

Postpartum Depression and Type of Delivery in the Current Healthcare Climate

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Abstract

This study was conducted to explore the relation of postpartum depression and health care climate to type of delivery. It was hypothesized that postpartum depression is positively correlated with type of delivery, birth order of the child, social support and health care climate. Sample was consisted on 200 females from which 100 were with normal delivery and 100 were with cesarean delivery. Data was collected from Nishtar Hospital Multan, DHQ Muzaffar Garh and from general population through purposive and snowball sampling. Edinburg Postnatal Depression Scale (EPDS) developed by Cox, et.al (1987) and Health Care Climate Questionnaire developed by Williams, & Deci, et.al (1996) were used as research instruments. Results indicate that postpartum depression is positively correlated with 1st child birth, cesarean delivery and poor health care climate.

Key Words: Postpartum depression, cesarean delivery, type of delivery, health care climate

Introduction

Postpartum depression (PPD) refers to a significant occurrence of depression that initiates either during gestation or within a four-week period following childbirth. (American Psychiatric Association, 2013). The Edinburgh Postnatal Depression Scale (EPDS) is widely utilized primary assessment tool for PPD. The majority of psychiatrists and physicians designate the episode up to one year as being susceptible to PPD, although symptoms may endure beyond this timeframe. (Agarwala, Rao, & Narayanan, 2019). About 10 to 15 percent women are estimated to face the PPD around the world (Arifn, Cheyne, & Maxwell, 2018). PPD can have negative consequences for the mother, the child, and the mother-child relationship. For the mother, PPD can impact her social relationships, including her relationship with her husband. PPD can have detrimental effects on the child, including severe malnutrition, health issues like diarrhea, and delays in language and cognitive development. PPD can also interfere with mother-child bonding and breastfeeding (Amipara, Baria, & Nayak, 2020).

Postpartum depression is a significant public health matter that impacts women following childbirth (Wisner, Chambers, & Sit, 2016). The prevalence of PPD differs among mothers who undergo cesarean section and those who have vaginal deliveries in various countries. Although the type of delivery is acknowledged as a risk factor for PPD, more emphasis is placed on psychiatric risk factors. Several studies have indicated an increased risk of PPD following cesarean section (Dinesh, & Raghavan, 2018), while others have not (Sheela, & Venkatesh, 2016). The majority of these studies has limited sample sizes and is conducted within a single institution. Conversely, certain large-scale studies did not consider the type of delivery as a risk factor (Faisal-Cury, & Menezes, 2019). Women undergoing cesarean section may experience mental stress due to the surgery and its associated costs. Additionally, some women may feel guilty about having a cesarean section, which they may perceive as a failure to endure pain. This guilt can contribute to the development of PPD. Therefore, PPD is mostly occur among females with cesarean delivery as compared to females with vaginal delivery. This study is necessary because the ratio of cesarean deliveries is increasing around the world and there are few large

studies on this topic, particularly from Pakistan. Additionally, this study will consider the sex of the newborn as a variable, as some Pakistani studies have revealed that the gender of the child is also a risk factor for PPD (Hussain Shah, et.al, 2017). Despite the implementation of the National Mental Health Program in Pakistan, mental health of mothers during pregnancy does not receive sufficient consideration.

PPD, which can significantly affect the mother-child bonding and relationship, is experienced by some mothers after giving birth (O'Hara & Wisner, 2013). Factors such as unintended pregnancies, abrupt hormonal changes, and high demands of motherhood are recognized as significant contributors to the development of PPD (Kendall-Tackett, 2016). Furthermore, mothers experiencing depression may display a wide range of symptoms, including challenges in developing intimate connections with infants, sadness, worry, anger, lack of temperament, and having thoughts of self-harm or suicide without an identifiable trigger. (Zivoder et al., 2019). The symptoms of PPD typically manifest within the first few weeks after childbirth, although they can begin earlier during gestation or more than a year after delivery. The **Edinburgh Postnatal Depression Scale** is generally used as an effective tool for assessing PPD and has been utilized in numerous research studies on the subject (Al Nasr et al., 2020). Different studies have presented diverse findings concerning the worldwide occurrence of PPD. A meta-analysis of 291 studies involving 296,284 women from 56 countries, it was determined that the worldwide occurrence of PPD stood at 17.7% (Hahn-Holbrook, Cornwell-Hinrichs, & Anaya, 2017). In Iran, a separate study reported a prevalence of 25.3% among Iranian women (Veisani et al., 2013). Furthermore, studies conducted in several developing countries indicated a prevalence range of PPD from 19.8% to 82.1% (Al-Ghamdi et al., 2019). A recent study conducted in Riyadh, Saudi Arabia, investigated the prevalence of PPD using EPDS scores and reported a rate of 38.50% among the participants (n = 67) (Al Nasr et al., 2020). Similarly, another study carried out in Jeddah in the same year, utilizing the same scale, found a prevalence rate of 20.9% (Alsayed et al., 2021). These varying results may indicate differences in the actual prevalence of PPD across different countries. According to WHO around the world almost 10% women during pregnancy and about 13% women after delivery suffer from any mental disorder, especially depression and this ratio is higher in developing countries, about 15.6% during pregnancy and 19.8% after the delivery (Roumieh et al., 2019). These statistics highlight the significance of addressing maternal mental health on a global scale and the need for targeted interventions and support systems for women during the perinatal period.

PPD, similar to depression, does not have a specific cause but is likely the result of a combination of physical, biological, and hormonal factors (Sadock, Sadock, & Kaplan, 1975). Additionally, social and psychological risk factors may also contribute to the development of depression. The prevalence of PPD is estimated to be around 10 to 15% among women overall, while it varies significantly in Asian countries, with Malaysia having the lowest percentage and Pakistan having the highest (Malik, Malik, & Irfan, 2015). In medical literature, three types of mental disorders during the postpartum period have been defined: postpartum blues, postpartum depression, and postpartum psychosis. The first type is a self-limiting condition that does not require treatment. However, the latter two types are significant due to their impact on the family, potential for chronicity, and recurrence of the illness (Mahishale & Bhatt, 2017).

According to studies conducted by the National Institutes of Mental Health, the childbearing years are the period when women are most likely to experience depression in their lifetime. Roughly 15% of all women will encounter PPD following childbirth (Goker et al., 2012).

Therefore, it is crucial to recognize and assess this psychological disorder. PPD symptoms can emerge at any point during the postpartum period, encompassing a range of emotional and physical manifestations. These symptoms encompass feelings of sadness, hopelessness, diminished self-esteem, guilt, profound exhaustion, an overwhelming sense of emptiness, withdrawal from social interactions, decreased energy levels or lethargy, a persistent feeling of being overwhelmed, heightened irritability, disruptions in sleep and eating patterns, difficulty finding solace or comfort, as well as a pervasive sense of inadequacy in caring for the newborn. It is crucial to recognize and address these symptoms promptly to ensure the well-being and recovery of mothers experiencing PPD. Seeking professional help and establishing a robust support network are important steps in managing and overcoming this challenging condition. (Rauh et al., 2012). Nevertheless, a mere 50% of women exhibiting significant symptoms during the initial year after childbirth receive an official diagnosis of PPD. Failure to address PPD can have severe consequences, including the development of chronic depression, disruptions in the crucial mother-child bonding process, and, in extreme cases, the risk of suicide or, rarely, infanticide. It is crucial to distinguish PPD from the transient "baby blues" experienced within the first 10 days after delivery, as well as from the rare condition known as "Postnatal psychosis," which affects approximately one in 500 women during the initial week following childbirth (Houston et al., 2015). By differentiating between these distinct conditions, healthcare professionals can provide appropriate and targeted interventions to support and safeguard the mental well-being of new mothers.

A meta-analysis conducted by Adams et al. (2012) explored the relationship between normal and cesarean delivery and their association with postpartum depression, incorporating 43 studies with 1,827,456 participants. The results of the direct meta-analysis indicated a heightened risk of postpartum depression in relation to cesarean section compared to vaginal delivery. This risk remained consistent across different time periods within the postpartum period. However, no significant difference was observed in the risk of severe postpartum depression between cesarean section and vaginal delivery. The network meta-analysis further revealed that both emergency cesarean section and elective cesarean section were linked to an increased risk of postpartum depression when compared to spontaneous vaginal delivery. The study concludes that the mode of delivery significantly influences the occurrence of mild postpartum depression. Women who undergo cesarean section, particularly emergency cesarean section, face a greater risk of experiencing mild postpartum depression. The authors recommend diligent monitoring of postpartum mental health in women who undergo cesarean section, as well as ensuring access to mental healthcare services.

Doke et al. (2021) conducted an observational cohort study to determine the proportion of PPD among women with cesarean delivery compared to those with vaginal delivery and explore the relationship between PPD and sociodemographic factors. By employing a descriptive comparative design with prospective enrollment, the study included women who had undergone cesarean section in selected hospitals. The total number of participants in each group was 1556. At 6 weeks post-delivery. The researchers employed various statistical analyses, including the χ^2 test and multivariable binary logistic regression, to explore the impact of delivery mode on PPD and evaluate its correlation with sociodemographic factors. The study findings indicated that the prevalence of PPD at 6 weeks postpartum was 3.79% among women who underwent cesarean delivery and 2.35% among those who had a vaginal delivery. The χ^2 test revealed a significant difference between these two groups. After adjusting for potential confounding variables, the

study revealed that women who underwent cesarean delivery had a higher risk of developing PPD compared to those who had a vaginal delivery, with an adjusted odds ratio of 1.86. Additionally, the study identified that women under the age of 25 years were at an elevated risk of experiencing PPD. However, no significant associations were observed between PPD and factors such as income, education, occupation, or the gender of the newborn child based on the study's findings.

Malik, Malik, and Irfan (2015) conducted a comparative study to explore the prevalence of postpartum depression (PPD) among women who had normal vaginal delivery and those who underwent cesarean delivery. The study sample consisted of 100 women, with 50 cases of normal vaginal delivery and 50 cases of cesarean sections. Data collection involved the use of a semi-structured demographic form and the Edinburgh Post-Natal Depression Scale (EPNDS), which is a depression screening tool. The participants were interviewed between the 1st and 8th weeks after giving birth. The study findings indicated a significantly higher occurrence of postnatal depression in women who underwent cesarean sections compared to those who had normal vaginal deliveries. Among the cesarean section group, 58% of women were found to experience depressive illness, while in the normal vaginal delivery group, 24% of women were experiencing depression. The statistical analysis confirmed a significant association between the mode of delivery and the occurrence of postnatal depression (p -value < 0.001). The study also reported the mean age of the sample population, which was 29.68 years. However, no significant associations were observed between variables such as age, number of children, and history of stillbirths or miscarriages with the occurrence of postnatal depression.

In 2022, Alhusaini and colleagues conducted a research study within a Saudi Arabian hospital, aiming to explore the prevalence of postpartum depression (PPD) in women who experienced either a normal vaginal delivery or a cesarean section. The study utilized a cross-sectional design and involved 483 mothers randomly selected. A questionnaire with two distinct sections was applied to these participants. The initial segment gathered demographic information and data relevant to the variables being studied, while the second part included the Edinburgh Postnatal Depression Scale. Subsequently, follow-up assessments were carried out six weeks later, employing the same questionnaire with 354 of the initial participants. The study's findings revealed that, based on the EPDS with a cutoff score of 13 points, 15.1% of postpartum women were at risk of exhibiting PPD on the first day. However, a smaller percentage (5.1%) displayed signs of PPD at week six, indicating a positive shift in the prevalence of PPD over time. The study's regression analysis identified family monthly income and family support as the most significant factors positively influencing PPD prevalence. This study underscores the high incidence of PPD in the examined population of women and emphasizes the adverse consequences of PPD on the relationship between the mother and baby, as well as the overall family dynamic. The authors recommend increasing awareness of PPD, concentrating on factors that can be modified, implementing early screening initiatives, and providing ongoing follow-up to enable early intervention and support. This approach aims to reduce the detrimental impact of PPD. The study's primary objective was to investigate the association between postpartum depression, delivery method, and the healthcare environment. The central hypothesis was that both the mode of delivery and the quality of healthcare services influence the occurrence of postpartum depression.

Method

Correlative and comparative research design was used in this study. The sample consists of 200 females from which 100 were with normal delivery and 100 were with cesarean delivery. The mean age of females with cesarean and normal delivery was delivery was 25 years. The sample was selected with purposive and snow ball sampling from Nishtar Hospital Multan, Fatima Jinnah Hospital, and DHQ Muzaffargarh and from general population of Multan and Muzaffargarh. Edinburgh Postnatal Depression Scale (EPDS) developed by Cox, Holden, & Sagovsky, (1987). It is a 10 item scale which was developed the symptoms and severity of the postpartum depression among females after delivery. Health Care Climate Questionnaire developed by Williams, & Deci, et.al (1996), it is a 15 item 7 point Likert scale to measure the level of autonomy and supportiveness by health care providers and the perception of patients about their doctor. Institutional approval was taken from the heads of the Gynaecology ward of Nishtar Hospital, Fatima Jinnah Hospital and DHQ Muzaffargarh. Data from the females with cesarean delivery were taken from these hospitals and the data from females with normal delivery was taken through snowball sampling from the urban areas of Multan and Muzaffargarh. All possible ethical responsibilities were considered including informed consent, briefing and debriefing before and after the data collection. The data was analyzed using SPSS, utilizing Mean, Standard Deviation, and T-test for the analysis.

Results

Table 1

Correlation Coefficient Matrix of Postpartum Depression with type of Delivery

Sr. No.	Variable	1	2	3
1	POST PARTUM DEPRESSION	1	.552**	.434**
2	NORMAL DELIVERY	.552**	1	.538**
3	CESAREAN DELIVERY	.434**	.552**	1

The represents the correlation between PPD and the type of delivery. The findings indicated moderate positive correlation between PPD and type of delivery, which means that both types of deliveries have moderate level of PPD after the delivery.

Table 2

Mean, Standard deviation, t and p-value on the score of postpartum depression among 1st child birth and 2nd child birth

Ppd	N	Mean	S.D	T	p
1 st child	100	12.33	2.808	9.960	.000
2 nd child	100	9.37	2.606		

Note. N=200.df =58, p<0.05

Above mentioned table shows Means, Standard Deviations and t-value for the Scores of postpartum depression on 1st and 2nd child birth ($t= 9.960, df= 58, p <0.05$). It shows that there is significant difference among the 1st child birth and 2nd child birth on postpartum depression. The results indicated that after 1st child birth females have more postpartum depression as compared to 2nd child birth.

Table 3

Mean, Standard deviation, t value of postpartum depression, with the type of delivery

Type of delivery	N	Mean	S.D	T	p
Normal	100	11.76	6.420	-7.091	.000
Cesarean	100	16.40	6.117		

Note. $N=200, df =98, p <0.05$

Above mentioned table shows Means, Standard Deviations and t-value for the Scores of postpartum depression with the type of delivery. Values shows that females with cesarean delivery have much postpartum depression as compared to females with normal delivery.

Table 4

Mean, Standard Deviation, and t-value of social support with the type of delivery

Type of delivery	N	Mean	S.D	T	p
Normal	100	27.60	4.049	3.904	.000
Cesarean	100	25.14	5.033		

Note. $N=200, df =98, p <0.05$

The above table shows the mean, S.D and T-value of social support with the type of delivery. Values shows that there is no significant difference between the type of delivery and social support to young mothers.

Table 5

Mean, S.D and T-values of Autonomy of mothers with type of delivery

Type of delivery	N	Mean	S.D	T	p
Normal	100	30.70	6.075	-1.464	.000
Cesarean	100	32.36	5.232		

Note. $N=200, df =98, p <0.05$

The above table shows the mean, S.D and T-value of autonomy with the type of delivery. Values shows that there is no significant difference between the type of delivery and level of temperament to young mothers.

Table 6

Mean S.D and T-values of postpartum depression, with the family type

Type of family	N	Mean	S.D	T	p
Joint family	130	14.14	4.068	0.286	.000
Nuclear	70	13.85	3.829		
Family					

Note. $N=200, df =98, p <0.05$

The above table shows the mean, S.D and T-value of postpartum depression with the type of delivery. Values shows that there is no significant difference between the type of family and level of postpartum depression.

Table 7

Mean S.D and T-values of health care climate, with the type of delivery

Type of delivery	N	Mean	S.D	T	p
Normal	100	45.66	8.676	-.404	.000
Cesarean	100	54.70	10.317		

Note. N=200. $df = 98, p < 0.05$

The above table shows the mean, S.D and T-value of health care climate with the type of delivery. Values shows that there is significant difference between the type of delivery and satisfaction with health care climate. Females with cesarean delivery have much dissatisfaction with health care climate as compared to females with normal delivery.

Table 8

Mean S.D and T-value of postpartum depression with gender of the child

Gender	N	Mean	S.D	T	p
Male	80	61.76	5.666	.814	.000
Female	120	60.60	5.879		

Note. N=200. $df = 98, p < 0.05$

Above table shows the mean, S.D and the t value of the postpartum depression among the females with the gender of children. According to the results there is no significant difference between the gender of the child and the postpartum depression.

Discussion

This study was conducted to investigate the effect of type of delivery and health care climate on the postpartum depression. In the light of above mention results and discussion on effect of postpartum depression social support and autonomy of mothers the findings reveal that the postpartum depression is positively correlated with autonomy and negatively correlated with social support which means that low social support causes high postpartum depression. Similarly the postpartum depression is highly correlated with the cesarean delivery as compared to normal delivery. The postpartum depression is not significantly correlated with the family type and the social support and autonomy of mothers because social support exists in any shape in all family types either joint or nuclear. It is also shown in the results that health care climate for females with cesarean delivery are very dissatisfactory. There may be different reasons for this such as usually the females for normal delivery goes to the local maternity homes or dais who are usually the known and familiar person in the community and for cesarean delivery in the hospitals doctors do not give much attention and care to patients which may cause the dissatisfaction among females.

This study found that the postpartum depression was slightly higher in women who underwent cesarean section compared to those who had a normal delivery (23.8% versus 18.3%), the difference was not statistically significant. The overall prevalence rate of postpartum depression in our study was 23.2%, and the prevalence rate of anxiety was 23.6% (25.4% for normal delivery and 23% for cesarean section). These rates were slightly higher than those reported in previous studies. For example, O'Keane et al. (2011) found a postpartum depression rate of 7.6% using the EPDS with a cut-off score of 12. Similarly, In a study conducted in Iran

by Sadat et al. (2013), they found a prevalence rate of 20.1% using an EPDS cut-off score of 12, which closely aligns with our own findings and may be influenced by shared cultural characteristics. It's important to mention that the validated cut-off score in the Iranian version of the EPDS is 13. Our results are in line with findings from other recent studies. Herguner et al. (2014) conducted a study comparing the two delivery methods in terms of depression and found that postpartum depression was associated with post-delivery pain rather than the mode of delivery. Nevertheless, this research did not assess patients for antenatal depression, a recognized risk factor for postpartum depression.

In a comprehensive meta-analysis conducted by Adams et al. (2012), the primary objective was to investigate the potential link between cesarean sections and postpartum depression (PPD). The analysis scrutinized 24 pertinent studies, but notably, no substantial correlation between cesarean sections and the occurrence of PPD was discerned. Remarkably, the more rigorous and well-designed studies consistently failed to detect any significant connection between cesarean sections and PPD. Conversely, the studies that did report an apparent correlation tended to suffer from methodological limitations or possessed relatively small sample sizes. It's important to note that a body of research suggests that selecting a specific delivery method based on a person's history of depression might not be warranted, as no discernible association between the two factors has been established. One study that challenges this perspective is the investigation carried out by Yang et al., which delved into the interplay between delivery mode, seasonal variations, and PPD. Interestingly; this study identified a noteworthy association between these variables and the occurrence of postpartum depression.

One plausible explanation for this observed connection is the fact that cesarean sections are often linked to higher rates of re-hospitalization, potentially amplifying the risk of psychological distress. Adding to this perspective, a study conducted in Iran by Torkan et al. (2008) also delved into the post-delivery quality of life for both types of delivery methods. This research employed a combination of assessments, including the EPDS, SF-36, and a specialized questionnaire, to gauge the participants' quality of life. The outcomes of this study indicated that, at the 6-8 week postpartum mark, the group of mothers who had undergone cesarean sections exhibited higher EPDS scores, signaling a notably heightened susceptibility to depression within this group. This study, however, should be considered within the context of its relatively small sample size, encompassing just 100 participants. Furthermore, several other studies have consistently underscored the correlation between a history of mood disorders, early-onset postpartum depression (often within the first day following childbirth), and the concurrent development of both anxiety and depression. Collectively, these findings accentuate the significance of early detection and intervention in addressing maternal mental health concerns.

There is evidence suggesting an association between early depression after childbirth, which is valuable in terms of preventing the progression of the disorder and providing an opportunity for intervention. Furthermore, a history of mood disorders in the family and maternal addiction have been significantly linked to postpartum depression (PPD), as highlighted in several studies, making them well-established risk factors for PPD (Kheirabadi & Maracy, 2010). In relation to anxiety, a history of psychiatric medication use has been consistently associated with the disorder in numerous studies. This could be attributed to withdrawal symptoms or adverse effects of the medications used. However, to the best of our knowledge, this specific factor has not been investigated in any studies and requires further evaluation. Additionally, Kheirabadi & Maracy (2010) examined the association between suicidal thoughts and PPD as well as anxiety, revealing

a strong relationship. Therefore, it is advisable to be mindful of signs of PPD and anxiety in mothers experiencing suicidal thoughts and to provide closer monitoring to prevent further mental and physical consequences.

Limitations

1. The data was taken from only two cities Multan and Muzaffargarh therefore nationwide generalization was not possible for this research.
2. The time frame allocated for this research was insufficient. Given the sensitive nature of this topic, it would be advisable to allocate more time for future studies.
3. This study has the potential to be conducted with various age groups and different samples.

Suggestions

1. The sample size in the current study was limited. To ensure generalizability to other cities and areas of Pakistan, it is important to have a representative and sufficiently large sample size.
2. Further research should do on the sex of the child, mother's age and mother's education or in rural and urban areas.

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