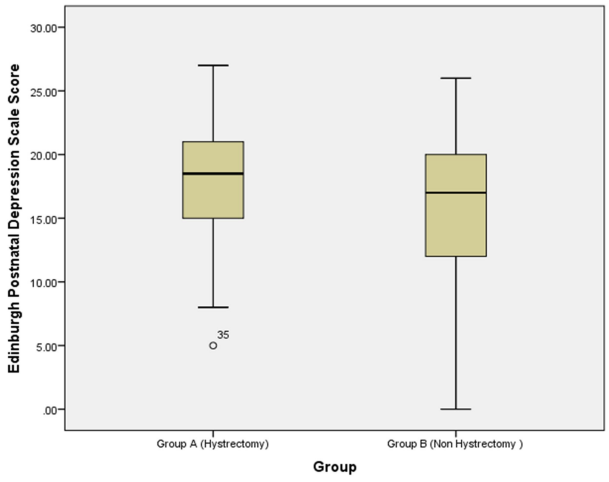

Figure 1: Box Plot for Edinburgh Postnatal Depression Scale

associated with depression, as all women with unplanned pregnancies exhibited depressive symptoms (p=0.000).

DISCUSSION

Placenta accreta spectrum has become increasingly common in recent decades, with an incidence of approximately 1 in 272 pregnancies in the United States in 2016.[3] Management of PAS can vary from uterine conservation to obstetric hysterectomy, with each having physical and psychological effects on the mother.[10] Although PAS has been extensively studied in terms of its physical morbidity and mortality, its impact on the mental health of the mother remains insufficiently addressed, especially in Pakistan. This study aimed to compare the frequency of PPD in women with PAS who underwent hysterectomy versus those managed by conservative surgery. The results of this study, using the Edinburgh Postnatal Depression Scale (EPDS), showed that 85% of women in the hysterectomy group and 76% in the non-hysterectomy group screened positive for risk of postpartum depression, defined as an EPDS score ≥12. Although this difference was not statistically significant, the difference in the mean EPDS scores between the two groups showed a significantly higher score in the hysterectomy group (p=0.043). This shows an alarmingly high burden of postpartum depression among women with placenta accreta spectrum who undergone hysterectomy. Other studies have also shown this trend of

adverse psychological outcomes in women diagnosed with placenta accreta spectrum. Prior research conducted on PTSD showed high trauma scores in women who were affected by abnormally invasive placenta and noted that the loss of fertility alone was not a significant predictor of trauma scores in affected women.[11] Another study noted that women with placenta accreta spectrum commonly experience sexual dysfunction, and this trend was similar regardless of whether they underwent hysterectomy.[8] Several factors could contribute to the observed mental health outcomes in women with placenta accreta spectrum. Anticipation of life-threatening events, major surgery with the possibility of complications like bladder and bowel damage, multiple blood transfusions, preterm delivery, and hysterectomy in addition to a prolonged hospital stay can all contribute to the above-mentioned psychological effect.[12,13] Additionally, high complications in both groups and low socioeconomic status may have contributed to high depression in both groups.[14,15] Women who were unable to breastfeed had significantly higher rates of depression (p=0.000). The lower breastfeeding rate in the hysterectomy group (34.5% vs. 83.3%) may have further contributed to their psychological distress, as studies have demonstrated that mothers who exclusively breastfeed show lower rates of depressive symptoms.[16]

The findings underscore the importance of integrating mental health support into the management of PAS. Given the serious consequences of postpartum depression on maternal and child health, healthcare providers must prioritize mental health in treatment plans for women with PAS.[17]

CONCLUSION

This study emphasizes on the complex role of biological, psychological, and sociocultural factors in postpartum depression among women with placenta accreta spectrum. While hysterectomy was associated with more severe depressive symptoms, gender preference, unplanned pregnancies, birth outcome and breastfeeding difficulties also played significant roles in maternal mental health.

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