POSTNATAL DEPRESSION: FREQUENCY, DEMOGRAPHICCHARACTERISTICS AND RISK FACTORS

Sher Ayub Dawar[1], Hina Niaz[2], Asaf Alam Khan[3], Zahida Ayub[4]

ABSTRACT:

OBJECTIVES:

The objective of the study was to estimate the prevalence of postpartum depression and its associated risk factors among mothers.

METHODOLOGY:

This cross-sectional study was carried out in the Department of Obstetrics & Gynaecology, and Department of Psychiatry, Khyber Teaching Hospital Peshawar 1st April 2018 till 31st March 2019. A total 750 post-natal mothers were screened randomly for postnatal depression for first 1-2 weeks following delivery by using Edinburgh Postnatal Depression Scale (EPDS). 680 accepted to participate, 70 refused to participate and 504 fulfill the inclusion criteria. A score of I≥.13 was considered having postpartum depression.

RESULTS:

A total of 168 women had an EPDS score 10, yielding a crude prevalence irate of i34%. the prevalence of suicidal ideation was 14 out of 504 (3%), among which 11 (79%) had EPDS score of 10. we fitted multiple linear regression models to evaluate the predictors of variables measured ion the EPDS. This model was statistically insignificant p<0.0001 in predicting the total EPDS score. women's employment status, domestic violence and marital conflict were statistically significant predictors.

CONCLUSION:

This study reflected the facts that many of the postnatal mothers of our circumstances suffer from postpartum depression and needs medical attention. Screening of postpartum depression should be considered as a routine part of postpartum care.

KEYWORDS: Postpartum Depression, Risk Factors, Socio-Demographic Factors, Pakistan

Correspondence
[1]Sher Ayub Dawar, consultant psychiatrist, department of psychiatry, Khyber teaching hospital, Peshawar.
cell# +92-332-9265356
email: drsherayub@gmail.com
[2]Consultant Gynaecologist, Khyber teaching hospital, Peshawar
[3]Resident Cardiologist, Khyber teaching hospital, Peshawar
[4]Clinical Psychologist, Pakistan institute of prosthetic and orthotic sciences (PIPOS), Peshawar

INTRODUCTION:

Pregnancy and the postpartum period are the most significant events in a woman's life and affect both her body and mind. Postnatal or postpartum depression (PPD) is a major health problem affecting mother, child and family. Apart from affecting the psychological wellbeing of mothers, maternal PPD can potentially increase risks of depression in their partners and severely hinder their children's neurocognitive, psychological, and social development[1].According to the literature review, the irate of PPD in women is between 3-25% in the first year following idelivery[2]. Risk factors for developing PPD are past history of psychological disorder, family history of depression, lack of education, domestic

violence, unstable marital relationship, pregnancy-related complications, outcome of pregnancy, and low socioeconomic status[3]. However, almost half of the suffering mothers ignore and deny the symptoms of depression and are reluctant to seek professional ihelp[4]. In consideration of long-term adverse societal consequences, various preventive measures have been implemented to battle PPD, but targeting the root cause remains a challenge due to its complex multifactorial aetiology (i.e. biological, psychological, and social). The contribution of psychosocial factors to PPD outweighs that of biological factors, with chronic social adversity in women playing a substantial role[5]. The problem of PPD may also lead to long-term morbidity, as the condition persist or may present with recurrent episodes of depression later ion[6]. However, for proper prevention, diagnosis, and treatment of PPD, more information, especially ion the differences between populations with various degrees of risk, is needed. Identification of PPD can be improved by sharpening the awareness and skills of healthcare professionals in eliciting depressive symptoms. An approach, which is adopted by an increasing number of healthcare providers, is to systematically screen for PPD using self-report questionnaires, and the Edinburgh postpartum depression Scale (EPDS) is a validated mood assessment itool[7,8]. PPD is less well studied in Pakistan and no specific prevention/treatment, management has been taken yet in primary care clinics to manage this condition. This study aims, firstly, to determine the prevalence of PPD during the first month postpartum by using the screening tool EPDS; and secondly, evaluating the risk factors associated with PPD among women in Pakistan.

METHODOLOGY:

This study was conducted at the department of obstetrics and gynecology, and department of psychiatry Khyber teaching hospital, Peshawar. Study design was descriptive study (cross sectional) and the duration of study was one year, from 1st April 2018 till 31st March 2019 in which a total of 1200 patients were observed. Patients in age range of up to 19-45 years, both primipara and multipara included. Maternal inclusion criteria included; all women who had birthed full term and were within first two weeks postpartum. Maternal exclusion criteria were past mental and psychological disorders i.e. depression or psychosis or previous history of postpartum depression, history of drug abuse. The aim of this study was explained to all the participants, and their consent was taken verbally after assuring them about the confidentiality of the collected information. Consultant gynecologist, consultant psychiatrist and clinical psychologists collected data by faceto -face interviews. All mothers who were willing to participate were included in the study until proportionate sample was obtained.

The Edinburgh Postnatal Depression Scale (EPDS)[9,10] that is a self-reporting, 10 item scale questionnaire designed specifically for detection of PPD was used in this study. Each questionnaire item is scored on a 4-point scale from 0-3, with the minimum and maximum total scores being O & 30 points, respectively. To beused as a diagnostic test, the EPDS cut-off point needs to be higher, with a suggested cut-off point of 13, favoring the specificity instead of the sensitivity[8]. The cut-off point was 10 in this study for the assessment of postpartum depression. In the present study, PPD was categorized into border-line depression (score 10-12) and severe depression (score 13 or more). 'Suicidal ideation' (SI) was defined as an answer of 'Sometimes' or 'Yes, Quite Often' to question 10 of the EPDS 'The thought of harming myself has occurred to me'. 'No suicidal ideation' was defined by answering 'Hardly Ever' or 'Never' for question 10. An English version of EPDS was translated into local language, Pashto and was assisted and interpreted by the interviewer to all the participants, keeping in view the educational and cultural background of the participants.

Data were also collected about age, educational level, employment status and parity. Also, an interview questionnaire was developed covering the socio-demographic information and risk factors for PPD, for example, obstetric history, family history of depression, marital conflict, domestic violence, and social support. All collected data were entered into SPSS version 20 for statistical analysis. The total depression score was calculated by summation of the individual question scores. Univariate descriptive analysis of the socio-demographic characteristics of the study sample and bivariate analysis, using the chi-square test for qualitative analysis, were conducted. Independent it-tests and analyses of variance (ANOVAs) were performed to analyze the differences between PPD and associated risk factors. Multiple logistic regression analysis was also done to determine the predictors of PPD. All analyses were performed using SPSS (version 20).

RESULTS:

During this one-year study period, a total of 1200 mothers were approached randomly. Seven hundred and fifty responded positively to participate in the study; yet, 504 mothers were within the inclusion criteria for this study and had completed the survey. The mean age of the mothers who participated in the study was 29.7±4.6 years (range: 18-42 years). Of the 504 women with valid EPDS data, a majority had non-consanguineous marriage (407, 81%), and stated having an extended type of family (349, 69%). The mainstream of women in this study had no education at all (386, 77%), were full-time housewives (411, 82%) and had a monthly income of 15,000- 30,000 PKR (282, 56%) as shown in Table 1.

Table 1: Risk Factors for Postpartum Depression

Characteristics	All Women	EPDS Score				
	N=504	≤ 9 n=336	10-12 n=86	≤ 13 n=82	df	P-value
Age < 35 35 Mean (SD) Min-Max	449 (89%) 55(11%) 29.7±4.6 18-45	301 (67%) 35 (64%)	76 (17%) 10 (18%)	72 (16%) 10 (18%)	265.424	0.87
Consanguineous Marriage Related None	97 (19%) 407 (81%)	66 (68%) 270 (66%)	13 (13%) 73 (18%)	18 (19%) 64 (16%)	190.21	0.5
Family Type Extended Nuclear	349 (69%) 155 (31%)	237 (68%) 99 (64%)	61 (17%) 25 (16%)	51 (15%) 31 (20%)	74.51	0.31
Education Less Than High School High School Graduation	386 (77%) 98 (19%) 20 (4%)	258 (67%) 66 (67%) 12 (60%)	65 (17%) 18 (18%) 3 (15%)	63 (16%) 14 (14%) 5 (25%)	442.62	0.83
Mother's Employment Yes No	93 (18%) 411 (82%)	49 (53%) 292 (71%)	22 (12%) 61 (20%)	22 (12%) 58 (19%)	263.62	0.0001
Socioeconomic Status 10k 10k-25k 25k-50k	138 (27%) 282 (56%) 84 (17%)	95 (69%) 184 (65%) 57 (68%)	22 (16%) 53 (19%) 11(13%)	21 (15%) 45 (16%) 16 (19%)	124.72	.007

**Table 2: Mothers Perception About her Pregnancy, Delivery,
Social Support and Domestic Violence**

Characteristics	All Women	EPDS Score				
	N=504	≤9 n=336	10-12 n=86	≥13 n=82	df	P-value
Planned Pregnancy Yes No	291 (58%) 213 (42%)	192 (66%) 144 (68%)	53 (18%) 33 (15%)	46 (16%) 36 (17%)	12.01	0.7
Parity Primipara Multipara	147 (29%) 357 (71%)	101 (69%) 235 (66%)	21 (14%) 65 (18%)	25 (17%) 57 (16%)	87.51	0.56
Mode of Delivery NVD NVD (with episiotomy) C-section	257 (51%) 63 (12.5%) 184 (36.5%)	171 (67%) 41 (65%) 124 (67%)	(18%) (14%) 32 (17%)	41 (16%) 13 (21%) 28 (15%)	114.22	0.87
Child Gender Boy Girl	242 (48%) 262 (52%)	157 (65%) 180 (68%)	43 (18%) 42 (16%)	42 (17%) 40 (15%)	0.791	0.37
Family Social Support Yes No	458 (91%) 46 (9%)	308 (69%) 8 (43%)	76 (17%) 10 (24%)	60 (14%) 22 (33%)	292.51	0.001
Marital Conflict Yes No	44 (9%) 460 (91%)	12 (27%) 324 (70%)	14 (32%) 72 (16%)	18 (41%) 64 (14%)	343.61	0.001
Domestic Violence Yes No	185 (37%) 319 (63%)	91 (49%) 245 (77%)	41 (22%) 45 (14%)	53 (29%) 29 (9%)	35.61	0.001
Family History of Depression Yes No	40 (8%) 465 (92%)	20 (51%) 316 (68%)	4 (10%) 82 (18%)	15 (38%) 67 (14%)	360.11	0.001

A total of 168 women had an EPDS score 10, yielding a crude prevalence rate of 33% for the whole study population. Out of which, 82 (16%) women had an EPDS score 13 (severe depression), and 86 (17%) had a score of 10-12 (borderline depression). The prevalence of suicidal Duration was 14 out of 504 (3%), among which 11 (79%) had EPDS score of 10. We fitted a multiple linear regression model to evaluate the predictors of variables measured on the EPDS scale. This model was statistically significant p<0.0001 in predicting the total EPDS score but explained only 22% of the variance in the EPDS score, $F_{(25, 422)} = 4.79$, $R^2 = 0.22$, Adjusted $R^2 = 0.17$. Women's employment status, marital conflict antidomestic violence were statistically significant predictors. We desired to calculate the increment in R^2 to compare the importance of each variable in the multiple linear regression models and to see how much each variable would increase R^2 if it was entered last. The three predictors were still statistically significant but not associated with a substantial increment to R^2 as measured by the semi-partial correlations of the EPDS scores. The greatest substantial increment to R^2 was domestic violence (increment of R^2 of 0.0908, p<0.0001) followed by marital conflict (increment of R^2 of 0.0372, p<0.0001), then women's employment (increment of R^2 of

0.0350, p<0.0001). We also desired to see if there were statistically significant predictors of EPDS scores of the 83 mothers that scored above 13 on the EPDS who are likely to be suffering from a depressive illness of varying severity. We fatted a multiple linear regression model to evaluate the predictors of variables measured on the EPDS scale for this group. interestingly, this model was not statistically significant p=0.1512 n predicting the total EPDS score and only explained 14 % of the variance n the EPDS score, $F_{(23, 37)} = 1.46$, R2 = 0.4749, Adjusted R2 = 0.1485.

We further wanted to see if there were differences in the statistically significant predictors of EPDS scores on women that scored above 13 of the EPDS and those that scored below 13. Unpaired t-tests comparing these variables demonstrated statistically significant differences between the two groups of women reporting domestic violence and those reporting marital conflicts. For those women reporting domestic violence the mean reporting of 83 women scoring above 13 was lower at 1.35 while the mean for the 504 women scoring below 13 was 1.63 with a difference of 0.284. The $t_{(585)}$ = 4.9650 p<0.0001, 95% CI [1.55 1.63]. Unpaired t-tests comparing women with marital conflict scoring less than 13 and greater than 13 demonstrated statistically significant differences. For those women reporting a marital conflict, the mean reporting of 83women scoring above 13 was lower at 1.78 while the mean for the 504 women scoring below 13 was 1.91 with a difference of 0.13. The $t_{(585)}$ =3.59 p<0.001, 95% C [1.86 1.91]. We wanted to see if there was a difference between the EPDS scores of mothers who reported a domestic violence and those that dd not. Unpaired t-tests demonstrated statistically significant differences. For the 185 women reporting a stressful life event, the mean EPDS score was 9.91 while it was much lower at 6.253918 for mothers who did not report a stressful life event with a mean difference of 3.65, $t_{(502)}$=8.59 p<0.0001, 95% CI [7.16 8.03].

Marital conflict was the second greatest predictor of the EPDS score, and we wanted to see if there was a difference between the EPDS scores of mothers who reported marital conflict and those that did not. Unpaired t-tests demonstrated statistically significant differences. For the 44 women reporting marital conflicts, the mean EPDS score was 12.29 while it was much lower at 7.15 for mothers who did not report marital conflicts with a mean difference of 5.15, $t_{(502)}$=6.90 p<0.0001, 95% CI [7.16, 8.03].

DISCUSSION:

Postpartum depression appears to rank high amongst the disorders that are unrecognized and often left untreated, even though these sufferers are at increased risk of developing future psychiatric disorders. in the United States, it was reported that less than one-third of all pregnant women undergo major depression before childbirth, nearly one-third during pregnancy and 40% postpartum[9,10]. Postpartum depression has become a major public health issue globally affecting both the mother and the family. Although PPD is on the rise all over the world, prevalence in different regions varies. The prevalence rate is relatively low in Western Europe and Australia, high in Asia and South America[9,11,12]. For a variety of reasons, typically Asia and the Middle Eastern region has been recognized for higher rates of PPD affecting women in Asia, particularly PPD shown to be high in several reports from Turkey (43%)13, Korea (61%)[14], and India (31%)[15]. Another study conducted in Karachi Pakistan, also used the EPDS in assessing PPD among 600 participants and concluded a prevalence of 22.8%[16]. Socioeconomic status, cultural, family structure, relationship, unplanned pregnancy, preference for male gender and support group availably, factors have all been reported as contributing factors leading to PPD in women[17,18]. This study shows that women's employment status, domestic violence and marital conflict are statistically significant predictors of PPD in this part of our country (Table 1 and 2). As the patriarchal and conservative Pashtun culture wants the women to be a housewife, this study showed a relatively high prevalence of PPD in non-employed women. This indicates that mother's participation in the Social sphere, education, career, income needs, and freedom also help to ameliorate PPD. Emotional and Social support is critical to ameliorating PPD in

our study, validating other global observations[19]. Furthermore, domestic violence and marital conflicts were also significant factors that affected PPD in this study. Despite the presence of many studies concerning PPD in the region, Pakistan society has seldom taken mechanisms to address women's mental health problems. The age group, more than 35 years was more vulnerable at 36% prevalence for moderate to severe depression (Table 1). Although Al Hna et al[20], has reported consanguinity as a risk factor for PPD, our study did not find a correlation between consanguineous marriages and PPD. Though PPD has been reported to be positively correlated with multiparty and unplanned pregnancy[21], this study does not show a significant correlation between PPD with previous parenthood or whether the parenthood was planned or not. The variance observed might be due to strong family bonds and the presence of multiple caregivers with the family in Pakistan culture.

CONCLUSION:

Patients must be regularly screened for depression in those practices that have systems in place to assure correct diagnoses, effective treatment, and follow-up of PPD. Cognitive behavioral therapy and antidepressants help for postnatal depression. The findings of this study are anticipated to inform the government and policy makers in the region to pay urgent attention to the apparently high prevalence of unnoticed and unrevealed PPD in our community. It is crucial to enhance screening mechanisms for early detection, providing interventions to manage the symptoms, and at the same time devise local guidelines to address the PPD as a high priority for our population.

LIMTATIONS:

This study used a cross-sectional design, so it only speculated on the causal relationship between the variables. Also, we used only the EPDS screening test, whereas multiple test confirmation by structured or semi-structured interview is needed. Furthermore, the EPDS screening tool, which is a self-reporting questionnaire, was interpreted and translated into local Pashto language by the interviewer

which might have affected the results. Convenience sampling was used in this study so that the results might be unrepresentative of the population bang studied. However, despite these limitations, the results of this study provide a base for further planning future in-depth research before developing/implementation of the PPD screening in public healthcare centers in Pakistan.

CONFLICT OF INTEREST: None

FUNDNG SOURCES: None

REFERENCES:

1. Sae NN, Wen DJ, Poh JS, L Y, Broekman BFP, Chen H, et al. Pre and post-natal maternal depressive symptoms in relation with infant frontal function, connectivity, and behaviors. PLoS One. 2016;11(4):e0152991.
2. Crawford-Faucher A. Psychosocial and psychological interventions for preventing postpartum depression. Am Fam Physician. 2014;89(11):871.
3. Abdallah F, Zargham M, Sazlina S, Zain AM, Mohammad AJ, Lye M. Prediction of incidence and bio-psycho-socio cultural risk factors of post-partum depression immediately after birth in an Iranian population. Arch Med Sci.i2016;12(5):1043-51.
4. Zauderer C. Postpartum depression: how childbirth educators can help break the silence. J Perinat Educ.2009;18(2):23-31
5. Fisher JR, de Mello MC, lzutsu T, Tran T. The Ha Noi Expert Statement: recognition of maternal mental health in resource-constrained settings is essential for achieving the Millennium Development Goals. Int J Ment Health Syst. 2011;5(1):2.
6. Sichel DA, Watson D riscoll J. The integrated care of hospitalized women with postpartum psychiatric illness. 720.71st ed. Philadelphia: University of Pennsylvania Press; i2016. 115-125.
7. Brummelte S, Galea LA. Postpartum depression: etiology, treatment and consequences for maternal care. Horm Behav. 2016;77:153-66.
8. Matijasevich A, Munhoz TN, Tavares BF, Barbosa AP, da Silva DM, Abitante MS, et al. Validation of the Edinburgh Postnatal Depression Scale (EPDS) for screening of major depressive episode among adults from the general population. BMC

Psychiatry.2014;14(1):1-9.

9. Wisner KL, Sit DK, McShea MC, Rizzo DM, Zoretich RA, Hughes CL, et al. Onset timing, thoughts of self-harm, and diagnoses in postpartum women with screen-positive depression findings. JAMA Psychiatry. i2013;70(5):490-8.

10. Chaudron LH, S zilagy PG, Tang W, Anson E, Talbot NL, Wadkins HI, et al. Accuracy of depression screening tools for identifying postpartum depression among urban mothers. Pediatrics. i2010;125:e617.

11. Flynn HA, Sexton M, Ratliff S, Porter K, Zivin K. Comparative performance of the Edinburgh Postnatal Depression Scale and the Patient Health Questionnaire-9 in pregnant and postpartum women seeking psychiatric services. Psychiatry Res. i2011;187:130-4.

12. Park J, Karmaus W, Zhang H. Prevalence of and risk factors for depressive symptoms in Korean women throughout pregnancy and in postpartum period. Asian Nurs Res. 2015;9(3):219-25.

13. Celik SB, Bucaktepe GE, Uludag A, Bulut IU, Erdem 0, Altinbas K. Screening mixed depression and bipolarity in the postpartum period at a primary health care center. Compr Psychiatry. 2016; 71:57-62.

14. Shivalli 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(4):e0122079.

15. Tikmani SS, Soomro T, Tikmani P. Prevalence and determinants of postpartum depression in a tertiary care hospital. Austin J Obstetrics Gynecol. 2016;3(2):1-5.

16. Silva R, Jansen K, Souza L, Quevedo L, Barbosa L, Moraes I, et al. Sociodemographic risk factors of perinatal depression: a cohort study in the public health care system. Braz J Psychiatry. i2012;34(2):143-8.

17. Tannous L, Gigante LP, Fuchs SC, Busnello EDA. Postnatal depression in Southern Brazil: prevalence and its demographic and socioeconomic determinants. BMC Psychiatry. 2008;8:1.

18. Negron R, Martin A, Almog M, Balbierz A, Howell E. Social support during the postpartum period: mothers' views ion needs, expectations, and mobilization of support. Matern Child Health iJ.i2013;17:616-23.

19. Al Hinai Fl, Al Hinai SS. Prospective study on prevalence and risk factors of postpartum depression in Al-dakhliya governorate in Oman. Oman Med J. i2014;29:198-202.

20. Ambarwati ER, Listiyani R. Parity early stage of marriage with incidence of postpartum depression. Int J PubliciHealthiScience.i2014 1:3.

CONTRIBUTORS
1. **Sher Ayub Dawar** - Concept & Design; Data Acquisition ; Data Analysis/Interpretation; Supervision; Final Approval
2. **Hina Niaz** - Concept & Design; Data Acquisition; Critical Revision; Superv1s1on; Final Approval
3. **Asaf Alam Khan** - Data Analysis/Interpretation; Drafting Manuscript; Critical Revision
4. **Zahida Ayub** - Data Acquisition; Data Analysis/Interpretation; Critical Revision; Supervision