DOI: https://doi.org/10.54393/pjhs.v5i12.2455

PAKISTAN JOURNAL OF HEALTH SCIENCES
(LAHORE)
https://thejas.com.pk/index.php/pjhs
ISSN (P): 2790-9352, (E): 2790-9344
Volume 5, Issue 12 (December 2024)

Original Article

OPEN ACCESS

Assessing Postpartum Depression and Anxiety during the Antenatal and Postpartum Period

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ARTICLE INFO

Keywords:
Postpartum Depression, Edinburgh Postnatal Depression Scale, Hospital Anxiety and Depression Scale, Maternal Mental Health, Antenatal Anxiety

How to Cite:
Ratyal, S., Saeed, S., Hameed, N., Sabir, F., Akram, S., & Habib, M. (2024). Assessing Postpartum Depression and Anxiety during the Antenatal and Postpartum Period : Postpartum Depression and Anxiety. Pakistan Journal of Health Sciences, 5(12), 50-55. https://doi.org/10.54393/pjhs.v5i12.2455

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Received Date: 3rd November, 2024
Acceptance Date: 21st December, 2024
Published Date: 31st December, 2024

ABSTRACT

Postpartum Depression (PPD) and anxiety were common mental disorders affecting women during the antenatal and postpartum periods. Early detection and intervention were vital for improving maternal and infant health outcomes. **Objective:** To assess the postpartum depression and anxiety during the antenatal and postpartum period using postnatal depression scale (EPDS) and the hospital anxiety and depression scale (HADS) **Methods:** Total 94 patients over six months in the Department of Obstetrics and Gynecology at Divisional Headquarters Teaching Hospital in Mirpur, Azad Kashmir were enrolled in this comparative cross sectional study. The pregnant women aged 18 to 45 during third trimester were included and excluding those with pre-existing psychiatric conditions or high-risk. The study utilized the HADS and EPDS while also recording demographic and clinical information, including age, education level, socioeconomic status, marital status, parity, gestational age at delivery, gestational diabetes, and preeclampsia. Data were analyzed using SPSS version 26 with appropriate statistical methods. **Results:** The majority of participants were over 25 years old (71.3%) and undergraduate education (62.8%), with 67.0% being multiparous. Gestational diabetes was present in 19.1%, and 16.0% had hypertension. HADS identified 15 mild, 35 moderate, and 44 severe cases, while EPDS reported 19 mild, 30 moderate, and 45 severe cases, with both scales showing the highest prevalence in the severe category. **Conclusions:** EPDS and HADS were two good screening tools for postpartum depression as well as anxiety. Using both together can certainly enhance the detection procedure, leading to timely intervention and a better prognosis of maternal as well as infant health.

INTRODUCTION

Pregnant or new moms go through a lot, are vulnerable to common psychiatric problems such as anxiety and Postpartum Depression (PPD). Among healthy mothers, PPD occurs 17 % worldwide according to a systematic review and meta-analysis [1]. While in high-income countries, it is often estimated at about 10-13%, whereas LMICs have significantly higher rates of prevalence ranging from 20-40% [2]. The difference among these countries partly arises because of socio-economic conditions, unavailability of health care, and cultural influence on mental health literacy and self-treatment seekers [3]. The South Asian country, including Pakistan, has a prevalence rate estimated between 28-63% with a comorbidity of anxiety disorders [4]. It is of paramount importance for the earliest recognition and management of postpartum depression and anxiety. Untreated mental disorders in mothers do not only affect the well-being of the mother but also have long-term consequences for child development, family relationships, and socio-economic outcomes [5]. Children of untreated PPD mothers are at a higher risk of developmental delays, behavioral problems, and mental disorders as adults [6]. Maternal depression has also been shown to be associated with higher rates of maternal mortality through suicide, especially among LMICs, where mental health services are not well capacitated [7]. Screening for postpartum depression and anxiety is thus needed both antenatally and postnatally. The two majorly validated tools used for this screening are the Edinburgh

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Postnatal Depression Scale (EPDS) and the Hospital Anxiety and Depression Scale (HADS). A 10-item specifically designed self-report questionnaire EPDS for postpartum depression helps identify at-risk women. Studies have documented that the sensitivity and specificity of detecting postpartum depression were between 86% and 78%, respectively. It has been translated and validated into many languages and has become a standard used worldwide to screen for postpartum depression [8, 9]. On the contrary, HADS is a 14 item measure of both anxiety and depression at the same time particularly useful for detection of comorbid anxiety disorders in the perinatal period. The HADS has been reported to have good psychometric properties both for antenatal and postpartum use with reported sensitivity of about 85% and specificity of about 80% for detection of clinically significant anxiety and depression [10, 11]. The HADS is used most often in clinical practice because of its brevity and also because the assessment of anxiety along with depression is crucial since antenatal anxiety is one of the key predictors of postpartum depression [12]. Cultural stigma attached to mental health conditions delays early diagnosis and treatment of postpartum depression and anxiety in Pakistan [13]. The current scenario of a recent Karachi study indicates that women with PPD seek professional help in only an exceptionally meager percentage, that is, 30% because they fear being misunderstood or judged by healthcare providers and family members [5]. Attempts to integrate routine screening for postpartum depression and anxiety into the ambit of antenatal and postpartum care in Pakistan have been made. Very recently, the Pakistan Society of Obstetricians and Gynecologists published a series of guidelines suggesting screening with both the EPDS and the HADS to detect early maternal mental health disorders [14]. However, implementation of these guidelines is still in its infancy, and there is an urgent need to institute large-scale, community-based mental health interventions that could help overcome barriers to care and improve maternal outcomes. The application of validated screening tools such as the EPDS and HADS during the antenatal and postpartum periods provides a cost-effective and efficient method of identifying those women at risk. However, in the case of countries like Pakistan, where mental health services are very underdeveloped, there exists an urgent need for policy-driven initiatives to integrate mental health into routine maternal health care, thus reducing the stigma and improving accessibility and utilization.

This study was conducted to assess the postpartum depression and anxiety during the antenatal and postpartum period using postnatal depression scale (EPDS) and the hospital anxiety and depression scale (HADS)

METHODS

A comparative cross sectional study was carried out within six months in the Department of Obstetrics and Gynecology at Divisional Headquarters Teaching Hospital Mirpur Azad Kashmir from January to July 2024 after taking the approval from Mohtarma Benazir Bhutto Shaheed Medical College Mirpur (Ref.No.65/ACADEMICS BLOCK TRAUMA CENTER/SURGERY/2024) and this research followed ethical considerations, where written informed consent was received from all the participants before their contribution. Total 94 patients sample size was calculated by using the prevalence of postpartum depression in Pakistani females as 19.3%, taking 8% margin of error and 95% confidence interval [14]. The pregnant females aged 18 to 45 years during third trimester without a history of pre-existing psychiatric conditions or high-risk pregnancies were included. Pregnancies with a high risk and any prior history of psychiatric disorders were excluded to control for variables that may confound findings concerning postpartum depression and anxiety. The participants were recruited by consecutive sampling technique as they attended their routine antenatal visits. The major tools applied for the assessment of their mental status were the well-known HADS and the EPDS scales, the most esteemed tools in maternal mental health research. HADS contains 14 items. Total score of HADS ranges from 0 to 21. The score between 0-7 was considered as normal, 8-10 showed mild anxiety and depression and score >11 showed severe anxiety and depression [15]. The other self-report questionnaire EPDS was a 4-point Likert score scale that ideally should be of 10 items specifically meant for use in the screening of postpartum depression. The total score of EPDS range from 0 to 30, where the score 0-9 indicates mild depression, the score between 10-12 showed moderate depression and score >13 showed severe depression [16]. The participants' assessments were made at 2 different critical points of the study. The first assessment was carried out during the third trimester (antenatal period) by using HADS. The second assessment was done six weeks after delivery, at the postpartum postnatal visit, when all symptoms of post-delivery depression and anxiety can be identified by using EPDS. In addition to the HADS and EPDS tests, the demographic and clinical information was also recorded on a predesigned proforma which including age and education levels, socioeconomic status, marital status, parity, gestational age ant delivery, gestational diabetes and preeclampsia. The collected data of this study were entered into SPSS version 26. The demographic and clinical presentation of the patients were analyzed by using frequency and percentages. The diagnostic accuracy of HADs and EPDS was calculated by using sensitivity, specificity, positive predicted value and negative predicted value.

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RESULTS

The majority of participants was over 25 years old (71.3%) and had been married for less than two years (55.3%). Most had undergraduate education (62.8%), with 67.0% being multiparous. Gestational diabetes was present in 19.1%, and 16.0% had hypertension. In terms of delivery, 60.6% had a C-section, while 39.4% had a vaginal delivery. Overall, the sample was predominantly older, educated, and multiparous, with a higher rate of C-sections (Table 1).

Table 1: Demographics and Clinical Investigation of selected Patients

Variables	Frequency (%)
Age	
Less than 25	27 (28.7%)
More than 25	67 (71.3%)
Marriage Duration	
< 2 Years	52 (55.3%)
> 2 Years	42 (44.7%)
Education	
Illiterate	8 (8.5%)
FA	25 (26.6%)
Undergraduate	59 (62.8%)
Postgraduate	2 (2.1%)
Parity	
Primiparity	31 (33.0%)
Multiparity	63 (67.0%)
Gestational Diabetes Mellitus	
Yes	18 (19.1%)
No	76 (80.9%)
Hypertension	
Yes	15 (16.0%)
No	79 (84.0%)
Mode of Delivery	
Vaginal Delivery	37 (39.4%)
C-Section	57 (60.6%)

HADS identified 15 mild, 35 moderate, and 44 severe cases, while EPDS reported 19 mild, 30 moderate, and 45 severe cases. Both scales demonstrate a higher number of participants in the severe category, with HADS recording 44 severe cases and EPDS identifying 45 severe cases. The distribution across mild and moderate categories was also similar, with EPDS detecting slightly more mild cases and HADS identifying more moderate cases (Figure 1).

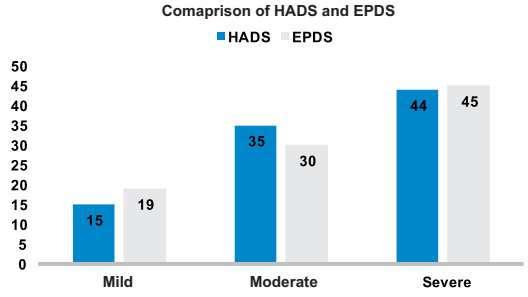

Figure 1: Comparison of HADS Scores Assessed During the Antenatal Period and EPDS Scores n The Postpartum Period Among Pregnant Women

A total of 68 participants tested positive on the EPDS, while 26 tested negative. Of those testing positive on EPDS, 45 also tested positive on HADS, yielding a sensitivity of 72.58%, indicating that HADS correctly identified about 73% of participants who had depression or anxiety according to EPDS. However, the specificity was relatively low at 28.12%, meaning that HADS only correctly identified about 28% of those who did not have depression or anxiety according to EPDS. The positive predictive value was 66.18%, suggesting that 66% of those who tested positive on HADS truly had depression or anxiety based on EPDS results. The negative predictive value was 34.62%, indicating that only about 35% of those who tested negative on HADS were truly free from depression or anxiety. Overall, the diagnostic accuracy of HADS in this study was 57.45%, meaning that HADS correctly classified participants according to EPDS just over half of the time. These findings suggest that while HADS has good sensitivity, its specificity and overall diagnostic accuracy was limited in this population (Table 2).

Table 2: Diagnostic Accuracy of HADS and EPDQ for Evaluating Depression and Anxiety among Postpartum Female

HADS	EPDS (%)		Total
	EPDS (%)	Negative	
Positive	45	23	68
Negative	17	9	26
Total	62	32	94
Sensitivity	72.58%		
Specificity	28.12%		
Positive Predicted Value	66.18%		
Negative Predicted Value	34.62%		
Diagnostic Accuracy	57.45%		

DISCUSSION

The findings of this study underscore the critical importance of early and reliable detection of Postpartum Depression (PPD) and anxiety through the use of validated screening tools. In this study, HADS identified 15 mild, 35 moderate, and 44 severe cases, while EPDS reported 19 mild, 30 moderate, and 45 severe cases. Both scales demonstrate a higher number of participants in the severe category, with HADS recording 44 severe cases and EPDS identifying 45 severe cases. This was consistent with existing research, as EPDS, being specifically designed to screen for postpartum depression, may better capture emotional and cognitive symptoms, such as anhedonia and guilt, which were prevalent in this population [17]. Additionally, the dual functionality of HADS in screening for both anxiety and depression was particularly beneficial, as

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anxiety was a common comorbidity with PPD, and HADS identified moderate to severe anxiety in 20% of participants. The ability to assess anxiety alongside depression was valuable, as untreated anxiety can exacerbate depressive symptoms and negatively affect maternal-infant bonding, which highlights the complementary roles of HADS and EPDS in clinical practice [18]. A study reported that 33.3% of women experienced Postpartum Depression (PPD). A significant correlation indicated that women with higher EPDS scores shortly after delivery were more likely to continue experiencing depressive symptoms weeks later, underscoring the importance of early screening to monitor those at risk [19]. Another study conducted on the Chinese population found that the prevalence of antenatal major and minor depression was 9.6% and 30.5%, respectively. This elevated rate of both major and minor depressive disorders underscores the substantial mental health challenges encountered by this group, especially in relation to obstetric complications [20]. Another study was conducted on the diagnostic accuracy of EPDQ, it was reported that the EPDQ showed excellent diagnostic accuracy for depression in postpartum women [21]. In currents study it was demonstrated that amongst the two scales, EPDS has shown promising results to diagnose postpartum depression compared to HADS in differentiating these two conditions. These findings were consistent with cross-sectional study assessing the psychometric properties of depression and anxiety scales, found both scales exhibited good internal consistency and fair correlation. The highest Cohen's kappa was 0.46, showing fair agreement between the two. Both scales were reliable tools for assessing antepartum depression, with focusing on EPDS detecting depressive symptoms accompanied by anxiety. The study suggests that using both scales together could improve the identification of antepartum depressive disorders in clinical practice [22]. In a community-based cross-sectional study conducted among 270 postpartum women at public health facilities, 92 women (34.6%) screened positive for depression using the EPDS, 89 women (33.3%) were scored with HADS-A and were anxious. A total of 69 women experienced both anxiety and depression. It was widely believed that EPDS was a better measure of depression due to being focused toward postpartum populations while the HADS-A was better for measuring anxiety [23]. This study emphasizes the importance of repeated mental health assessments during pregnancy and the postpartum period, as symptoms can change over time. The study recommends the combined use of the HADS and EPDS in routine clinical practice to achieve a more comprehensive understanding of maternal mental health. Utilizing both tools may enhance the detection of anxiety disorders, which were often underdiagnosed, ensuring that a wider array of mental health challenges in postpartum women was addressed. The study has few limitations in particular the small sample size, which could invite selection bias and perhaps limit the external validity of the study findings. If the sample size was relatively small in proportion to the population that was being tested, it was plausible that these findings would be wrong and would have lower relevance in other populations or contexts.

CONCLUSIONS

Amongst the two scales, EPDS has shown promising results to diagnose postpartum depression compared to HADS in differentiating these two conditions. Hence, using both of these scales would complement the value toward clinical practice. Important for this was early detection, and timely interventions, as efforts to enhance maternal mental health outcomes have always highlighted the need for integrating routine antenatal and postpartum care with mental health screening in preventing the possible long-term consequences on mothers and their children.

Authors Contribution

Conceptualization: SR
Methodology: SR, FS, SA
Formal analysis: SR
Writing, review and editing: SR, SS, NH, FS, SA, MH

All authors have read and agreed to the published version of the manuscript

Conflicts of Interest

All the authors declare no conflict of interest.

Source of Funding

The author received no financial support for the research, authorship and/or publication of this article.

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