Remittances Review
June 2024,
Volume: 9, No: 3, pp.276-287
ISSN : 2059-6588(Print) | ISSN 2059-6596(Online)
Received : 20 May 2024, Accepted: 15 June 2024
DOI: https://doi.org/10.33282/rr.vx9i2.15

Postpartum Depression among Mothers: A Comparative Analysis of Gender, Birth Order, and Socioeconomic Status

Zunaira Naveed[1], Noshaba Razaq[2*].

1. Zunaira Naveed, Assistant Professor at Wah Medical College Texila (NUMS University)
2. Noshaba Razaq, PhD Scholar at the University of Haripur (Corresponding author)

ABSTRACT

Background: The study aims to investigate the presence of postpartum depression among women giving birth to boys against women giving birth to girl children, its relationship with birth order, and socio-economic status.

Method: 240 mothers delivering babies were approached from the hospitals. The age range of the sample was from 18-45 years. A purposive sampling technique was used based on a cross-sectional design. Edinburgh Post-natal Depressive Scale and demographic datasheet were used. T-test, Correlation, and Regression were applied.

Results: The findings revealed that women giving birth to a girl child are more depressed than the ones giving birth to a boy child; birth order is positively correlated to post-partum depression. Women from low socio-economic status are more depressed than the ones from the middle and upper classes. The age of the mother, year of marriage, socioeconomic status, and gender of the recent child have positive significant effects on low scores on EPDS. Where, the occupation of the mother, family structure, and birth order are negative predictors of low scores on EPDS. The results further reveal that birth order, years of marriage, and gender of recent child have positive significant effects on PPD. Where the age of the mother, occupation of the mother, family structure, and socioeconomic status are negative predictors of PPD.

Remittances Review
June 2024,
Volume: 9, No: 3, pp.276-287
ISSN : 2059-6588(Print) | ISSN 2059-6596(Online)
Conclusion: The current study will allow us to explore and identify the possible triggering factors of postpartum depression and take precautionary measures for women predisposed to postpartum depression by diminishing the contributing factors.
Key words. Post-partum depression, Gender of baby**,** socioeconomic status, birth order, family structure

INTRODUCTION

Postpartum depression (PPD) is broadly defined as an episode of major depression occurring during the perinatal period, which encompasses pregnancy and the first year postpartum, this mood disorder affects approximately 10% to 15% of women in developed countries (Kroska, & Stowe, 2020). Research highlights that during late pregnancy, around 17% of women experience significant depressive symptoms, while 18% of women in the immediate postpartum period also exhibit notable depressive symptoms (Wang, et al, 2021; Josefsson et al., 2001). According to a study by Gebregziabher (2020), These figures emphasize the importance of recognizing and addressing depressive symptoms early in both the prenatal and postnatal stages to ensure effective mental health care for new mothers and improve outcomes for both mothers and their infants (Gebregziabher et al., 2020).

Several risk factors for maternal depression have been identified, including a history of depression or psychiatric illness, depressive symptoms during pregnancy, gestational diabetes, and a lack of spousal and social support (Iris Agrawal et al., 2022). Stewart and Vigod (2016) observed that about 13% of women are affected by postpartum depression within a year of childbirth, posing significant risks to both the mother and her family. Although detecting high-risk women is possible, current prenatal screening tools have low positive prognostic values, and there is uncertainty regarding the optimal timing for screening and the applicability of these tools to various populations (Stewart, 2013). This condition can lead to severe consequences, including health risks for both the mother and infant, which may result in complications during delivery and negatively impact child development and well-being (Manso-Córdoba et al., 2020). Despite these

risks, many women suffering from postpartum depression are reluctant to seek help due to stigma or a lack of knowledge about the symptoms and the condition itself, which often prevents them from obtaining professional support (Manso-Córdoba et al., 2020).

Effective outcomes are achieved through depression screening combined with referral systems and well-structured plans. However, challenges such as time constraints, the stigma surrounding mental illnesses during pregnancy and postpartum, and insufficient or inadequate training during medical education hinder obstetricians' ability to detect these conditions early (Rennó Júnior et al., 2018). In a male-dominated culture, women giving birth to girls are more likely to develop postpartum depression due to societal beliefs that view the birth of a daughter less favorably. Factors such as the woman's age, family system, birth order of the baby, and socioeconomic status may also contribute to the development of postpartum depression (Noshaba, et al, 2020).

This study aims to investigate the prevalence of postpartum depression among women giving birth to boys compared to those giving birth to girls, while also examining demographic factors such as age, literacy level, birth order, socio-economic status, and family system to understand their roles in predicting postpartum depression and to compare the experiences of different groups that have developed postpartum depression.

Methodology

The research design adopted for this study is explanatory. The sample was selected using a purposive sampling technique. Data collection took place in various hospitals in Rawalpindi, specifically from the Gynecology wards of Railway Hospital, Benazir Bhutto Hospital, Central Hospital, Fauji Foundation Hospital, Military Hospital, the OPD of AFIMH, and the Psychiatry ward and OPD of Fauji Foundation Hospital.

A total of 240 women, who had filled out the questionnaires while delivering and being admitted in the Gynecology wards, were divided into two groups of 220 each based on their postpartum depression status to maintain sample homogeneity.

The demographic information collected included the participant's age, the gender of the baby, the birth order of the baby, the mother's socioeconomic status, and the mother's occupation.

Postpartum depression was measured using the Edinburgh Postnatal Depression Scale (EPDS) in both its Urdu and English versions. This scale, originally developed by Scottish health centers and later translated into Urdu, comprises 10 items. A cut-off score of 10 or higher indicates the presence of postpartum depression. The alpha reliability of this scale for this research was 0.89.

The researcher personally visited hospitals in Rawalpindi and Islamabad to administer the scale to women delivering and admitted to the Gynecology wards.

Data analysis involved scoring all questionnaires and identifying those with scores of 10 or higher as experiencing postpartum depression, while those with lower scores were categorized as not having postpartum depression. The data was subsequently analyzed using SPSS through correlation, regression, and t-test methods.

RESULTS

The total sample of this research is 240 women divided into two groups each having 120 participants one group shows postpartum depression while the other doesn't have postpartum depression.

Table I: Descriptive Statistics of Sample (n=240)

Demographic	**PPD Present**		**PPD Absent**	
	f	%	f	%
AGE				
20-30	75	62.5	81	67.5
30-40	45	37.5	39	32.5
Family system				
Nuclear	73	60.8	70	58.3
Joint	47	39.2	50	41.7
Birth order				
1-4	105	87.5	104	86.7
4-8	15	12.5	16	13.3

Demographic	PPD Present		PPD Absent	
Socioeconomic status				
Low	54	45.0	29	24.2
Middle	40	33.3	25	20.8
Upper	26	21.7	66	55.0
Job				
Working	38	31.7	66	55.0
Housewife	82	68.3	54	45.0
Recent childbirth				
Boy	38	31.7	71	59.2
Girl	82	68.3	49	40.8

Most participants, both with and without postpartum depression (PPD), are aged 20-30 years. The majority belong to nuclear families and are first to fourth born. Those with PPD are more likely from the lower (45.0%) and middle classes (33.3%), while those without PPD are mainly from the upper class (55.0%). More participants without PPD are working (55.0%), whereas more with PPD are housewives (68.3%). Regarding recent childbirth, those with PPD are more likely to have had a girl (68.3%), while those without PPD are more likely to have had a boy (59.2%). These findings highlight demographic differences associated with PPD.

Table II: Comparing birth of Gender of baby among mothers with postpartum depressive symptoms and mothers without postpartum depressive symptoms (n=240).

	n	Mean	S.D	Std. Error Mean
PPD total (PPD present)				
Boy	38	20.55	3.65	0.59
Girl	82	20.96	4.15	0.45
PPD total (PPD absent)				
Boy	71	5.56	1.86	0.22
Girl	49	5.79	1.63	0.23

Note: N= 240; PPD present = 120; PPD absent = 120

The results of Table II reveal that participants with postpartum depression (PPD) have much higher mean PPD scores (boys: 20.55, girls: 20.96) compared to those without PPD (boys:

	n	Mean	S.D	Std. Error Mean

5.56, girls: 5.79). Mothers who give birth to girls have slightly higher scores than mothers who give birth to boys. The standard deviation is higher in the PPD present group, indicating more variability in scores. The standard errors are low, suggesting reliable mean estimates. Overall, PPD scores are significantly higher in those with PPD, with minor gender differences within each group.

Table III: Independent Sample T-Test When Postpartum Depression is Present and Absent (N=240).

Condition	Mean	S.D	t	p	95% CI (LL)
Postpartum Depression (Present)	20.83	3.99	16.48	<0.001	-1.96
Postpartum Depression (Absent)	5.65	1.77			

The independent sample t-test shows a significant difference in PPD scores between the present and absent conditions. The mean score for those with PPD is 20.83 (S.D. = 3.99), while for those without PPD, it is 5.65 (S.D. = 1.77).

The t-value is -16.48 with a p-value less than 0.001, indicating a highly significant difference. The 95% confidence interval for the difference in means is from -1.96 to 1.14, which confirms that there is a significant difference in PPD scores between the two conditions.

***Table IV: Multiple Linear Regression Predicting Low Scores on EPDS from Recent Child, Number of Children Present, Occupation, Family Structure, Years of Marriage, Birth Order, and Age-String (n= 120*)**

Model	Unstandardized Coefficients	Standardized Coefficients	t	p
	B	Std. Error	β	
Constant	7.621	1.858		4.102
Age-string	.001	.058	.004	0.25
Occupation	-.415	.636	-.117	-1.235

Model	Unstandardized Coefficients	Standardized Coefficients	t	p
Years of Marriage	.081	.284	.047	.283
Family Structure	-.473	.359	-.132	-1.318
Birth Order	.462	.180	-.365	-2.568
Socio-economic Status	.010	.205	.005	.049
Recent Child	.304	.333	.085	.912
R^2	.078			
F	1.035			

The multiple linear regression analysis reveals that among the predictors of low scores on the Edinburgh Postnatal Depression Scale (EPDS), only birth order shows a statistically significant relationship with the outcome (β = -.365, t = -2.568, p = .012). This indicates that as the birth order increases, EPDS scores decrease.

None of the other variables, including age string, occupation, years of marriage, family structure, socioeconomic status, and recent child, show significant associations with EPDS scores.

The model explains only 7.8% of the variance in EPDS scores, as indicated by the R^2 value, and the overall model is not statistically significant (F = 1.035, p = .405).

Table-V: Multiple Linear Regression Predicting PPD from Recent Child, Number of Children Present, Occupation, Family Structure, Years of Marriage, Birth Order, and Age-String (n = 120).

Model	Unstandardized Coefficients	Standardized Coefficients	t	p
	B	**Std. Error**	**β**	
Constant	23.026	5.321		4.328
Age-string	-.002	1.215	-.001	-0.002
Occupation	-1.040	.832	-.122	-1.250
Years of Marriage	.172	.734	.037	.234
Family Structure	-.305	.800	-.037	-0.382

Birth Order	.048	.424	.017	0.113
Socio-economic Status	-.267	.494	-.053	-0.545
Recent Child	.427	.821	.050	0.520
R^2	.040			
F	.531			

The multiple linear regression analysis indicates that the model, including predictors such as birth order, recent child, years of marriage, age string, occupation, family structure, and socio-economic status, explains only 4.0% of the variance in postpartum depression (PPD) scores ($R^2 = .040$), and the overall model is not statistically significant ($F = .531$, $p = .821$). Among the predictors, the recent child shows a positive but non-significant effect on PPD ($\beta = .050$, $p = .604$), while birth order ($\beta = .017$, $p = .911$), years of marriage ($\beta = .037$, $p = .815$), and recent child ($\beta = .050$, $p = .604$) also show non-significant effects. The variables age-string, occupation, family structure, and socio-economic status have negative coefficients, but none of these predictors are statistically significant.

DISCUSSION

In the present study, a sample of 240 participants was analyzed to explore the relationship between postpartum depression (PPD) and demographic variables, including the gender of the baby. Data collection utilized the Edinburgh Postnatal Depression Scale (EPDS), which showed high reliability for measuring PPD across different participants, as confirmed by the alpha reliability coefficients ($\alpha = 0.89$). This indicates that the EPDS is a robust tool for assessing PPD in this research context (Cox et al., 1987).

Descriptive statistics revealed that among the 240 participants, 120 women were diagnosed with PPD, while the remaining 120 had low EPDS scores. Research shows that PPD is linked to various demographic factors. Most participants with and without PPD are aged 20-30, belong to nuclear families, and are first to fourth born. Those with PPD are more often from the lower (45.0%) and middle classes (33.3%), while those without PPD are mainly from the upper class (55.0%). More participants without PPD are working (55.0%), whereas more with PPD are housewives (68.3%). PPD sufferers are also more likely to have had a girl (68.3%), while those without PPD are more

likely to have had a boy (59.2%). These findings align with previous research on PPD (Dubey, et al, 2021; Hutchens & Kearney, 2020).

Notably, women with PPD who had given birth to girls had slightly higher EPDS scores (M = 20.96, SD = 4.15) compared to those who had given birth to boys (M = 20.55, SD = 3.65). Conversely, women with low EPDS scores who had girls had a mean score of 5.79 (SD = 1.63), whereas those with boys had a mean score of 5.56 (SD = 1.86). These findings are consistent with previous research that women who gave birth to girls are more likely to develop PPD than those who gave birth to boys, which aligns with research suggesting that the gender of the baby can influence maternal mental health (Noshaba et al., 2023; Rahmadhani & Laohasiriwong, 2020). However, this result contrasts with some studies that found no significant difference in PPD based on the baby's gender (Zangeneh, et al., 2009).

The T-test analysis confirmed a significant difference in PPD scores between women with and without PPD, with a t-value of -16.48 and a p-value less than 0.001, demonstrating a strong distinction between the two groups (Liu et al., 2022). This finding is consistent with previous research showing that women with PPD have significantly higher depression scores compared to those without PPD (Wang et al., 2021). However, it also indicates that the specific factors measured in this study might not fully capture all the elements contributing to PPD, suggesting that additional factors or different methodologies might be needed for a more comprehensive understanding of PPD.

Multiple linear regression analysis revealed that only birth order had a significant effect on EPDS scores, with higher birth order correlating with lower scores ($\beta = -0.365$, $p = .012$). This finding supports previous studies suggesting that women with higher birth orders might experience less severe PPD, potentially due to increased experience and coping mechanisms (Silva et al., 2021; Liu et al., 2022). However, this contrasts with studies such as those by Sachiko Baba and colleagues (2022), which found that factors such as parity do not significantly affect PPD.

Further analysis through multiple linear regression showed that age, years of marriage, and family structure did not have significant relationships with PPD ($\beta = .037, .017, .050$, respectively, $p > .05$). This finding challenges the expectations set by previous research that these variables would

be significant predictors of PPD (Inthaphatha et al., 2024). This discrepancy suggests that there may be more complex interactions at play or that other, unmeasured variables might be influencing PPD.

CONCLUSION

This study reveals that women with postpartum depression (PPD) are more likely to come from lower socioeconomic backgrounds, be housewives, and have given birth to a girl. The significant difference in PPD scores between women with and without PPD confirms that PPD has a substantial impact on maternal mental health. However, the predictors examined in the regression analyses, such as socioeconomic status and family structure, have limited effectiveness in explaining PPD outcomes. These findings highlight the need for more effective PPD screening tools and targeted interventions. Future research should explore additional factors and refine strategies to better support women at risk for PPD and improve maternal and child health outcomes.

Limitations and Suggestions

The following limitations however should also be noted while evaluating the study findings. There are some suggestions for future research. A limitation may be the use of only one scale for screening purposes, and the illiteracy of few participants. As the researcher had to read questions out of the scale this might have changed the context or altered the perceptions of the questions of participants, resulting in altered responses. The study was time and methodology-limited. Biological aspects and many other aspects such as trauma, marital satisfaction, perceived social support, and relationship with spouse can be possible triggering factors and are ignored in the study. Further cross-sectional research is required for the detailed study of the possible causes of postpartum depression. The current study helps us to identify the demographic risk factors that can cause postpartum depression in women. This will enable therapists to take care of women predisposed to postpartum depression by providing mental health care, ensuring the health and safety of the mother as well as the newborn.

REFERENCES

Kroska, E. B., & Stowe, Z. N. (2020). Postpartum depression: identification and treatment in the clinic setting. *Obstetrics and Gynecology Clinics*, *47*(3), 409-419.

Wang, Z., Liu, J., Shuai, H., Cai, Z., Fu, X., Liu, Y., ... & Yang, B. X. (2021). Mapping global prevalence of depression among postpartum women. *Translational psychiatry*, *11*(1), 543.

Josefsson A, Berg G, Nordin C, Sydsjö G (2001). Prevalence of depressive symptoms in late pregnancy and postpartum. Acta Obstet Gynecol Scand, 80 (03) 251-255 DOI: 10.1034/j.1600-0412.2001.080003251.x

Manso-Córdoba, S., Pickering, S., Ortega, M. A., Asúnsolo, Á., & Romero, D. (2020). Factors related to seeking help for postpartum depression: a secondary analysis of New York City PRAMS data. *International journal of environmental research and public health*, *17*(24), 9328.

Agrawal, I., Mehendale, A. M., & Malhotra, R. (2022). Risk factors of postpartum depression. *Cureus*, *14*(10).

Stewart, D. E., & Vigod, S. (2016). Postpartum depression. *New England Journal of Medicine*, *375*(22), 2177-2186.

Shovers, S. M., Bachman, S. S., Popek, L., & Turchi, R. M. (2021). Maternal postpartum depression: risk factors, impacts, and interventions for the NICU and beyond. *Current opinion in pediatrics*, *33*(3), 331-341.

Hutchens, B. F., & Kearney, J. (2020). Risk factors for postpartum depression: an umbrella review. *Journal of midwifery & women's health*, *65*(1), 96-108.

Razaq, N., Syed, M. A., Shah, N. H., Anwar, F., Khalid, O., & Moeez, J. (2023). Relationship of marital satisfaction and gender of baby with postpartum depressive women. *Rawal Medical Journal*, *48*(1), 253-253.

Cox, J. L., Holden, J. M., & Sagovsky, R. (1987). Detection of postnatal depression: development of the 10-item Edinburgh Postnatal Depression Scale. *The British journal of psychiatry*, *150*(6), 782-786.

Hutchens, B. F., & Kearney, J. (2020). Risk factors for postpartum depression: an umbrella review. *Journal of midwifery & women's health*, *65*(1), 96-108.

Dubey, A., Chatterjee, K., Chauhan, V. S., Sharma, R., Dangi, A., & Adhvaryu, A. (2021). Risk factors of postpartum depression. *Industrial Psychiatry Journal*, *30*(Suppl 1), S127-S131.

Rahmadhani, W., & Laohasiriwong, W. (2020). Gender of baby and postpartum depression among adolescent mothers in central Java, Indonesia. *International Journal of Child & Adolescent Health*, *13*(1).

Zangeneh, M., Shams Alizadeh, N., Kaamrvamanesh, M., Rezaie, M., & Pormehr, S. (2009). Postpartum depression and its relation to baby gender and unplanned pregnancy. *Scientific Journal of Kurdistan University of Medical Sciences*, *14*(2), 65-71.

Silva, R. S., Junior, R. A., Sampaio, V. S., Rodrigues, K. O., & Fronza, M. (2021). Postpartum depression: a case-control study. *The Journal of Maternal-Fetal & Neonatal Medicine*, *34*(17), 2801-2806.

Liu, T. C., Peng, H. C., Chen, C., & Chen, C. S. (2022, July). Mode of Delivery Is Associated with Postpartum Depression: Do Women with and without Depression History Exhibit a Difference? In *Healthcare* (Vol. 10, No. 7, p. 1308). MDPI.

aba S., Ikehara S., Eshak E.S., Ueda K., Kimura T., Iso H. (2021). Japan Environment and Children's Study Group Association between mode of delivery and postpartum depression: The Japan environment and children's study (JECS): A prospective cohort study. *J. Epidemiol.* Doi: 10.2188/jea.JE20210117.

Inthaphatha, S., Nishino, K., Takahashi, Y., Hamajima, N., & Yamamoto, E. (2024). Determinants of postpartum depression among women in Kampong Chhnang Province, Cambodia. Archives of Psychiatric Nursing, 50, 60-66.

Wang, Z., Liu, J., Shuai, H., Cai, Z., Fu, X., Liu, Y., ... & Yang, B. X. (2021). Mapping global prevalence of depression among postpartum women. *Translational psychiatry*, *11*(1), 543.