International Journal of Innovative Education Research 13(1):50-57, Jan.-Mar., 2025

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doi:10.5281/zenodo.14723327

Personal And Environmental Determinants Of Postpartum Depression Among Postnatal Women In Rivers State

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ABSTRACT
The study was on Personal and Environmental Determinants of Postpartum Depression among Postnatal Women in Rivers State. It adopted the ex-post facto in the study. The population of the study consisted of 3,241 postnatal mothers in the selected hospitals in Rivers State which includes University of Port Harcourt teaching Hospital (UPTH), Rivers State University Teaching Hospital, Military Hospital and Obio Cottage Hospital. The sample size for the study was 200 postnatal women drawn using non-proportionate and purposive sampling technique. Two instruments were used in the study including the "Determinants of Postpartum Depression Questionnaire" (DPDQ) and the "Edinburgh Postnatal Depression Scale" (EPDS). The validity of the instruments was determined by giving it to experts in Measurement for vetting. Cronbach Alpha method was used in determining the reliability of the instrument which yielded a reliability coefficient values of 0.81 and 0.71, respectively for "Determinants of Postpartum Depression Questionnaire" (DPDQ)" and "EPDS" respectively. Descriptive statistics involving simple percentage, mean, standard deviation as well as Pearson Product Moment Correlation were used to analyze the data collected in the process. Result showed that mode of delivery ($p=0.287>0.05$) as well as sex of the baby ($p=0.126>0.05$) had no significant influence on PPD. Based on this, it was recommended among others that maternity care providers should focus on comprehensive postpartum care, regardless of delivery mode. They should, including the partners prioritize emotional support and mental health screening.
Keywords: Mode of delivery, Baby Gender, Postpartum Depression, Postnatal women.

INTRODUCTION

The birth of a baby can start a variety of powerful emotions, from excitement and joy to fear and anxiety. It can also result in something one might not expect which is depression. Depression is a common but serious mood disorder. Depression symptoms can interfere with one's ability to work, sleep, study, eat, and enjoy one's life. Postpartum depression is an umbrella term, which encompasses several mood disorders that follow childbirth within 6 weeks. Most new mothers experience postpartum "baby blues" after childbirth, which commonly include mood swings, crying spells, anxiety and difficulty in sleeping. Having a baby is a life-changing experience. Being a parent is exciting but can also be tiring and overwhelming. It's normal to have feelings of worry or doubt, especially if one is a first-time parent. However, if one's feelings include extreme sadness or loneliness, severe mood swings and frequent crying spells, one may have postpartum depression (Robertson, Grace, Wallington & Stewart 2013).

According to World Health Organization (2018), 10–20% of postnatal mothers suffered from depressive symptoms during their postpartum period. The magnitude of postpartum depression (PPD) raised by 18.4% between 2005 and 2015 years globally (Perfetti, Clark & Fillmore, 2004).

Postpartum depression (PPD) is a mental health disorder that yearly affects about 10–15% of mothers worldwide and it shows a wide variability. This variability occurs not only from one country to another but also from one city to another in the same country (Norhayati, Azlinawati, Zulkeflie & Hazlina 2015).

Perfetti, Clark and Fillmore (2004) stated that postpartum depression is considered an important health problem in modern societies. The prevalence ranges from 7.6% to 39% in various areas of the world and differs according to population. Postpartum depression doesn't just affect the birthing person. It can affect surrogates and adoptive parents, too. Postpartum depression is invariably accompanied by anxiety and related disorders including generalized anxiety disorder, panic disorder, obsessive-compulsive disorder and post-traumatic stress disorder.

Drawing from the researcher's personal experience, during the time of pregnancy, there were quite a lot of challenges that were encountered like high blood pressure, the thought of delivering like the Hebrew women because of previous complications from the previous birth story, the PhD degree was ongoing while dealing with the added pressures of financial struggles and emotional stress. Furthermore, the researcher was worried about finding support for childcare and the researcher's own well-being, as the husband was frequently away for work, the mother was elderly and needed care herself, and the only sister who is the sole potential helper had a demanding job and family commitments of her own. Also, the first child was a boy and scan revealed that the second pregnancy was also a boy after all the different signs that was felt for it having thought that it was a female. To worsen the situation, friends and well-wishers were predicting the pregnancy to be a female baby and praying for a balance so that it will not be said that the researcher was among the ladies having male children and looking for a female child. Having all of these thoughts in mind knowing fully well the outcome after seeing the result from the scan.

Again, doctors have already warned that the pregnancy chart (also known as prenatal chart) were indicating a lot of issues ranging from high blood pressure, protein in urine, rapid pulse rate (all of these were indicated with a red pen by the nurse). They frantically stated that the delivery was 50:50(vaginal or Caesarean section) as a result of what was recorded in the chart and also previous history of complications from the first delivery. The researcher observed that as these thoughts were flooding the mind, the more the fears grew to the realities of what most mothers were faced with and may probably pull through in one way or the other if the needed help arrives on time. After the child came forth and was expected to feel overwhelmed with joy and love, instead the reality of the situation became very clear (ranging from complications after surgery having been bedridden for about five days, having two boys and may probably start looking for a girl child, relatives(very young) taking turns to help out both for the mother and the child while in the hospital and at home after been discharged and also, the doctors' warning on taking time to rest, taking prescribed drugs religiously and visiting of the hospital for check-up. On one of the occasions, the researcher's sister visited and the state of things were not pleasing like mood swings and crossed arms. Having being in that condition and a lot of questions asked, the researcher could not reply as thoughts were racing through the mind. Being an understanding elder sister, the researcher was encouraged that all would be fine and that time would be created to assist where necessary.

Postpartum depression can affect a mother's capacity to effectively meet her child's basic needs, which can lead to chronic, contrary effects on the child's health and well-being. Mothers who suffer from postpartum depression have changes in their diet, sleep, and activity levels and this can result in the mother being malnourished, exhausted, and overly or less energetic than usual; just as it is with general depression. Postpartum depression is highly prevalent and has a major impact on the health of a mother and child (Cardaillac & Gagnon, 2016). It was reported that depressive disorders in the perinatal period affect women of all cultural and ethnic backgrounds (Klier, Lenz, & Waldhor 2008).

While the exact cause of PPD is unclear, the cause is believed to be a combination of physical, emotional, genetic, and social factors (Vigod, 2019). These risk factors or possible causes of postpartum depression include anxiety during pregnancy, the stress in pregnancy, marital issues which may be as a result of a

violent or abusive partner, and inadequate or no social support (Klier, Lenz, & Waldhor 2008). The psychological well-being of women during the postnatal period is an important public health concern as any negative effects has a corresponding effect in the lives of women but also the family dynamics as a whole. As noted by Huizink, Robles, Mulder, Visser & Buitelaar (2003), it affects the stability of the family and has a short-term and long-term effect on the cognitive, behavioral, and motor development of infants and young children.

Doke, Jackson and Magadia (2008) stated that mode of delivery is one of the recognized risk factors of post-partum depression and should receive more attention. Some studies have shown a higher risk of PPD after Caesarean section, while some studies did not. Most of these studies are small and from a single institution. On the other hand, some large studies did not include mode of delivery as a risk factor. Fasai-cury and Menezez (2019) maintained that women undergoing Caesarean section suffer from mental stress due to exposure to the operation and the expenditures incurred. Additionally, the feeling of guilt exists as women consider the caesarean mode of delivery as a failure on their part to endure pain, and such guilt also contributes to the development of PPD. Hence PPD is more likely to occur among women who had caesarean delivery than women who had vaginal delivery. Eckerdal, Berg & Rasmussen (2018) argued that mode of delivery has no direct impact on risk of postpartum depression; nevertheless, several modifiable or non-modifiable mediators are present in this association. Women delivering in an emergency setting by emergency cesarean section or vacuum extraction, are reporting negatively about their experiences which constitute a high-risk group for postpartum depression (Eckerdal, Berg, & Rasmussen, 2018). During the researcher's postnatal visits at the health centre, a health practitioner brought up a topic on the various modes of delivery. The mothers were told to put up their hands if anyone had gone through the caesarean section. Almost all the women were murmuring and looking at themselves, no one wanted to raise their hands because of shame and how other women may look at them and they may be eventually ridiculed afterwards. The health practitioner cleared the air by saying that a lot of the women had undergone caesarean section and that our society had made it difficult for individuals to see that caesarean section is another mode of delivery. Furthermore, it is a life-saving medical procedure and mothers who undergo it deserve respect, support and understanding and not to be tagged different names such as "weakling", "CS mum", "operation mum" etc. In a study by Doke, Vaidya and Narula (2021) on assessment of difference in postpartum depression among caesarean and vaginally delivered women at 6-week follow-up in hospitals in Pune District, India, the result showed that the proportion of postpartum depression at 6 weeks was 3.79% among women who had caesarean delivery and 2.35% among those who had vaginal delivery (χ^2=4.50, p=0.03). The adjusted OR was 1.86 (95% CI 1.14 to 3.03). Women of age less than 25 years had higher risk of postpartum depression. The adjusted OR was 2.10 (95% CI 1.21 to 3.65). in a similar study by Sun, Wang and Li (2021) on the association between mode of delivery and postpartum depression. The researchers searched in three electronic databases: they found out that there was no difference between cesarean section and vaginal delivery in the risk of severe postpartum depression at the Edinburgh Postpartum Depression Scale cut-off point $\geqslant$13 (odds ratio = 1.07; 95% confidence interval = [0.99, 1.16]). There was a conclusion that women who give birth by cesarean section, especially who give birth by emergency cesarean section, are at a higher risk of mild postpartum depression. Liu, Peng, Chen and Chen (2022) who studied Mode of Delivery Associated with Postpartum Depression: reported that CS was associated with a higher likelihood of PPD, doctor visits regardless of whether the women have a history of depression or not, but elective CS tended to have different impacts for these two groups of women. Eckerdal, Georgakis, Kollia, Wikström, Högberg and Skalkidou (2017) also reported that that the overall prevalence of postpartum depression was 13%.

Grassullo, Cohen, Moline, Kahn, Carpenter and Docherty (2018) stated that postpartum depression is linked to a baby's sex. In fact, when a woman gives birth to a boy, her chance of developing the mood disorder increases from 71 to 79 percent (Grassullo, et' al, 2018). Male fetuses and birth complications are likely to cause inflammation, and when women experience these complications, they are more likely to develop postpartum depression. It is inconclusive nowadays for the association between infant's gender and their mothers' risk of developing postpartum depression (PPD). In addition, a meta-analysis of cohort and case-control studies was performed to address the question of whether women who gave birth to a

female infant were at an increased risk of developing PPD, compared with those giving birth to a male infant. Ye et 'al (2020) affirmed that although the role of potential bias and evidence of heterogeneity should be carefully evaluated, it is suggested that women giving birth to a girl are more associated with a higher risk of developing PPD when compared with those giving birth to a boy. In Africa, it is noted that male babies are supposedly more appreciated compared to the females. With this wrong mindset, it is no doubt certain that mothers who are or influenced by such extreme mentality may develop depression after consistently giving birth to female babies. Nigerian culture places value on male children leading to pressure on women in all aspect of their lives. In some Nigerian cultures, when the baby's sex doesn't match the parent's preference (especially the men), it could lead to feelings of disappointment, sadness and grief. The woman is always to be blamed if the desired sex of the child is not achieved leading to self-blame and guilt. This will make the woman to put in all the needed effort and resources to give birth to a male child due to family pressure which could lead to feelings of inadequacy. The women tend to track ovulation (running series of tests), use herbal drugs to regulate the body chemistry in order to get the male babies, resort to traditional means and so on because of fear of future pregnancies or feel anxious about their ability to produce a male child. They also face societal stigma or discrimination, leading to feelings of isolation.

There are many findings on the relationship between baby gender preference and depression among mothers. Rong, Li, Pérez-López, Wu and Zhang (2023) carried out a study on Maternal expectations of fetal gender and risk of postpartum depression. The results showed that in a total of 127 women (12.8%) were diagnosed with PPD. It was concluded that unexpected fetal gender was associated with an increased risk of PPD among Chinese primiparous women. Shitu, Geda, and Dheresa (2019) also studied postpartum depression the result showed that in this study, a total of 596 study participants were involved making a response rate of 97.4%, the prevalence of postpartum depression was 23.7% with 95%CI: 20.3–27.2. In a related study, Adeyemo, Oluwole, Kanma-Okafor, Izuka and Odeyemi (2020) studied prevalence and predictors of postpartum depression among postnatal women in Lagos, Nigeria. The results showed the prevalence of postpartum depression was 35.6%. Multiparity, delivery by cesarean section, mother being unwell after delivery, and not exclusively breastfeeding the baby were the factors linked with postpartum depression. The study also revealed a high prevalence of postpartum depression, identifying both the obstetric and psychosocial predictors. Social support for women both in the pre- and postnatal periods and routine screening of women for postpartum depression should be encouraged for early detection and immediate intervention.

Zangeneh, Alizadeh, Kaamrvamanesh and Rezaie (2009) investigated postpartum depression and its relation to unplanned pregnancy and baby gender in the women who had given birth in community oriented medical clinic of Kermanshah University. Results showed that 40.7% of the subjects had postpartum depression. Postpartum depression revealed a significant relationship with unplanned pregnancy and the history of depression ($p=0.002$), but no significant relationship was found between postpartum depression and neonatal gender. Finally, Kashkouli et' al (2023) investigated the relationship between the plasma concentrations of AVP and the score of Edinburgh Postnatal Depression Scale (EPDS). There was a significant positive relationship between plasma AVP levels and the EPDS score ($P = 0.000$, $r = 0.658$). Also, the mean plasma concentration of AVP was significantly higher in the depressed group (41.35 ± 13.75 ng/ml) than in the non-depressed group (26.01 ± 7.83 ng/ml) ($P < 0.001$).

In Nigerian setting, a lot of women are not prepared emotionally, financially, physically, leading to increased anxiety, guilt, regret and shame on how to care for the child when given birth to. Many women fear their abilities to be good mothers and may not provide adequately for the newborn when they truly know that they do not have the available resources to cater for the child and probably no one may be willing to lend a helping hand. To add to this, raising a child can be costly and this may lead to financial stress and conflict in the home particularly if the woman lacks financial stability or security and the partner is unwilling to support. This can be emotionally draining and could lead to postpartum depression. Women with many children are left alone to carry their cross and face whatever consequences life throws at them.

It is a common observation that postpartum depression affects millions of women and their families every year. Women are often faced with lots of challenges as they strive to adjust to their home and societal demands. In the course of their struggle to adjust to the stressful life events, they sometimes run into problems that place them in dilemma. The researcher has observed that depression among post-natal women has effects such as loss of interest, guilt, chronic fatigue, decreased appetite, insomnia, feeling of hopelessness, irritability or frustration, unexplained physical problems such as back pain or headaches etc. A birth of a child, which is usually a time of joy for the mother and entire family, can sometimes have negative consequences when the mother becomes depressed. The consequences of postpartum depression are enormous. The researcher has also observed the impact of postpartum depression in the bonding process between the mother and the child. This negative trend has impacted negatively on the level of relationship between the mother and the infant which is further evident in the level of care of the infant and other children and even in extreme cases breeding negative effect on the mother's relationship with the partner.

Hence, the study is aimed at investigating the correlates of postpartum depression among postnatal women in Rivers State. Specifically, the study seeks to;

1. Determine the extent to which mode of delivery influence postpartum depression among postnatal women in Rivers State.
2. Find out the extent to which desired sex of baby influence postpartum depression among postnatal women in Rivers State.

The following research questions are asked to guide the research in the study;

1. To what extent does mode of delivery influence postpartum depression among postnatal women in Rivers State?
2. To what extent does desired sex of baby influence postpartum depression among postnatal women in Rivers State?

The following hypotheses were formulated to guide the study;

1. Mode of delivery does not significantly influence postpartum depression among postnatal women in Rivers State.
2. Desired sex of baby does not significantly influence postpartum depression among postnatal women in Rivers State.

MATERIALS AND METHODS

This study adopted the ex-post facto research design in the study. The population of the study consisted of 3,241 postnatal mothers in the selected hospitals in Rivers State which includes University of Port Harcourt teaching Hospital (UPTH), Rivers State University Teaching Hospital, Military Hospital and Obio Cottage Hospital. The sample size for the study was 200 postnatal women drawn using non-proportionate and purposive sampling technique. Two instruments were used in the study including the "Determinants of Postpartum Depression Questionnaire" (DPDQ) and the "Edinburgh Postnatal Depression Scale" (EPDS). The Determinants of Postpartum Depression Questionnaire" (DPDQ) is designed after the 4-point Likert scale of Strongly Agreed (SA), Agreed (A), Disagreed (D) and Strongly Disagreed (SD). It contains two sections (A and B). Section A contains personal information like the socio-economic status of the respondent, the mode of delivery as well as their desired sex of baby. In section B, the instrument contains information on the level of agreement as per the proper timing of the pregnancy. the section B contains 10 items in all. On the other hand, the Edinburgh Postnatal Depression Scale" (EPDS) is an adopted instrument from the works of Cox, Holden and Segovsky (1987) originally developed to assist primary care health professionals in detecting mothers suffering from postpartum depression (PPD); a distressing disorder more prolonged than the "blues" (which occur in the first week after delivery). The instrument contained 10 items with maximum score of thirty (30) and minimum score of zero (0). Furthermore, in order to identify mothers with postpartum depression, those who score up to 15 and above were considered as experiencing PPD and vice-versa. Note that only those with the average score and above were used for the study. The validity of the instruments was determined by giving it to experts in Measurement for vetting. Cronbach Alpha method was used in determining the reliability of the

instrument which yielded a reliability coefficient values of 0.81 and 0.71, respectively for "Determinants of Postpartum Depression Questionnaire" (DPDQ)" and "EPDS" respectively. Descriptive statistics involving simple percentage, mean, standard deviation as well as independent t-test was used to analyze the data collected in the process.

RESULTS

Research Question One: *To what extent does mode of delivery influence postpartum depression among postnatal women in Rivers State?*

Hypothesis one: Mode of delivery does not significantly influence postpartum depression among postnatal women in Rivers State.

Table 1: Independent t-test analysis of difference in the influence of mode of delivery on postpartum depression among postnatal women in Rivers State.

SES	N	Mean	Std. D	Df	T	Sample $\bar{x}$	Alpha	Sig	Result
Vaginal	62	10.10	3.26	74	-1.09	16.29	0.05	0.287	Insignificant
CS	14	11.14	3.08						

The analysis in table 1 shows that mean and standard deviation for postnatal women who gave birth via normal vaginal delivery were 10.10 and 3.26 respectively. Mean of those that gave birth through cesarean section were 11.14 and 3.08 respectively. This mean shows that those with CS face more postpartum depression compared to those with normal vaginal delivery. Again, comparing the individual group mean to the sample mean, it could be seen that mode of delivery has low influence on postpartum depression among postnatal women in Rivers State. Calculated sig. value is 0.28. Hence, since sig (0.28>0.05) is greater than alpha of 0.05 at 74 degrees of freedom, the null hypothesis was retained meaning that mode of delivery does not have any significant influence on postpartum depression among postnatal women in Rivers State.

Research Question Two: *To what extent does desired sex of baby influence postpartum depression among postnatal women in Rivers State?*

Hypothesis Two: Desired sex of baby does not significantly influence postpartum depression among postnatal women in Rivers State.

Table 2 Independent t-test analysis of difference in the influence of desired sex of baby on postpartum depression among postnatal women in Rivers State.

Desired Baby Sex	N	Mean	Std. D.	Df	t	Sample $\bar{x}$	Alpha	Sig	Result
Male Baby	43	12.79	3.004	74	-1.54	16.29	0.05	0.126	Insignificant
Female Baby	33	13.94	3.455						

The analysis in table 2 shows that mean and standard deviation for postnatal mothers who desired male babies were 12.79 and 3.00 respectively. Mean of those who desired female babies were 13.94 and 3.45 respectively. This mean shows that mothers who desired female babies face more postpartum depression compared to those who desire male babies. Comparing the individual group mean to the sample mean, it could be seen that desired sex of baby has low influence on postpartum depression among postnatal mothers in Rivers State. Calculated sig. value is 0.126. Hence, since sig (0.126>0.05) is greater than alpha of 0.05 at 74 degrees of freedom, the null hypothesis was retained meaning that desired sex of baby does not have any significant influence on postpartum depression among postnatal women in Rivers State.

DISCUSSION OF FINDINGS

From research finding one, it is reported that mode of delivery does not have any relationship with postpartum depression among postnatal mothers. That means that mode of delivery (vaginal or cesarean) does not have a connection with depression. In other words, the way a woman gives birth does not directly impact her risk of developing PPD. Also, women who have a cesarean delivery are not at increased risk of PPD compared to those who have a vaginal delivery and vice versa. It also means that majority of women are not so concerned that their mode of delivery in as much as they have their baby. On the contrary, the finding means that women could experience PPD irrespective of their mode of delivery. The findings of the study to the researcher are not surprising because the researcher is also aware that mothers may not care much how their babies come, in as much as they can deliver safely and have their babies alive. The present finding disagrees with that reported by Doke *et al.* (2021) who reported a significant influence of the mode of delivery and mental health of nursing mothers. However, the finding of Sun, Wang and Li (2021) as well as Liu et'al (2022) all supported the present one.

Research findings two reveals that desired sex of baby does not have a significant relationship with postpartum depression (PPD) among postnatal mothers. The finding implies that a mothers' preference for the sex of her baby does not directly impact her risk of developing PPD. It also means that sex of the baby is not a significant predictor of PPD. In other words, a woman who has a baby of an undesired sex is not at increased risk of having postpartum depression compared to those who have a baby of the desired sex. Therefore, the relationship between desired sex of baby and PPD is complex, and other factors like emotional support, socioeconomic status, and mental health history, play a more significant role in postpartum depression development. The finding of the study is not surprising to the researcher because she still believes that no situation can easily turn away the joy of a mother for her new born baby. The finding of the study is against that reported earlier by Rong et'al (2023) as well as Adeyemo et'al (2020) who all reported significant influence of desired baby sex and depression among new mothers.

CONCLUSION

There is a complex interplay of factors contributing to postpartum depression (PPD) among postnatal women in Rivers State. Mode of delivery and desired sex of baby do not significantly influence postpartum depression. These findings underscore the importance of comprehensive postpartum care, including mental health screening, prioritizing individualized support, addressing unique risk factors and circumstances are ways of acknowledging the complexity of PPD and tailoring interventions accordingly.

RECOMMENDATIONS

The following recommendations are made for the study;

1. Based on the findings which revealed that mode of delivery does not have significant influence on postpartum depression among postnatal women in Rivers State, it is recommended that maternity care providers should focus on comprehensive postpartum care, regardless of delivery mode. They should, including the partners prioritize emotional support and mental health screening.
2. Based on the findings which revealed that desired sex of baby does not have any significantly influence on postpartum depression among postnatal women in Rivers State, it is recommended that individuals should avoid making assumptions about women's preferences or feelings about their baby's sex. They should also focus on providing emotional support and resources for all new mothers.

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