PREVALENCE OF POSTPARTUM DEPRESSION AND ASSOCIATED RISK FACTORS IN FEMALES OF TWIN CITY

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ABSTRACT

Background: Postpartum depression (PPD) is a kind of depressive disorder appears in female in postnatal period within 3 to 4 months after child birth, it also brings devastated effects on the child development and physical health.

Objectives: To determine prevalence of postpartum depression among the females of twin cities (Rawalpindi and Islamabad) and the risk factors associated with it. And the other objective was to determine the difference of physical activity among postpartum females with or without depression and the difference of social activity among postpartum females with or without depression.

Materials and Methods: It was an observational analytical cross-sectional survey in which non-probability purposive sampling was used. This study was conducted at out-patient Department (OPD) of Pediatrics, Obstetrics and Gynecology, of twin city hospitals. Study has been done and completed within 6 months. A sample of 730 postnatal females' lies within 0 to 3 postnatal

months was included. A well-structured questionnaire was designed to collect data directly from the postpartum females. Data was analyzed by the application of descriptive statistics through SPSS-22.

Results: Findings of the study showed that 39.5% females were suffering from PPD, Edinburgh score was 10.75±5.39. Early mother child separation (2.499), twin child birth (3.414), Any worry about baby sex (2.418) were main determinant of PPD. For level of physical activity Mann Whitney test showed significant difference between levels of physical activity among female with or without depression (p value: 0.000)

Conclusion: Prevalence of postpartum depression in twin city was 36.9 %. Abnormality during hospital stay, unwanted pregnancy, experience of abortion, Twin child birth, early, mother child separation, previous depression, baby sex were the main risk factor for postnatal depression. Level of sociability and physical activity of postpartum female's falls in moderate category.

Keywords: Depression, Maternal mental health, Maternal well-being, Post-natal period, Postpartum depression,

INTRODUCTION

Psychiatric disorders and mental illness: are more common in reproductive age of women. (1) Women are far more prone to psychiatric disorders in their pregnancy and postpartum period due to major life changing event of being future mother or due to childbearing responsibility, these disorders might be link with poor maternal health and care in prenatal time period and they can effect fetal growth and development badly and in future it can effect child cognitive and mental health as well. A very few women received proper mental health services in this time period. (2) Postpartum depression is also known as "postnatal depression" or "peripartum depression". (3) It is the non –psychotic depressive disorder happen with women after child birth within 4th week can last longer in postpartum period, signs and symptoms are same as of depressive disorders and this postnatal complication have a passive effect on mother and child both and if left untreated it can badly effect women's whole family life. (4, 5) Mothers usually hesitate seeking mental help due to stigma associated, due to social culture barriers ,can't leave child alone or due to unsupportive family and thus suffered a lot by ignoring and avoidant behavior toward child ,lack

of self and child care ,infant may be having delay development and several other health issues.(6)

Prevalence of postpartum depression can change year to year and dependent upon geographical location, in 2009 a study conducted by Pearlstein, Teri, et al on postpartum depression describe the ratio as 15% of mothers. (2) The global prevalence rate among postnatal women is 0.5 to 60% and Among Asian countries this prevalence range from 3.5 to 63.3 %. M others respond to postnatal period may vary according their cultural norms and values all over the world ,apart from the social ,financial and obstetric risk factors. Prevalence is very low in countries like Malaysia ,Malta, Singapore range from 0.5 to 9% ,meanwhile the rate is very high in some other part of world like countries including Italy, South Africa ,Korea ,Taiwan, Guyana ,chili range is 34to 57 % over all if we say we say 20 to 30% in north and near to 40 % in west, east and Iran.(7) Women going through PPD should take proper treatment for this devastated and lethargic complication. If symptoms are mild to moderate psychotherapies are effective but if symptoms are severe and exhausting then antidepressant therapy is best way of management selection of drug is based on the factor that if baby is on breast feeding or not ,to avoid side effects on baby and to prescribe safest antidepressants. (6)

The purpose of the present study was to determine the prevalence and associated risk factors which are promoting its prevalence, as we know prevalence change every year in every area so our goal was to measure updated prevalence rate of postnatal depression.]In this study targeted population were includes both urban and rural area's women, so we can better analyze and compare risk factor as well as difference. Basic aims of this study were to bring this issue in front of higher authorities, health care sectors to promote women health and to take measure to help such women's who hide this medical condition .To break the stigma spread awareness and try to measure and overcome the most common risk factors and to find out real percentage of women got effected in twin city.

MATERIALS AND METHODS

It was an observational analytical cross-sectional survey in which non-probability purposive sampling was used. EPI-tool calculated sample size was 350.But we have used large sample size of 730. Because a previous latest research has been done in Karachi from 1st February to 31st January 2016 and they had used sample size of 600, so in order to make our research more valid

and to find prevalence in large scale population currently has used this large sample size. This study was conducted at out-patient Department (OPD) of Pediatrics, Obstetrics and Gynecology, of twin city hospitals included: Pakistan institute of medical sciences (PIMS), Maroof international hospital Islamabad, Capital hospital Islamabad and Pakistan Railway hospital. Study has been done and completed within 6 months, from 1st January 2017 to 30 June 2017.

Women in postpartum period up to 0-3 months both Primary parous or Multi parous, House wife or Working, Rural or Urban, Vaginal or C-section, deliver at Home or Hospital were included in the study. Postnatal women suffering from any severe postpartum complication and very poor cognitive level were excluded from the study. Before starting data collection, permission was taken from the hospital's ethical committee and Informed consent will be taken from all participants before admission to the study. The purpose of the study was explained to the patients and confidentiality of the patient would be maintained.

Structured questionnaire formed after extensive literature review was used to collect data. Parts of Questionnaire were:

Demographics questions: (Name, Age, Educational level, Occupation, Socioeconomic status, Marital status, Family structure, Address, Postpartum duration)

Obstetric history: (Location of delivery, Frequency of delivery, Experience of abortion, Abnormality during pregnancy, Abnormality during delivery, Abnormality during, hospital stay, Delivery status, Emotional reaction to pregnancy, Is this an unwanted birth, Previous history of depression, Antenatal depression)

Question about child care: (Early mother child separation, Twins child birth, is your baby on breast feeding, Breast feeding difficulty/worry, any worry about baby care, any worry about baby weight, any child abnormality, any worry about baby sex).

Edinburgh postnatal depression scale: EPDS is a 10-item self-reporting scale validated for screening ante-partum and postpartum depression. Each statement is rated on a scale from 0 to 3, resulting in a possible score ranging from 0 to 30. Seven of the 10 items are reverse scored. A cut-off score of >12 was used to indicate possible postpartum depression 11and those scoring 12or less were considered non-depressed.

General physical activity (IPAQ): The International Physical Activity Questionnaires find out about the kinds of physical activities that people do as part of their everyday lives. They were

asked about the time you spent being physically active in the last 7 days includes; all the vigorous activities, moderate activities, and time you spent walking and the time you spent sitting on weekdays.

Multidimensional Scale of Perceived Social Support (MSPSS): This Scale was used to determine social status of new mother, by using three different categories of questions regarding her family, friends and others.

Statistical Analysis

The data was analyzed by the application of descriptive statistics through SPSS-22{Statistical Package for Social Sciences} software. Frequency tables, bar charts and graphs were plotted for all categorical values (Qualitative variables). Mean and standard deviation calculated for all numerical values (Quantitative variables).

RESULTS

The mean age of study participants was 26.86±4.49. The means BMI was 25.25±11.46. In this study (2.3%) of females were under weight, most of the mothers were of normal weight (53.7%) (36.3%) of females fall under the category over weight, while's (7.7%) obese females also participated in this study Table 1 demonstrates the demographic statistics.

Table 1: Demographic statistics

Variables		frequency	Percentage
Education level	primary	204	27.9%
	Secondary	202	27.7%
	Higher secondary	139	19.0%
	Graduation	127	17.4%
	Post-graduation	58	7.9%
Occupation	house wife	616	84.4%
	Working	114	15.6%
Socioeconomic status	low	269	36.8%
	Middle	401	54.9%
	High	60	8.2%
Marital status	married	722	98.9%
	Divorced	4	.5%
	Separated	1	.1%
	widow	3	.4%
Family structure	nuclear	211	28.9%
	Extended	519	71.1%

Address	rural	208	28.5%
	Urban	522	71.5%
Location of delivery	home	61	8.4%
	Hospital	669	91.6%
Frequency of delivery	primary parous	323	44.2%
	Multi parous	407	55.8%
Delivery status	vaginal	348	47.7%
	C section	382	52.3%
Emotional reaction to pregnancy	positive	661	90.5%
	negative	69	9.5%

Table 2 shows the data regarding obstetric history.

Table 2: Obstetric history

Variable	Yes n (%)	No n (%)
Experience of abortion	105(14.4)	625(85.6)
Abnormality during pregnancy	74(10.1)	656(89.9)
Abnormality during delivery	76(10.4)	651(89.2)
Abnormality during hospital stay	53(7.3)	677(92.7)
Is this an unwanted birth	67(9.2)	663(90.8)
Previous history of depression	96(13.2)	634(86.8)
Antenatal depression	196(26.8)	534(73.2)

Table 3 shows the response of participants related to childcare.

Table 3: Child Care

Variables	Yes n (%)	No n (%)
Early mother child separation	113(15.5)	617(84.5)
Twins child birth	41(5.6)	689(94.4)
Is your baby on breast feeding	522(71.5)	208(28.5)
Breast feeding difficulty/worry	188(25.8)	542(74.2)
Any worry about baby care	320(43.8)	410(56.2)
Any worry about baby weight	352(48.2)	378(51.8)
Any child abnormality	187(25.6)	543(74.4)
Any worry about baby sex	53(7.3)	677(92.7)
Cooperation from husband in baby care	622(85.2)	108(14.8)

Table 4 shows the Edinburgh postpartum depression. The (39.5%) females were suffering from PPD while (60.5%) participants were having no PPD. The mean Edinburgh score was 10.75±5.39. In table 4 severity of PPD is shown.

Table 4: Postpartum depression

Postpartum depression	Frequency	Percent
very low PPD probability	256	35.1
low PPD probability	211	28.9
moderate PPD probability	72	9.9
high PPD probability	191	26.2
Total	730	100.0

IPAQ tool was used to measure the physical activity of the participants. The mean score of this scale was 1514.74±2046.39. According to their total score they were categorized as different levels of physical activity. Table 5 shows that, most of the female's falls under the category of moderate physical activity (46.7%), while others fall under low (39.6%) and high (13.7%) level of physical activity.

Table 5: Level of Physical Activity

Level of physical activity	Frequency	Percent
Low	289	39.6
Moderate	341	49.7
High	100	13.7
Total	730	100.0

MSPSS tool was used to find out the social support of the participants. This was further divided as social support from family, friends and others. The mean score of family, friends and others was 5.26±1.24,3.602±1.80 and 5.71±3.38 respectively. Table 5 shows the level of social support, 5.3% of mothers were having love social support, majority were having moderate(58.5%) and high (36.2) social support from friends, family and other people of the society.

Table 6: Level of social support

Level Of Social Support	Frequency	Percent
Low	39	5.3
Moderate	427	58.5
High	264	36.2
Total	730	100.0

Table 7 demonstrates the results of chi-square (P) value which show association between postpartum depression and demographic variables and odd ratio to find out the risk factors. A significant association was seen between postpartum depression and socioeconomic status, marital status, area and location of delivery

Table 7: Association between postpartum depression and demographic variables

Variables		Chi square(p value)
Education level	primary Secondary Higher secondary Graduation Post-graduation	.013*
Occupation	house wife Working	.407
Socioeconomic status	low Middle High	**.000*****
Marital status	married Divorced Separated widow	**.006****
Family structure	nuclear extended	.195
Address	rural Urban	**.012***

Location of delivery	home Hospital	**.007****
Frequency of delivery	primary parous Multi parous	.781
Delivery status	vaginal C section	.796
Emotional reaction to pregnancy	positive negative	.472

In Table 8 while applying odd ratio to find out the obstetric and child care risk factors and 1 value show one time more risk, 2 value show two time more risk and 3 show three time more risk of postpartum depression, experience abortion (2.598) means there is 2.5 times more risk of postpartum depression in abortion, likewise in abnormality during delivery (1.999), abnormality during hospital stay (3.571) and unwanted birth (2.316) the women having previous history of depression (2.391) and antenatal depression (1.888).Early mother child separation (2.499) ,twin child birth (3.414),baby on breast feeding (.661)Breast feeding difficulty(1.316) Any worry about baby care (1.327), Any child abnormality(1.591), Any worry about baby weight (1.935) ,Any worry about baby sex(2.418) Cooperation from husband in baby care(.688)

Table 8: Obstetric and child care factors (Odd Ratio)

VARIABLES	ODD RATIO(95%CI)
Experience of abortion	2.598
Abnormality during pregnancy	1.345
Abnormality during delivery	1.999
Abnormality during hospital stay	3.571
Is this an unwanted birth	2.316
Previous history of depression	2.319

Antenatal depression	1.888
Early mother child separation	2.499
Twins child birth	3.414
Is your baby on breast feeding	.661
Breast feeding difficulty/worry	1.316
Any worry about baby care	1.327
Any worry about baby weight	1.935
Any child abnormality	1.591
Any worry about baby sex	2.418
Cooperation from husband in baby care	.68 8

Normality of data was seen through Kolmogrove test. Table 9 reveals the results of Mann Whitney test and the value of this test show significant difference between social support among female with or without depression its (P value) is (0.000). The value of test show significant difference between level of physical activity among female with or without depression its (P value) is (0.000).

Table 9: Mann Whitney U test for Postpartum depression with social support and physical activity

Test of Normality		Kolmogrove (p value 0.000)	
	PPD	Median (IQ range)	Mann Whitney test (p value)

Social support	NO	2(1-2)	0.000
	YES		
	PPD	**Median(IQ range)**	**Mann Whitney test (p value)**
Level of physical activity	NO	2(2-3)	0.012
	Yes		

DISCUSSION

Current study shows PPD prevalence as 39.6 % however prevalence in others Pakistani studies were as 36%, ,52.1 % , 22.3% ,23%,30% these studies were conducted between 2006 to 2016. (8-12) Likewise prevalence in international studies were ,global (0.5 to 60 %) ,23% (Japan) and 30% (Nepal) (1 3 - 1 5)

Literature review of klanin et al. (2009) highlighted the association of socioeconomic status with PPD. (16) A study conducted by Muneer etal. (2009)also find significant association between socioeconomical status and PPD (p<0.05). (17) Current study findings also shows association (x^2 P <0.05) between socioeconomical status and PPD.

In current study Abnormality during hospital stay is a significant risk factor (OR 3.571)likewise study done by satoh A et al. in Japan (2009) also showed association of abnormality during hospital stay and PPD (p <0.05). (1 4) In current study experience of abortion is find out as a risk factor causing PPD odd ratio (2.598). Satoh et al. found as non-significant risk factor and it did not support current study. (14)

Present study findings shows that Education has a significant relation with PPD (p value < 0.013) and highlighted that unwanted pregnancy as a risk factor (OR 2.316). Astudy by Tikmani et al. (2016) also find that non educated mothers have high % of PPD 94 (70.1%) and that unwanted pregnancy is a risk of PND 81(64%). (1 0)

Current study shows previous depression as a significant risk of PPD (OR 2.319) and study done by Bjerki et al (2008) in Norway also support current study findings in a way that it also find it as important risk factor causing PPD. (18)

Current study found significant difference (p < 0.05)of physical activity in Postpartum female with or without depression. study by Mccoy et al. (2011) indirectly support this findings and highlighted that aerobic exercise helps in reducing depressive symptoms. (19)

Current study found significant difference (p < 0.05)of sociability in Postpartum female with or without depression . study conducted by Husain et al (2006) also support its finding and shows that there is a association of these two variables ,depressed mothers have less social support. (8)

In current study worry about baby gender is a significant risk factor (0R 2.418) however Study done by Rahman et al. (2005) In Rawalpindi , did not support our study ,female gender is a not significantly associated with PPD (p = 0.2). (20)

Abnormality during delivery is a non - significant risk factor in current study (OR 1.999 while study by Tikmani et al. (2016) find out it as significant risk factor (7.55 OR). (10)

In current study frequency of delivery (P = 0.781) do not have as such significant association with PPD however study done by Tikmani et al. (2016) did not support this study and find it as a significant risk factor (OR 2.28). (10) Mode of delivery have less significant association with ppd (p =0.796) , study by muneer at el al. (2009) did not support this and found that(p =o.o69)it's significantly associated with PPD.(10) In current study occupation has less association with PPD (p= 0.407) while study by muneer et al. (2009) did not support this shows significant association of both p <0.001. (17) In current study address is having significant association with PPD (p =0.012) while study by muneer et al(2009) not support this study and find (p = o.674)so it has less association with PPD .(17)

Limitations: Study was conducted in very Short time duration and includes large sample size. Study used Extensive and long questionnaire, which was time consuming. Patients did not cooperate and permit sometimes to fill questionnaire. Permission and security clearance in hospitals were the main hurdle which took a lot of time. Language barriers were sometimes became an issue. Study represents patients only from twin city (Rawalpindi and Islamabad) hospitals.

CONCLUSION

The study concluded that prevalence of postpartum depression in twin city was 36.9 %. Most of the population falls in moderate physical activity and that's why most of the population falls in very low level of depression, which shows that the more physical activity level of population will

raise the lesser will be the level of depression .social support was found as another important factor impacting postpartum, depression women having good social support were less prone to PPD and have low level of depression if any as compared to those having less social support. Study further specified that Abnormality during hospital stay, unwanted pregnancy, Experience of abortion, Twin child birth, early, mother child separation, previous depression, and baby sex were the main risk factor which can leads toward postnatal depression. Level of sociability and physical activity of postpartum female's falls in moderate category.

Recommendations

- Women mental health should be equally focused in health sectors as physical in reproductive age specifically. That's how they can properly contribute maximally in community and took proper care of their child.

- In order to find out association that how physical activity and postnatal aerobic exercise classes benefit in reducing PPD, RCT and further research is needed.

- Awareness should be spread regarding PPD and common risk factors by gynecologist and women health physical therapist so that women could better overcome this phase.

- There should be good social support and proper treatment and counseling to help postpartum depressed females out of it as soon as possible.

- Community based research can be conducted as current study was hospital based.

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