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# Psychiatric morbidity among postnatal women in a tertiary care hospital

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## Abstract

**Introduction:** Maternal psychiatric disorders during pregnancy and the postpartum period are associated with adverse outcomes both for the mother and offspring in the long term, which increases the risk of poor mother-infant bonding and delays in infant development. The study aimed to assess the psychiatric morbidities among postnatal women in a tertiary care hospital.

**Method:** A cross-sectional study was conducted in Patan Hospital, Lalitpur, among 165 postnatal women using a purposive sampling technique from April 2020 to May 2021. Data was collected by the face-to-face interview technique using a structured interview schedule. Psychiatric morbidities were examined by using the Nepalese version of the Depression Anxiety Stress Scale 21 (N-DASS 21) and the Nepalese Version of the Edinburgh Postnatal Depression Scale (N-EPDS). Data were analyzed by using SPSS version 16. Descriptive statistics were used to analyze demographic variables. Chi-square and Fisher's exact test were used to examine the association between independent variables and psychiatric morbidities.

**Result:** The psychiatric morbidities were found among 56(34.51%) of postnatal women. Among them, postnatal depression 19(11.31%), anxiety 21(13.33%) and stress 16(9.67%) were prevalent. The gender of the baby was significantly ($\chi 2$ =6.382, p=0.012) associated with anxiety. No significant associations were found between other sociodemographic or obstetric variables and postnatal depression, anxiety, or stress.

**Conclusion:** Anxiety is more prevalent than postnatal depression and stress among postnatal women. The baby's gender is significantly associated with anxiety.

**Keywords:** anxiety; postnatal depression; psychiatric morbidities; stress



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## Introduction

Childbirth is universally considered a major life event that marks the beginning of a woman's journey into motherhood.[1] For most women, pregnancy and childbirth are joyful and fulfilling experiences.[2] However, many women also go through overwhelming emotions such as fear, anxiety, and guilt after delivery.[3]

Along with the joy of childbirth, women often encounter various medical, emotional, psychological, and social challenges.[4] Nearly 30% of women are reported to experience emotional distress during the postpartum period.[2] This may include feelings of frustration, confusion, or sadness. The postpartum period also brings changes in family relationships and introduces financial stress, even in well-off households. Mental health issues such as depression, anxiety, and stress are common during this phase, affecting both the mother and the newborn.[5,6]

Postpartum depression (PPD) typically begins within 12 weeks after delivery.[3] It presents with sadness, low energy, sleep problems, anxiety, and feelings of guilt. Mothers may also become overly concerned about their baby's health.[3] Similarly, postpartum anxiety and stress are common, especially among women with low social support, financial worries, difficult family relationships, or parenting burden.[7,8,9,10]

A survey done in Bangalore among 123 postpartum mothers found PPD to be the most frequent morbidity.[11] A study from Dhulikhel Hospital, Nepal, showed 17.1% prevalence, mostly in young women and housewives.[12] The burden remains high in India 23% and Pakistan 44%.[5,13] Anxiety and stress are often co-morbid with depression and reported to be 18.7% in Nepal and 10% in India.[4,14,15]

Despite high prevalence, postpartum depression, anxiety, and stress remain under-identified. So, this study aims to assess the prevalence and factors associated with postpartum depression, anxiety, and stress among postnatal mothers.

## Method

A quantitative cross-sectional study was conducted from April 2020 to May 2021 in the Patan Hospital, Immunization and Postnatal Clinic to assess the psychiatric morbidities among postnatal women. A purposive sampling technique was used. The study was conducted after administrative approval was received from the School of Nursing and Midwifery and the Institutional Review Committee (IRC) of Patan Academy of Health Sciences (PAHS) (Ref: PNM2008211424). The purpose, objectives, risks, and benefits of the study were well explained. Written consent was prepared in both English and Nepali, appropriate for the vulnerable group. Respondents were informed that they could deny participating as well as withdraw from the study at any time without giving any reason during the study period. A statement indicating that the participant has understood all the information in the consent form and is willing to participate voluntarily was obtained. Written informed consent was obtained from all participants using a generic PAHS format in Nepali. Confidentiality of respondents was maintained by coding the questionnaire. Semi-structured questionnaire in the Nepali version was used to collect the data.

At first, postnatal women who came to attending the immunization clinic and postnatal clinic were evaluated to determine whether they met the inclusion criteria or not by asking about their date of delivery of their baby. After the selection of women, the objectives of the study were explained to the women, and informed written consent was taken from the women. Data were collected by the face-to-face interview technique. A structured interview questionnaire in the Nepali language was used for the interview. The interview was conducted during the waiting time before and after the woman was seen by a doctor. It was collected at a separate corner of the immunization clinic and the postnatal clinic.

The interview took about 20-30 minutes for one postnatal woman. Six to seven postnatal women were interviewed per day based on availability of sample from 9 am–12 pm in the immunization clinic and from 1 pm to 3 pm in the postnatal clinic, from Sunday to Friday, excluding Wednesday, from 14 Feb to 18 Mar,2021 (24 days).

The instruments in this study consisted of two sections, one with sociodemographic variables, obstetric-related variables, and another with the Nepalese Version of the Edinburgh Postnatal Depression Scale (N-EPDS). The scale will be used to assess postnatal depression. It consists of 10 items with a 4-point Likert scale where 0 indicates no-not at all, 1 indicates no-not very often, 2 indicates yes-most of the time, and 3 indicates yes-all the time. The Nepalese version of DASS-21 will be used to measure stress and anxiety among postnatal women. A. total of 14 questions ask the respondents about how much those statements apply to them over the past week to assess stress and anxiety (7 items for stress and 7 items for anxiety). The response options are in a 4-point Likert scale where 0 indicates did not apply to me, 1 indicates applied to me to some degree, or some of the time, 2 indicates applied to me to a considerable degree, or a good part of time, 3 indicates applied to me very much or most of the time and 4 indicates applied to me very much, or most of the time.

The Nepali version of EPDS is a validated and reliable tool that has been confirmed with psychometric properties (Cronbach's alpha found to be 0.74) among 346 postpartum mothers attending the child immunization clinic of Tribhuvan University Teaching Hospital (TUTH), Kathmandu. It has already been used in Nepal to assess the postpartum depression among postnatal women.[16]

The Nepali version of DASS-21 is also a validated and reliable tool, which has been confirmed with the psychometric properties. Cronbach's alphas were computed for the three subscales. The internal consistency was 0.77 for DASS-D, 0.80 for DASS-A, and 0.82 for DASS-S among 212 Nepali adults in Hong Kong. The questionnaire has already been used in Nepal to assess psychiatric morbidity.[17]

After data collection, the data was stored on a personal laptop in a password-protected file, and only the researcher could access the data. Since data was collected in a paper form, the paper sheets were kept in a locked locker. The data was edited, coded, categorized, and then entered into Statistical Package for Social Sciences (SPSS)- 16. The analysis was done by using descriptive statistics, including frequency, mean, percentage, standard deviation, and inferential statistics, including Chi-square and Fisher's exact test, to examine the association between independent variables and psychiatric morbidities. P- value of <0.05 was taken as significant.

## Result

In this study, a total of 165 were included. Among them, most were under 30 years of age, domestic work as an occupation with secondary educational status in a joint family, Table 1.

**Table 1. Socio-demographic variables of postnatal women (n=165)**

| Variables | *f* (%) |
|---|---|
| **Age completed in years** | |
| ≤ 30 | 123(74.50) |
| > 30 | 42(25.45) |
| Mean±SD | 28.10±4.71 |
| **Occupation** | |
| Domestic work | 101(61.25) |
| Services | 39(23.63) |
| Business | 14(8.48) |
| Agriculture | 11(6.70) |
| **Educational status** | |
| No education | 5(3.00) |
| Primary | 16(9.70) |
| Secondary | 88(53.30) |
| Bachelor | 33(20.00) |
| Master | 23(13.90) |
| **Type of family** | |
| Joint | 91(55.15) |
| Nuclear | 74(44.84) |

There was a higher percentage of 107(64.84%) of male babies delivered, with 117(70.90%) of deliveries by cesarean section. Also, 109(66.06%) had planned pregnancies, with 99(60.0%) having single child, and 149(90.30%) having no history of medical co-morbidities, Table 2.

**Table 2. Obstetric-related variables of postnatal women (n=165)**

| Variables | *f* (%) |
|---|---|
| **Gender of baby** | |
| Male | 107(64.84) |
| Female | 58(35.15) |
| **Mode of delivery** | |
| Cesarean section | 117(70.90) |
| Normal vaginal delivery | 48(29.09) |
| **Planning of current pregnancy** | |
| Planned | 109(66.06) |
| Unplanned | 56(33.93) |
| **Number of pregnancy** | |
| One | 99(60.0) |
| Two | 48(29.09) |
| Three and more than three | 18(10.9) |
| **History of co morbidities** | |
| No | 149(90.30) |
| Yes | 16(9.69) |

The prevalence of psychiatric morbidities in postnatal women found in this study was 56(34.51%). While studying the type of psychiatric comorbidities, postnatal anxiety 21(13.33%) is the commonest, followed by postnatal depression 19(11.31%) and stress 16(9.67%), Figure 1.

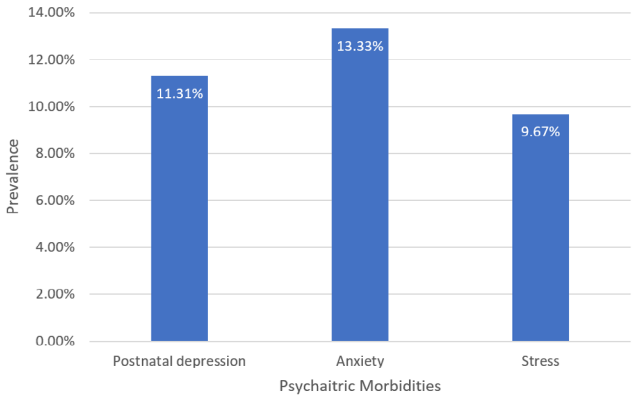


**Figure 1. Prevalence of Psychiatric morbidities in postnatal women (n=165)**

There was no association between the gender of the baby (p=0.870), mode of delivery (p=0.800), planning of pregnancy (p=0.776), number of pregnancies (p=0.968), and history of medical co-morbidities (p=0.340) with psychiatric morbidity (postnatal depression) in postnatal women, Table 3.

There was an association between the gender of the baby (p=0.012) and psychiatric morbidity (anxiety). And there was no association between mode of delivery (p=0.420), planning of pregnancy (p=0.776),

**Table 3. Association between obstetric-related variables and psychiatric morbidity (postpartum depression) by EPDS (n=165)**

| Variables | Postnatal depression | | Chi-square (χ2) | p-value |
|---|---|---|---|---|
| | Present(%) | Absent(%) | | |
| **Gender of baby** | | | | |
| Male | 12(11.21) | 95(88.78) | 0.027 | 0.87 |
| Female | 7(12.06) | 51(87.93) | | |
| **Mode of delivery** | | | | |
| Cesarean section | 13(11.11) | 104(88.88) | 0.064 | 0.8 |
| Normal vaginal delivery | 6(12.50) | 42(87.50) | | |
| **Planning of current pregnancy** | | | | |
| Planned | 12(11.00) | 97(88.99) | 0.081 | 0.776 |
| Unplanned | 7(12.50) | 49(87.50) | | |
| **Number of pregnancy** | | | | |
| One | 11(11.11) | 88(88.88) | 0.081 | 0.968 |
| Two | 6(12.50) | 42(87.50) | | |
| Three and more than three | 2(10.09) | 16(89.09) | | |
| **History of co-morbidities** | | | | |
| No | 16(10.73) | 133(89.26) | 0.91 | 0.34 |
| Yes | 3(18.75) | 13(81.25) | | |

**Table 4. Association between obstetric-related variables and psychiatric morbidity (anxiety) by DASS 21 (n=165)**

| Variables | Anxiety | | Chi-square(χ2) | p-value |
|---|---|---|---|---|
| | Present(%) | Absent(%) | | |
| **Gender of baby** | | | | |
| Female | 13(22.41) | 45(45.58) | 6.382 | 0.012 |
| Male | 9(8.41) | 98(91.58) | | |
| **Mode of delivery** | | | | |
| Cesarean section | 14(11.96) | 104(88.03) | 0.651 | 0.42 |
| Normal vaginal delivery | 8(16.67) | 40(83.33) | | |
| **Planning of current pregnancy** | | | | |
| Planned | 15(13.76) | 94(86.23) | 0.081 | 0.776 |
| Unplanned | 7(12.50) | 49(87.50) | | |
| **Number of pregnancy** | | | | |
| One | 12(12.12) | 87(87.87) | 0.364 | 0.834 |
| Two | 7(14.58) | 41(85.41) | | |
| Three and more than three | 3(16.66) | 15(83.33) | | |
| **History of co morbidities** | | | | |
| No | 18(12.08) | 131(87.91) | 2.087** | 0.149 |
| Yes | 4(25) | 12(75) | | |

**Table 5. Association between obstetric-related variables and psychiatric morbidity (stress) by DASS21(n=165)**

| Variables | Stress | | Chi-square(χ2) | p-value |
|---|---|---|---|---|
| | Present(%) | Absent(%) | | |
| **Gender of baby** | | | | |
| Male | 13(22.41) | 45(77.58) | 3.46 | 0.063 |
| Female | 7(12.50) | 100(77.58) | | |
| **Mode of delivery** | | | | |
| Cesarean section | 12(10.5) | 105(89.74) | 0.144 | 0.1 |
| Normal Vaginal delivery | 4(8.33) | 44(91.66) | | |
| **Planning of this pregnancy** | | | | |
| Planned | 13(11.92) | 96(88.07) | 1.823** | 0.267 |
| Unplanned | 3(5.35) | 53(94.64) | | |
| **Number of pregnancy** | | | | |
| One | 11(11.11) | 88(88.88) | 0.681 | 0.712 |
| Two | 4(8.33) | 44(91.66) | | |
| Three and more than three | 1(5.55) | 17(94.44) | | |
| **History of co morbidities** | | | | |
| No | 15(10.06) | 134(89.93) | 0.24** | 0.1 |
| Yes | 1(6.25) | 15(93.75) | | |

number of pregnancies (p=0.834), and history of medical co-morbidities (p=0.149) with psychiatric morbidity (anxiety) in postnatal women, Table 4.

None of the above-mentioned variables (gender of baby, mode of delivery of pregnancy, number of pregnancies, and history of medical co-morbidities) were significantly associated with psychiatric morbidity (stress) in postnatal women, Table 5.

## Discussion

The first objective of this study was to assess the prevalence of psychiatric morbidities, specifically postnatal depression, anxiety, and stress among postnatal women. Psychiatric morbidity was found in 56(34.51%) women, including 19(11.31%) with postnatal depression, 21(13.33%) with anxiety, and 16(9.67%) with stress. These findings are comparable to studies conducted in Iran (N=250) and Nepal (N=346), where the prevalence of postnatal depression was 20% and 17.1%, respectively.[12,17] Similarly, studies from India (N=100) and Nepal (n=9078) reported the prevalence of anxiety and stress at 10% and 9.8%, respectively.[4,18]

The slightly higher prevalence in the present study may be attributable to the COVID-19 pandemic, which potentially disrupted access to routine maternal healthcare services and heightened psychological distress. Factors such as fear of infection, financial instability, increased domestic responsibilities, and social isolation likely exacerbated the risk of psychiatric morbidity in this population.[4]

A study from Nepal (n=216) reported even higher rates of postnatal depression and anxiety 29% and 24.04%, respectively.[11] In India, a study involving 60 women found that 46(77%) experienced mild stress, 12(20%) moderate stress, and 2(3%) severe stress.[15]

The second objective was to explore associations between psychiatric morbidities and socio-demographic (age, education, occupation, type of family) and obstetric-related factors (gender of the baby, mode of delivery, pregnancy planning, number of pregnancies, and history of medical comorbidities).

No significant associations were observed between age, occupation, or family type and postnatal depression. This aligns with findings from Nepal (n=100), Qatar (n=2091), and India (n=71), where similar variables did not yield significant associations ($p > 0.05$ in all cases).[1,12,20] In contrast, studies from the USA (n=1423) and India (n=96) found age to be significantly associated with postnatal depression ($p < 0.0001$ and $p=0.013$, respectively).[12,13] Occupational status was also found to be significant in studies from Egypt ($p=0.009$) and India ($p=0.016$).[21,22] The type of family was positively associated with postnatal depression in other studies from India.[12,13]

Obstetric variables such as gender of the baby, delivery mode, pregnancy planning, and history of comorbidities were not significantly associated with depression in this study. Similar findings were reported in studies from India, Nepal, and Qatar.[5,11,13,19] However, contrasting evidence from India and Nepal indicates significant associations between depression and gender of the baby, medical comorbidities, delivery mode, and pregnancy planning.[11,17,22]

For anxiety, no significant associations were found with age, occupation, or family type, consistent with studies from Qatar and Nepal.[16,19] However, a study in Nepal (n=778) reported a significant association between occupation and anxiety ($p<0.05$).[17] Obstetric factors such as delivery mode, number of pregnancies, pregnancy planning, and comorbidities also showed no significant associations with anxiety, similar to findings from Iran, Nepal, and the USA.[16,17,23] Conversely, studies from Australia, the USA, and Iran identified significant associations with history of medical comorbidities.[14,17,23]

An interesting finding of this study was the significant association between anxiety and the gender of the baby. Mothers of female infants reported significantly higher anxiety levels than those with male infants ($p=0.012$). This may be attributed to persistent cultural norms that value male offspring due to perceived socioeconomic advantages and the burden of dowry practices.[5] This association contrasts with studies from Qatar and Nepal, where the gender of the baby was not significantly associated with anxiety.[19,24]

No significant associations were observed between obstetric factors (baby's gender, delivery mode, pregnancy planning, number of pregnancies, medical comorbidities) and postpartum stress. These findings are supported by studies from India and Nepal.[14,22] However, a large-scale study in Nepal (n=9078) reported significant associations between stress and both the gender of the baby ($p=0.030$) and delivery mode ($p=0.01$).[20] Additionally, a study from Australia (n=105) found that multiple pregnancies were significantly associated with postpartum stress ($p<0.05$).[14]

This study was limited to a single-center setting with a purposive sampling method, which may affect the generalizability of the findings. The cross-sectional design also restricts the ability to draw causal inferences. Future studies with larger, randomly selected samples and longitudinal designs are recommended to better explore the determinants and progression of postnatal psychiatric morbidities.

## Conclusion

This study found that more than one-third of postnatal women experienced psychiatric morbidities, with anxiety being the most common, followed by depression and stress. A significant association was observed between the gender of the baby and postnatal anxiety. These findings highlight the need for routine mental health screening during the postnatal period to ensure timely identification and appropriate support for affected women.

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## Conflict of Interest

None

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## Author's Contribution

Concept, design, planning: RM, BP; Data collection/ analysis: RM; Draft manuscript: RM; Revision of draft: RM, BP; Final manuscript: RM, BP; Accountability of the work: RM, BP.

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