

# Association between Hypertensive Disorders in Pregnancy and Postpartum Mental Health

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## ABSTRACT

**Aim:** To determine the relation between prevalence of Postpartum Depression and varying degrees of severity of Hypertensive Disorders in Pregnancy.

**Study design:** A cross sectional study .

**Place & duration of study:** Department of Obs. & Gynae, Avicenna Hospital, Lahore from June 2020 to December 2021.

**Methodology:** A total of 220 women with and without hypertensive disorders of pregnancy (110 in each group) delivered during this period were enrolled in the study. A survey in the post partum period from second to sixth week postpartum was carried out. It was done according to the Edinburgh Postnatal Depression Scale (EPDS) to assess the effect of severity of Hypertensive disorders of pregnancy to develop new-onset postpartum depression.

**Results:** 220 women were enrolled in the study. Among them Forty five women showed sign and symptoms of post partum depression. On the other hand 175 had no manifestation of depression according to the scale. The prevalence of PPD was 27 % (30/110) in women with hypertensive disorders, being twice the value in normotensive subjects (13.6%). The risk of Post partum depression surged with the aggressiveness of hypertensive disease in pregnancy.

**Conclusion:** Preeclampsia has an independent association with Post partum depression. The risk of Post partum depressive disorder seemed to increase with the rising severity of hypertension in pregnancy. Therefore support and additional preventive strategies should be planned for women with Preeclampsia to reduce the likelihood of Post partum deterioration of mental health.

**Keywords:** Hypertensive disorders in Pregnancy, Preeclampsia , Postpartum Depression.

## INTRODUCTION

Postpartum depression is a devastating psychological ailment affecting approximately 6.5% to 19% women globally. Although evidence is minimal but Pakistan has one of the highest prevalence rates in Asia of about 28% to 63%. Despite its mortifying implications for the woman and the family, Postnatal depression remains one of the most under assessed conditions among women<sup>1</sup>.

It often leads to deterioration of maternal functioning and also has a direct effect on the nutrition, health and cognitive development of the infant<sup>2</sup>. There is also evidence of association between postnatal depression and psychopathology of both mother and the child. It also interferes with the bonding between mother and infant as well as the care of this infant and siblings.

The Etiology of PPD encompasses complex pathophysiological phenomenon and is more likely to be caused by a combination of genetic neuro-endocrine and psychosocial factors. Other factors include history of psychiatric illnesses, drug abuse, history of psychiatric illnesses, untoward events in life events and antenatal anxiety.

Hypertension in pregnancy especially in its severest form (pre eclampsia and eclampsia)<sup>3</sup> is a major cause of morbidity and mortality for both the mother and fetus<sup>4</sup>. However one of the effects of hypertension which remains essentially under addressed is its implications in the development of PPD<sup>5,6</sup>.

This study was conducted to address this important relation in the patients who presented themselves for the study in Avicenna Medical College between June 2020 and December 2021.

## METHODOLOGY

This cross-sectional study was conducted in the hospital setting of Avicenna medical college and hospital in the department of Obs and Gynae for from June 2020 to December 2021 after permission from Hospital Ethical Committee. Informed consent was obtained from the participants. Inclusion criteria were as follows; women who suffered from hypertensive disorders of varying degrees of

severity in the ante partum, intra partum and postpartum period (Group A). Women who were not diagnosed with hypertensive disorders were included in the control group (Group B). The pregnant women who delivered after 28 weeks of gestation by caesarean section or vaginal delivery and the baby was alive at the time of study. Exclusion criteria was: subject with a past history or family history of postpartum depression ,obstetric complications other than hypertensive disorders having a depressive or psychiatric illness, women having a still born baby or perinatal death.

The women were followed in postpartum clinic around six weeks after SVD or caesarean section. They were required to fill in a questionnaire form. The Edinburgh Postnatal Depression Scale is a self evaluation scale and has ten variables. Each variable is divided into 4 grades and scoring from 0-30 is done. Higher scores signifying more serious post partum depression.

The suggested threshold for Post partum depressive illness is in EPDS is 10 points. A score of  $\geq 10$  was considered to be positive for Post partum depressive illness in the current research.

Data regarding demographic characteristics, BMI in the antenatal period and mode of delivery was recorded. All women were segregated into cohorts with postpartum depressive illness and without postpartum depressive illness according to the results of EPDS screening. The data was assessed using SPSS 20.0.

EPDS Score	Interpretation	Action
Less than 8	Depression not likely	Continue support
9– 11	Depression possible	Support, re-screen in 2–4 weeks. Consider referral to primary care provider (PCP).
12–13	Fairly high possibility of depression	Monitor, support and offer education. Refer to PCP.
14 and higher (positive screen)	Probable depression	Diagnostic assessment and treatment by PCP and/or specialist.
Positive score (1, 2 or 3) on question 10 (suicidality risk)		Immediate discussion required. Refer to PCP ± mental health specialist or emergency resource for further assessment and intervention as appropriate. Urgency of referral will depend on several factors including: whether the suicidal ideation is accompanied by a plan, whether there has been a history of suicide attempts, whether symptoms of a psychotic disorder are present and/or there is concern about harm to the baby.

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**RESULTS**

A total of 110 subjects with varying degrees of hypertensive disorders fulfilled the inclusion criteria. 110 normal pregnant subjects were randomized as the control group. Finally 220 women presented themselves and completed the questionnaires provided. They were segregated as subjects with post partum depression and women without post partum depression groups if they screened positive for EPDS. As shown in Table 1, 45 subjects screened positive for PPD and remaining 175 were screened negative. The difference of gravidity, age, BMI, parity before delivery, mode of delivery, neonatal weight, and premature birth did not have a significant impact on the incidence of PPD in both the cohorts. However, in the cohort with postpartum depressive illness 30 women had hypertension with a much greater incidence than in the NO-PPD cohort, where 80 women suffered from one or another form of hypertension .30/45 vs. 80/175 p value=0.015). Thus establishing the fact that severe hypertension may be regarded as a risk factor for postpartum depression.

Table-1: Group-A (n=110)

Variables	n	PPD among Patients (30)	PPD among patients%
Gestational HTN	35	6	20
Pre eclampsia	30	9	30
PIH with Super imposed Pre eclampsia	25	8	32
Eclampsia	20	7	35

Graph 1: PPD among patients%

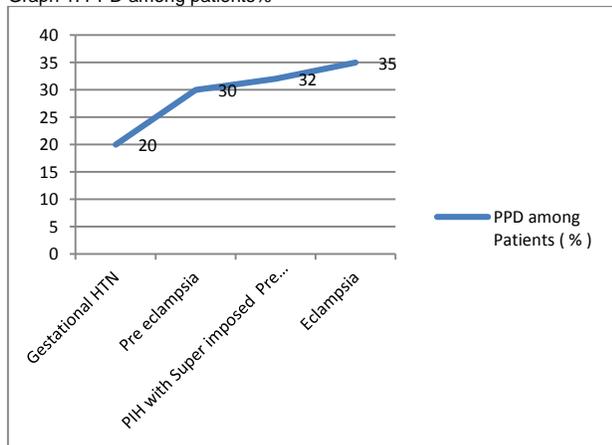


Table-2 Group-A (n=110)

Variables	n	NO PPD Patients (80)	NO PPD Patients%
Gestational HTN	35	29	80
Pre eclampsia	30	21	70
PIH +Superimposition of Pre eclampsia	25	17	68
Eclampsia	20	13	65

Table-3 Group-B

Variables	n	PPD among Patients	PPD among Patients%
	110	15	13.7

Table-4 Group-B

Variables	n	NO PPD among Patients	NO PPD among Patients%
	110	95	86.3

Table 5:

Variables	PPD Cohort (n=45)	NO-PPD Cohort (n=175)	P value
Hypertensive women	30	80	0.015

**DISCUSSION**

The current research indicated the prevalence of postpartum depression to be 27 % in subjects with hypertensive disorders with varying degrees of severity and 13% in the normotensive control group of women. These results are comparable to the study of Lichen and colleagues<sup>7</sup> where the incidence rates are found to be 26.67% and 12.22% respectively. There were two groups in both studies. One with the hypertensive disorders and the other being the control group. EPDS score of  $\geq 10$  was considered as the diagnostic standard for PPD in both the studies. **The Edinburgh Postnatal Depression Scale** is the most frequently implied post natal depression scale used in around 50% of health care facilities all over the world. In another study<sup>8</sup> incidence of PPD among the hypertensive subjects was found to be 30 % while the prevalence of Post partum depression among the control group was much lower at the rate of 14.58 % .These results are also comparable to our study. Diagnostic score on EPDS for PPD is the same as our study. In both of the above studies and the analysis of Caropreso L et al<sup>9</sup> there is a positive association between postpartum depression and pre-eclampsia and incidence of severity among the patients of pre-eclampsia which is essentially similar to our study.

While according to Denise et al<sup>10</sup> no statistical significant results are seen. However there was an association between postpartum depression and pre-eclampsia. The reason could be heterogeneity of the study methods. In most of the studies confounding control was poor and evidence was mixed, however an undeniable positive association was found among various forms of psychopathology and previous history of preeclampsia/ HELLP syndrome. In the study by Meeke Hoeljes et al<sup>11</sup>. The incidence of PPD was found to be 23% in patients suffering from mild pre-eclampsia and 44% in patients suffering from severe pre-eclampsia. This higher incidence of PPD as compared to the current study could be because of extended follow-up until 26 weeks postpartum. Another factor could be the perinatal death and NICU admission which may contribute to the dissimilarities in both these studies.

Furthermore it was also observed that the incidence of new onset PPD increases with the severity of hypertension. As shown by table 1 the gradual increase in the severity of the disease contributed to the increasing rate of incidence of PPD. The patients suffering from Gestational HTN, Pre-eclampsia, PIH +Superimposed Pre-eclampsia and eclampsia had an ascending rate of incidence of PPD of 20%, 30%, 32% and 35% respectively. This clearly indicates the increasing chance of Postpartum depression as the gravity of hypertension in pregnancy increases.<sup>12</sup>

**CONCLUSION**

The risk of postpartum depressive illness was found to increase with the increasing severity of hypertension. The results of this study calls for an immediate effort to reduce the severity of hypertension through preventive and curative measure during antenatal period and to provide social support to women in their postpartum period. Conscious effort should also be made for a proper surveillance to find the severity of the problem in our society.

**Conflict of interest:** Nil

**Authors contribution:** MS: Study design, Data analysis and interpretation, FG: Data collection, Critical Analysis, SS: Literature review

**REFERENCES**

1. A. Gaillard, Y. Le Strat, L. Mandelbrot, H. Keita, and C. Dubertret, "Predictors of postpartum depression: Prospective study of 264 women followed during pregnancy and postpartum," *Psychiatry Resea rch*, vol. 215, pp. 341–346, 2014. View at: Publisher Site | Google Scholar
2. R. C. Kessler, P. Berglund, O. Demler et al., "The epidemiology of major depressive disorder: results from the National Co morbidity Survey Replication (NCS-R)," *Journal of the American Medical*

- Association, vol. 289, no. 23, pp. 3095–3105, 2003. View at: Publisher Site | Google Scholar
3. American College of Obstetricians and Gynecologists and Task Force on Hypertension in Pregnancy, "Hypertension in pregnancy. Report of the American college of obstetricians and gynecologists' task force on hypertension in pregnancy," *Obstetrics and Gynecology*, vol. 122, no. 5, pp. 1122–1131, 2013. View at: Publisher Site | Google Scholar
  4. Y. Yogevev, O. Langer, L. Brustman, and B. Rosenn, "Pre-eclampsia and gestational diabetes mellitus: does a correlation exist early in pregnancy?" *The Journal of Maternal-Fetal & Neonatal Medicine*, vol. 15, no. 1, pp. 39–43, 2004. View at: Publisher Site | Google Scholar
  5. A. Pálincás, J. Sándor, M. Papp et al., "Associations between untreated depression and secondary health care utilization in patients with hypertension and/or diabetes," *Social Psychiatry and Psychiatric Epidemiology*, 2018. View at: Publisher Site | Google Scholar
  6. Z. Li, Y. Li, L. Chen, P. Chen, and Y. Hu, "Prevalence of depression in patients with hypertension: A systematic review and meta-analysis," *Medicine*, vol. 94, p. e1317, 2015. View at: Publisher Site | Google Scholar
  7. Li Chen, Xiaodan Wang et al., "Development of Postpartum Depression in Pregnant Women with Preeclampsia: A Retrospective Study" *BioMed Research International / Volume 2019 | Article ID 9601476 | https://doi.org/10.1155/2019/9601476* Published 27 Feb 2019
  8. Ying Ye<sup>1,2</sup>, Li Chen et al., "Preeclampsia and Its Complications Exacerbate Development of Postpartum Depression: A Retrospective Cohort Study". *Biomed Res Int.* 2021 Apr 22;2021:6641510. doi: 10.1155/2021/6641510. eCollection 2021.
  9. Caropreso L, de Azevedo Cardoso T, Eltayebani M, Frey BN. Preeclampsia as a risk factor for postpartum depression and psychosis: a systematic review and meta-analysis. *Arch Women's Mental Health*. 2020 Aug;23(4):493-505. doi: 10.1007/s00737-019-01010-1. Epub 2019 Dec 4. PMID: 31802249.
  10. Delahaije DH, Dirksen CD, Peeters LL, Smits LJ. Anxiety and depression following preeclampsia or hemolysis, elevated liver enzymes, and low platelets syndrome. A systematic review. *Acta Obstetric Gynecol Scand*. 2013 Jul;92(7):746-61. doi: 10.1111/aogs.12175. PMID: 23679343.
  11. Hoedjes M, Berks D, Vogel I, Franx A, Bangma M, Darlington AS, Visser W, Duvekot JJ, Habbema JD, Steegers EA, Raat H. Postpartum depression after mild and severe preeclampsia. *J Womens Health (Larchmt)*. 2011 Oct;20(10):1535-42. doi: 10.1089/jwh.2010.2584. Epub 2011 Aug 4. PMID: 21815820.
  12. B. Mbarak , C. Kilewo , S. Kuganda, Bruno F. Sunguya, "Postpartum depression among women with pre-eclampsia and eclampsia in Tanzania; a call for integrative intervention". *BMC Pregnancy and Childbirth* (2019) vol 19:270.