Abstract

Background: Postpartum depression (PPD) is a depressive disorder, also known as postnatal depression. Despite responsiveness to treatment and serious consequences if untreated, PPD often remains unrecognized. This study aims to study the prevalence of PPD and to correlate risk factors associated with it. Materials and Methods: It was a cross-sectional study in Departments of OBGY, Pediatrics, and Psychiatry in a tertiary care hospital. Two hundred and fifty consecutive women, 1–6 weeks postpartum attending the above departments, were included after written informed consent. A specially designed semi-structured pro forma was used for correlation of various risk factors. Edinburgh Postnatal Depression Scale was used for diagnosing PPD. Results: In our study, we found that 20.4% of the women evaluated suffered from PPD. Significant risk factors for PPD included age below 30 years, financial dependence, positive family history of psychiatric illness and PPD, previous girl child, unwanted pregnancy, pressure to have a male child, and complications during pregnancy and delivery. Domestic violence, substance abuse in husband, and relationship issues also increased the risk. Conclusion: Considerable prevalence of PPD is found across various cultures. Prevention of risk factors is useful in primary prevention of PPD. In the future, our study can be used for screening females with high risk for developing PPD so that more intense interventions can be applied.

Keywords: Postpartum depression, prevalence, risk factors

Introduction

Postpartum depression (PPD) is a depressive disorder, also known as postnatal depression. Despite its serious consequences and amenability to treatment, PPD often remains unrecognized. Women afflicted with PPD are also at high risk for recurrent depression. Depression during this time of life affects bonding with infant which may lead to malnutrition and other various complications in the infant. Infant might be neglected in its early growing phase in life, which may lead to psychiatric illness later. Many mothers are not aware that they are depressed; others have social stigma which prevents them from seeking medical help. If undetected or detected but not taking treatment in context of unawareness of depth of disease, it has serious consequences for mother, child, and the whole family which can be prevented.

The prevalence of PPD is 10%–15% in developed countries while most of Indian and South Asian studies show prevalence of 15%.11-19

This article purports to study the prevalence of depression in postpartum women in a tertiary care hospital in western India and to correlate risk factors associated with PPD, including sociodemographic, obstetric, and other risk factors. Some studies related to PPD have been conducted in South Asia including India, but there have been few studies about the same in western India.11-7 This study intends to add to the existing knowledge about the prevalence of PPD and associated various risk factors.

Materials and Methods

Two hundred and fifty postpartum women with gestational period ranging from 1 to 6 weeks postpartum, attending the obstetrics and gynecology or pediatrics department...
(inpatient and outpatient), and the psychiatry outpatient department of a tertiary care hospital were included in the study after taking informed written consent, after approval by an institutional ethics committee. The sampling method was purposive sampling. The departments mentioned only indicate the site of examination, and the sample was of 250 consecutive consenting participants with the gestational period as mentioned above.

**Inclusion criteria**
Women attending the obstetrics and gynecology department, pediatric department (inpatient and outpatient), and the psychiatry department (outpatient) ranging from 1 to 6 weeks of postpartum period.

**Exclusion criteria**
Unwillingness and <1 week of postpartum period.

Each patient was given the following instruments:

**Specially designed semi-structured pro forma**
It includes basic sociodemographic details, obstetric history, adverse life events, previous psychiatric history and family relationship, and other social risk factors including domestic violence. Some factors such as perceived inadequacy in relationship with parents, in-laws, and partner were included despite the lack of a validated instrument for the same as they were hypothesized to be associated with PPD.

**Validated gujarati version of edinburgh postnatal depression scale**
Edinburgh postnatal depression scale (EPDS) was created specifically for postpartum women by Cox et al. for screening of depression. It is a 10-item self-rated questionnaire used extensively for the detection of PPD. It has been well validated and found to have high sensitivity, specificity, and accuracy.\(^{[20]}\)

In a study by Desai et al.,\(^{[15]}\) validation of the Gujarati version of the EPDS among women within their first postpartum year was done. The overall reliability of the scale was good, with sensitivity of 100% and specificity of 98% at a threshold of 10.5.\(^{[15]}\)

This study used Diagnostic and Statistical Manual of Mental Disorders Fourth Edition (DSM-IV) criteria as a gold standard for diagnosis of depression.

In this study, the women who were EPDS positive but negative by DSM-IV criteria are difficult to categorize; they presumably fall in the continuum between “normal” and “depressed.” The scale was found fully acceptable to postpartum women and was completed within 5 min. The instrument was easy to translate and administer as it was brief and did not contain technical terms.

**Statistical analysis**
Differences between two groups (depressed and nondepressed patients) were analyzed using frequency distribution, and Chi-square test was applied for comparing sociodemographic characteristics, correlation of PPD with obstetric factors, gender issues, adverse life events, personal history of psychiatric illness, family history of psychiatric illness, closeness of relationship with partner, and adequacy of relationship with parents and in-laws. Level of significance was fixed at \(P = 0.05\).

**Results**

**Prevalence of postpartum depression**
In our study, the prevalence of PPD was found to be 20.4%. Out of 51 women diagnosed to be having PPD, 10 (4%) women had EPDS score 22–30 and 41 (16.4%) women had EPDS score 12–21 [Table 1].

**Correlation with sociodemographic factors**
Forty-four of 180 (24.44%) women ≤30 years had depression as compared to 136 (75.56%) of them who were not depressed. Among women aged >30 years, 7 (10%) had depression as compared to 63 (90%) who did not have depression, and this difference was statistically significant. Ninety-two women living in families having <4 members; 25 (27.17%) had depression as compared to 67 (72.83%) who did not have depression. In families having ≥4 members, 26 (16.46%) women were found to have depression as compared to 132 (83.54%) who did not have depression, and the difference was statistically significant. Six out of 89 (6.74%) financially independent women had depression as opposed to 83 (93.6%) who did not have depression. In financially dependent women, 45 (27.95%) had depression and 116 (72.05%) did not have depression, which accounted for a statistically significant difference. Significant differences were also seen in women with history of preexisting psychiatric illness, family history of psychiatric illness, and family history of PPD. Religion, type of family, locality, type of house, and socioeconomic class were not found to be significant risk factors for the development of PPD [Table 2].

**Correlation with obstetric factors and gender-related issues**
Thirty-seven of 209 women having ≤1 girls (17.70%) had depression when compared to 172 (82.30%) who did not have depression. Of women having >1 girls, 14 (34.15%) had depression and 27 (65.85%) did not have depression. Thirteen of 53 (24.53%) women with pressure to deliver male child and who delivered sons had depression as compared to 40 (75.47%) who did not have depression. In women with perceived familial pressure to have a male child and who delivered a daughter, 8 (42.11%) had depression and 11 (57.89%) did not have depression. Thirty of 178 (16.58%) women with no pressure had depression and 148 (83.15%) did not have depression. Thirty-eight of 148 (25%) women who wanted a son but delivered a daughter had depression, and 111 (75%) did not have depression. Fourteen of 102 (13.73%) women who wanted a son and delivered a son had depression and 88 (86.27%) did not have depression. The above differences were statistically significant. Statistically significant differences were also seen in women with complications during pregnancy and delivery.
who did not have depression. Twenty of 58 (34.48%) women who had personal history of previous psychiatric complaints had depression compared to 38 (65.52%) who did not have depression. Thirty-one of 192 (16.15%) women who did not have personal history of previous psychiatric complaints had depression, and 161 (83.85%) did not have depression. Twenty-five of 85 (29.41%) women whose husbands were taking alcohol or psychotropic drugs had depression and 60 (70.59%) did not have depression. Twenty-six (15.76%) of 165 women whose husbands were not taking alcohol or psychotropic drugs had depression and 139 (84.24%) did not have depression. The above differences were statistically significant. Significant differences were also found in women who perceived that they were not closely attached to the partner, with a perceived inadequate relationship with parents, with a perceived inadequate relationship with in-laws, and with perceived inadequate support from in-laws during pregnancy. Husband’s financial independence and place of delivery of child were not significant risk factors for the development of PPD [Table 4].

### Discussion

#### Prevalence of postpartum depression

In our study, out of the total sample of 250 postpartum women, 51 (20.4%) were found to have depression. The findings were in keeping with other comparable studies. In a study by Gupta et al.,[10] 15.8% women were diagnosed having PPD. In our Indian reference study by Desai et al.,[15] 12.5% women were diagnosed having PPD. In an international (multicentric) reference study by Huang and Mathers,[17] the prevalence of postnatal depression was almost equal; 18% in the UK and 19% in Taiwan, which is comparable to our study.

#### Sociodemographic data

##### Age

The findings suggest that in our community, more cases of PPD occur in the age group of <30 years, which may be due to early age at marriage in our community, at which women might be not ready to carry the burden of a child along with all the responsibilities of the house. Among Indian studies, Desai et al.,[15] Khan and Basu,[21] Dhande et al.,[22] and Savarimuthu et al.[23] also found this risk factor to be significantly relevant for the development of PPD.

##### Number of members in family

Depression, more in women with <4 family members in the family, is probably because of loneliness felt by mother in taking care of newborn child, as less support from family members would be expected in a small family, as all the burden of taking care of the newborn and the family would be on these women. We did not find any reference study to correlate our findings for abovementioned risk factor.

##### Financial dependence

The difference in findings maybe because financial independence gives liberty to the women to care for themselves.

### Correlation with adverse life events, previous psychiatric history, and family relationship

Six of 14 (42.86%) women who had complaints of domestic violence had depression compared to 8 (57.14%) who did not have depression. Forty-five of 236 (19.07) women who did not have complaints of domestic violence had depression as opposed to 191 (80.93%) who did not have depression. Twenty-eight of 189 (12.17%) women who did not have history of psychiatric complaints in 1st degree family members had depression and 33 (54.10%) did not have depression. Twenty-three of 189 (12.17%) women who did not have history of psychiatric complaints in 1st degree family members had depression as opposed to 166 (87.83%) who did not have depression. Twenty-five of 85 (29.41%) women whose husbands were taking alcohol or psychotropic drugs had depression and 60 (70.59%) did not have depression. Twenty-six (15.76%) of 165 women whose husbands were not taking alcohol or psychotropic drugs had depression and 139 (84.24%) did not have depression. The above differences were statistically significant. Significant differences were also found in women who perceived that they were not closely attached to the partner, with a perceived inadequate relationship with parents, with a perceived inadequate relationship with in-laws, and with perceived inadequate support from in-laws during pregnancy. Husband’s financial independence and place of delivery of child were not significant risk factors for the development of PPD [Table 4].

### Table 1: Prevalence of postpartum depression (n=250)

| Postpartum depression | Number of individuals (n=250), n (%) |
|-----------------------|-------------------------------------|
| Present               | 181 (82.27)                         |
| Absent                | 69 (32.73)                          |

### Table 2: Sociodemographic characteristics

| Demographic data | Depression | Statistics |
|------------------|------------|------------|
|                  | Yes (n=51), n (%) | No (n=199), n (%) |
| Age              | χ² = 6.47 | P < 0.05 |
| ≤30              | 44 (24.44) | 136 (75.55) |
| >30              | 7 (10) | 63 (90) |
| Number of members in family | χ² = 4.113 | P < 0.05 |
| <4               | 25 (27.17) | 67 (72.83) |
| >4               | 26 (14.66) | 132 (83.54) |
| Financially independent | χ² = 15.87 | P < 0.05 |
| Yes              | 6 (6.74) | 83 (93.26) |
| No               | 45 (27.95) | 116 (72.05) |
| Preexisting psychiatric illness | χ² = 8.065 | P < 0.05 |
| Yes              | 12 (40) | 18 (60) |
| No               | 39 (17.73) | 181 (82.27) |
| Family history of psychiatric illness | χ² = 6.57 | P < 0.05 |
| Yes              | 10 (40) | 15 (60) |
| No               | 41 (18.22) | 184 (81.78) |
| Family history of postpartum depression | χ² = 4.08 | P < 0.05 |
| Yes              | 7 (38.89) | 11 (61.11) |
| No               | 44 (18.96) | 188 (81.04) |
and the newborns, in which case they are less likely to suffer from depression.

**Preexisting psychiatric illness**

The findings suggest that women already having preexisting psychiatric illness are more susceptible to get PPD. This may be because having to deliver a child while already having a psychiatric illness entails a huge amount of stress to these women. Studies by Sharma et al. [24] and Avni-Barron et al. [25] found this factor to be significant for the development of PPD.

**Family history of psychiatric illness**

The findings suggest that women with family history of psychiatric illness are more likely to develop PPD due to their genetic load. An Indian study by Saldanha et al. [18] also found this risk factor to be significantly relevant for the development of PPD.

**Family history of postpartum depression**

The findings suggest that women with family history of PPD are at a higher risk of developing the same.

**Obstetric factors and gender-related issues in postpartum depression**

**Total number of girls**

The findings suggest that having more than 1 girl child in the family is a risk factor for PPD, probably because having a girl child is still considered a disadvantage across various cultures and socioeconomic strata. Among Indian studies, Gupta et al. [6] also found this risk factor to be significantly relevant for the development of PPD.

**Present pregnancy**

Unwanted pregnancies have higher chances of developing PPD as it was unwanted due to some reasons. This extra stress is a potential risk factor for developing PPD.

**Pressure to have a male child**

Pressure from in-laws on women to deliver a son is tremendous in many parts of our country, and not fulfilling this wish of the family members leads to an environment which increases the risk of PPD. Among Indian studies, Gupta et al. [6] and Savarimuthu et al. [23] also found similar risk factor to be significantly relevant for the development of PPD.

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### Table 3: Correlation of postpartum depression with obstetric factors and gender issues

| Obstetric factors and gender issues | Depression | Statistics |
|-----------------------------------|------------|------------|
|                                   | Yes (n=51), n (%) | No (n=199), n (%) | χ² | p |
| Total number of girls ≤1 | 37 (17.70) | 172 (82.30) | 5.71 | 0.018 |
| >1 | 14 (34.15) | 27 (65.85) | 0.05 | 0.819 |
| Present pregnancy | | | | |
| Wanted and planned | 23 (15.65) | 124 (84.35) | 7.198 | 0.007 |
| Wanted and unplanned | 10 (20.83) | 38 (79.17) | 0.05 | 0.819 |
| Unwanted | 18 (32.73) | 37 (67.27) | 0.05 | 0.819 |
| Pressure to have a male child | | | | |
| Delivered son | 13 (24.53) | 40 (75.47) | 7.45 | 0.006 |
| Delivered daughter | 8 (42.11) | 11 (57.89) | 0.05 | 0.819 |
| No pressure | 30 (16.85) | 148 (83.15) | 0.05 | 0.819 |
| Wanted son but delivered daughter | | | | |
| Yes | 37 (25) | 111 (75) | 4.73 | 0.030 |
| No | 14 (13.73) | 88 (86.27) | 0.05 | 0.819 |
| Complication during pregnancy | | | | |
| Yes | 19 (31.67) | 41 (68.33) | 6.77 | 0.010 |
| No | 32 (16.84) | 158 (83.16) | 0.05 | 0.819 |
| Complication during delivery | | | | |
| Yes | 28 (33.73) | 55 (66.27) | 13.60 | 0.001 |
| No | 23 (15.97) | 144 (84.03) | 0.05 | 0.819 |

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### Table 4: Correlation of postpartum depression with adverse life events, previous psychiatric history, and family relationship

| Adverse life events, previous psychiatric history, and family relationship | Depression | Statistics |
|------------------------------------------------------------------------|------------|------------|
| | Yes (n=51), n (%) | No (n=199), n (%) | χ² | p |
| Complaints of domestic violence | 6 (42.86) | 8 (57.14) | 4.61 | 0.031 |
| No | 45 (19.07) | 191 (80.93) | 0.05 | 0.819 |
| History of psychiatric complaints in 1st degree family members | | | | |
| Yes | 28 (45.90) | 33 (54.10) | 3.21 | 0.074 |
| No | 23 (12.17) | 166 (87.83) | 0.05 | 0.819 |
| Personal history of previous psychiatric complaints | | | | |
| Yes | 20 (34.48) | 38 (65.52) | 9.22 | 0.002 |
| No | 31 (16.15) | 161 (83.85) | 0.05 | 0.819 |
| Closely attached to the partner | | | | |
| Yes | 35 (20.83) | 79 (79.17) | 13.69 | 0.001 |
| No | 16 (13.53) | 120 (86.47) | 0.05 | 0.819 |
| Husband taking alcohol or psychotropic drugs | | | | |
| Yes | 25 (29.41) | 60 (70.59) | 6.44 | 0.001 |
| No | 26 (15.76) | 139 (84.24) | 0.05 | 0.819 |
| Adequate relationship with the parents | | | | |
| Yes | 34 (20.83) | 73 (79.17) | 14.90 | 0.001 |
| No | 17 (13.53) | 126 (86.47) | 0.05 | 0.819 |
| Adequate relationship with the in-laws | | | | |
| Yes | 35 (20.83) | 88 (79.17) | 9.67 | 0.002 |
| No | 16 (13.53) | 111 (86.47) | 0.05 | 0.819 |
| Support from in-laws during pregnancy | | | | |
| Inadequate | 36 (19.61) | 88 (80.39) | 11.29 | 0.001 |
| Adequate | 15 (15.65) | 111 (84.35) | 0.05 | 0.819 |
Wanted a son but delivered a daughter
As suggested by the above findings, not fulfilling their own wishes for delivering a male child is a great risk factor for developing depression in postpartum women. Savarimuthu et al.[23] also found this risk factor to be significant although another Indian study by Gupta et al.[6] found it to be not significant for the development of PPD.

Complications during pregnancy
Complications during pregnancy give additional stress to women, which probably explains the differences in findings. According to a study by Gupta et al.,[6] the above risk factor was not significant for the development of PPD. However, studies by Blom et al.[26] and Kettunen et al.[27] found this risk factor significant for the development of PPD.

Complications during delivery
Against the background of many hormonal and bodily changes, complications during delivery add to the stress of delivery and may explain the increased risk of PPD. According to a study by Gupta et al.,[6] the above risk factor was not significant for the development of PPD. However, studies by Blom et al.[26] and Kettunen et al.[27] found this risk factor significant for the development of PPD.

Adverse life events, previous psychiatric history, and family relationship in postpartum depression

Complaints of domestic violence
In our study, we have found that out of the total sample of 250 postpartum women, 14 had complaints of domestic violence and 236 did not have complaints of domestic violence. The additional stress imparted by domestic violence probably explains the increased incidence of PPD in women facing the same. Indian studies by Patel et al.[19] and Savarimuthu et al.[23] also found this risk factor to be significantly relevant for the development of PPD.

History of psychiatric complaints in 1st degree family members
Genetic factors have been implicated in causation of PPD, and the findings seem to corroborate the same. Among Indian studies, Gupta et al.[6] also found this risk factor to be significantly relevant for the development of PPD.

Personal history of previous psychiatric complaints
The findings suggest that women with previous personal history of psychiatric illness are at an increased risk of developing PPD, which maybe because they find it a lot more difficult to cope with the stress of delivery and a child. Among Indian studies, Gupta et al.[6] also found this risk factor to be significantly relevant for the development of PPD.

Perceived closeness of attachment to the partner
Close attachment to the partner gives rise to a feeling of contentment and this may explain the finding that improper attachment with partner is a risk factor for the development of depression in postpartum stage. Gupta et al.[6] also found this factor to be significantly relevant for the development of PPD.

Husband taking alcohol or psychotropic drugs
Substance abuse in husbands may lead to inadequate emotional and financial support and add to the stress of pregnancy and delivery, and this may explain the increased risk of PPD in this subgroup. Gupta et al.[6] and Savarimuthu et al.[23] also found this risk factor to be significantly relevant for the development of PPD.

Perceived adequacy of relationship with parents
Since a significant number of first-time deliveries occur in the parental homes, an adequate relationship with parents may mean more emotional support, which may explain the increased incidence of PPD in women with inadequate parental relationships. Among Indian studies, Gupta et al.[6] also found this risk factor to be significantly relevant for the development of PPD.

Perceived adequacy of relationship with in-laws
The findings suggest that an inadequate relationship with in-laws increase the risk of PPD, probably because such women are less likely to receive emotional support from in-laws during pregnancy and delivery. Similar findings were noted by Gupta et al.[6]

Perceived support from in-laws during pregnancy
The findings suggest that perception of inadequate support from in-laws during pregnancy increases the risk of PPD, probably due to the aforementioned reasons. Gupta et al.[6] also reported the same in their study.

Limitations
Our study is limited to a tertiary center in the western part of India, and hence, the findings cannot be generalized to the Indian context. A larger sample size in the community will be more authentic. Some factors assessed in the study such as perceived inadequacy of relationship with parents and in-laws and perceived lack of closeness to partner and lack of support from in-laws during pregnancy were based on subjective reporting, and the validity of the same may be questionable. Sampling from psychiatry OPD may be a possible source of sampling bias.

Conclusion
In our study, we found the prevalence of PPD to be considerable across various cultures. Our study found the prevalence of PPD to be 20.4%. We found sociodemographic factors such as age, financial dependence, preexisting personal and family history of psychiatric illness, obstetric, and gender-related factors such as number of girl children, familial pressure to deliver a male child, pregnancy, and delivery-related complications, and factors related to adverse life events and family relationships such as domestic violence, perceived inadequacy of relationship with parents and in-laws, and perceived lack of closeness to partner to be significant to the development of PPD. More extensive studies involving community-based samples in the future might be helpful in identifying additional risk factors for PPD.
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There are no conflicts of interest.

REFERENCES
1. Chandran M, Tharyan P, Muliyl J, Abraham S. Post-partum depression in a cohort of women from a rural area of Tamil Nadu, India. Incidence and risk factors. Br J Psychiatry 2002;181:499-504.
2. Patel V, Rodrigues M, DeSouza N. Gender, poverty, and postnatal depression: A study of mothers in Goa, India. Am J Psychiatry 2002;159:43-7.
3. Prabhu TR, Asokan TV, Rajeshwari A. Postpartum psychiatric illnesses. J Obstet Gynecol India 2005;55:329-32.
4. Rahman A, Iqbal Z, Harrington R. Life events, social support and depression in childbirth: Perspectives from a rural community in the developing world. Psychiatr Med 2003;33:1161-7.
5. Sood M, Sood AK. Depression in pregnancy and postpartum period. Indian J Psychiatry 2003;45:48-51.
6. Gupta S, Kishore J, Mala YM, Ramji S, Aggarwal R. Postpartum depression in North Indian women: Prevalence and risk factors. J Obstet Gynaecol India 2013;63:223-9.
7. Lanes A, Kuk JL, Tamin H. Prevalence and characteristics of postpartum depression symptomatology among Canadian women: A cross-sectional study. BMC Public Health 2011;11:302.
8. Vonkens KA, Ramin SM, Rush AJ, Navarrete CA, Carmody T, March D, et al. Onset and persistence of postpartum depression in an inner-city maternal health clinic system. Am J Psychiatry 2001;158:1856-63.
9. Stowe ZN, Nemeroff CB. Women at risk for postpartum-onset major depression. Am J Obstet Gynecol 1995;173:639-45.
10. Miller LJ. Postpartum depression. JAMA 2002;287:762-5.
11. Cohen LS, Altschuler LL. Pharmacologic management of psychiatric illness during pregnancy and the postpartum period. Psychiatr Clin North Am 1987;4:21-60.
12. Escribá-Agüir V, Artazcoz L. Gender differences in postpartum depression: A longitudinal cohort study. J Epidemiol Community Health 2011;65:320-6.
13. Robertson E, Grace S, Wallington T, Stewart DE. Antenatal risk factors for postpartum depression: A synthesis of recent literature. Gen Hosp Psychiatry 2004;26:289-95.
14. Pearlstein T, Howard M, Salisbury A, Zlotnick C. Postpartum depression. Am J Obstet Gynecol 2009;200:357-64.
15. Desai N, Mehta R, Ganiwal J. Validation of the Gujarati version of the Edinburgh postnatal depression scale among women within their first postpartum year. Indian J Soc Psychiatry 2011;27:16-23.
16. Shivali S, Gururaj N. Postnatal depression among rural women in South India: Do socio-demographic, obstetric and pregnancy outcome have a role to play? PLoS One 2015;10:e0122079.
17. Huang YC, Mathers N. Postnatal depression – Biological or cultural? A comparative study of postnatal women in the UK and Taiwan. J Adv Nurs 2001;33:279-87.
18. Saldanha D, Rathi N, Bal H, Chaudhari B. Incidence and evaluation of factors contributing towards postpartum depression. Med J DY Patil Univ 2014;7:309.
19. Patel HL, Ganiwal JD, Nimbalkar AS, Vani SN, Vasa R, Nimbalkar SM, et al. Characteristics of postpartum depression in Anand district, Gujarat, India. J Trop Pediatr 2015;61:364-9.
20. Cox JL, Holden JM, Sagovsky R. Detection of postnatal depression. Development of the 10-item Edinburgh postnatal depression scale. Br J Psychiatry 1987;150:782-6.
21. Khan B, Basu R. A study on evaluation of prevalence and risk factors of postpartum depression (PPD) in Indian women. IOSR J Dent Med Sci 2016;15:59-62.
22. Dhunde N, Khapre M, Nayak S, Mudey A. Assessment of postnatal depression among mothers following delivery in rural area of Wardha district: A cross sectional study. Innov J Med Health Sci 2010;5:94-102.
23. Savarinthu RJ, Eziharasu P, Charles H, Antonisamy B, Kurian S, Jacob KS, et al. Post-partum depression in the community: A qualitative study from rural South India. Int J Soc Psychiatry 2010;56:94-102.
24. Sharma S, Sonawalla S, Parikh F, Parikh R. Psychiatric disorders associated with pregnancy. J Obstet Gynecol India 2018;55:218-27.
25. Avni-Barron O, Hoagland K, Ford C, Miller L. Preconception planning to reduce the risk of perinatal depression and anxiety disorders. Expert Rev Obstet Gynecol 2010;5:421-35.
26. Blom EA, Jansen PW, Verhulst FC, Hofman A, Raat H, Jaddoe VW, et al. Perinatal complications increase the risk of postpartum depression: A longitudinal cohort study. J Epidemiol Community Health 2011;65:139-44.
27. Kettunen P, Koistinen E, Hintikka J. The connections of pregnancy-, delivery-, and infant-related risk factors and negative life events on postpartum depression and their role in first and recurrent depression. Depress Res Treat 2016;2016:2514317.