Prevalence of Post-Partum Depression and the Associated Risk Factors Among Materials in Al-Madinah City 2019

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ABSTRACT

Introduction: Postpartum depression (PPD), a type of mood disorder, is the most frequently noted morbidity during the post-partum period.

Objective: To investigate the prevalence and assess risk factors of postpartum depression symptom among post-partum mother in Al-Madinah, Saudi Arabia.

Methods: This cross-sectional study was conducted on a population of 360 post-partum mothers delivered in the hospitals in Al-Madinah city, from January to February 2019 in Al-Madinah, Saudi Arabia. Data were collected using the Edinburgh Postnatal Depression Scale (EPDS). The data were analyzed with Version 22.0 of the Statistical Package for Social Science. Descriptive statistics, Spearman correlation, Mann Whitney test and Kruskal Wallis test were used.

Results: The prevalence of post-partum depression PPD among post-partum mothers was 23%, with a mean score of 9.0 ± 5.0 . Post-partum depression was significantly higher among mothers who delivered at the house, those who had depression during a previous pregnancy and those who had a family history of PPD. ($p < 0.05$).

Conclusion: Post-partum depression was found in one-third of the post-partum mothers who included in the study. Women who had previously been diagnosed with PPD reported a family history of PPD were at particularly high risk for postpartum depression. To prevent and treat postpartum depression, special care should be provided to women reporting risk characteristics.

Key Words: Postpartum depression (PPD), risk factors, Madinah, Saudi Arabia

INTRODUCTION

Postpartum depression (PPD), a type of mood disorder, is the most frequently noted morbidity during the postpartum period.¹ PPD is defined as “in the Diagnostic and Statistical Manual for Mental Disorders as major depression with post-partum onset with episodes of depression beginning within 4 weeks of giving birth”² It is a non-psychotic depressive state that begins in the post-partum period, after the childbirth, it is a mood disorder that can occur at any time during the first year after delivery.³

PPD affects the health of both the mother and her children, especially mother-child bonding and the relationships among family members.^{3,4} Several studies have found that risk factors for depressive symptoms are clustered into five main groups: 1. biological, consisting of changes in hormone lev-

els and the age of mother; 2. physical, consisting of chronic health problems and antenatal depression; 3. psychological, consisting of prenatal anxiety, stress, lack of social support and stressful life; 4. obstetrics/paediatrics, consisting of unwanted pregnancy, history of loss of pregnancy and severely ill infants; 5. and socio-cultural, consisting of the status of mother and poverty.³⁻⁸ PPD has been associated with catastrophic consequences, such as mother suicide and infanticide.³ Financial shortage, infant gender, domestic violence, hunger, and smoking during pregnancy have been reported as risk factors of PPD.^{3,4,9}

Although PPD is a major health issue for many women from diverse cultures, this condition often remains undiagnosed.¹⁰ The use of screening scales is an easy, simple and cost-effective way to identify women who are at risk of depression.^{1,11} The Edinburgh Postnatal Depression Scale (EPDS) is the

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most widely used screening tool in identifying PPD,^{1,12-14} and it has been validated and used in many countries, including Saudi Arabia.¹⁵

PPD is the most common childbirth complication¹ which affects 10%–15% of women in high-resource countries.¹⁶ However, the prevalence is also considerably high in developing countries, including India (23%)¹⁷, Pakistan (44%)¹⁸ and Vietnam (33%).¹⁹ In Saudi Arabia studies the prevalence was 33.0%–49.5%.^{15,20}

Post-partum depression symptom represents a common problem among post-partum mother due to several factors. PPD symptoms result from a combination of biochemical, physical and emotional factors. The main biochemical factor causing PPD symptoms is reduced hormonal levels which lead to chemical changes in the brain that may activate mood swings. The researcher has a special interest in depression, particularly among post-partum mothers. This study aimed to investigate the prevalence and assess risk factors of post-partum depression symptom among post-partum mothers in Al-Madinah, Saudi Arabia.

MATERIALS AND METHODS

This study was across sectional descriptive study among post-partum mothers delivered in the hospitals in Al-Madinah city. Post-partum mothers with substances abuse or bipolar major depressive disorder were excluded. The calculated sample size was 360 with 95% confidence limits, 5% accepted errors, the prevalence of PPD syndrome =30%,³ and with 10% (30 nurses) was added to the sample to avoid withdrawing and refusing to participate.

The required sample size was divided equally to cover the three hospitals (National guard, Ohod, and MMCH hospitals) (120 post-partum mothers/ hospital).

Valid structured self-administered questionnaire. The questionnaire is to obtain from previous study¹⁵ and it contains three main parts: A – Socio-demographic characters. B – pregnancy and delivery characteristics. C – The Edinburgh Postnatal Depression Scale

The dependent variable of the study was the post-partum depression scale. And the independent variables were sociodemographic characteristics and pregnancy and delivery characteristics. Data was entered and processed by using SPSS software version 21 for analysis and interpretation. P-Value is considered statistically significant if it is ≤ 0.05 .

The following approvals were obtained: research ethical committee, the supervisor of the general training program, primary healthcare centre PHCC director. Written consent was obtained from each participant. And the collected data was handled confidentially.

RESULT

Normality

The Shapiro-Wilk statistic test was done for the following continuous variables Edinburgh Postnatal Depression Scale (EPDS score, age, children number, labour duration, and gravidity). The result were (0.906, 0.983, 0.925, 0.583, and 0.95) with ($p < 0.001$, $p < 0.001$, $p < 0.001$, $p < 0.001$, and $p < 0.001$). Indicating non normally (non-parametric) distributed.

A total of 360 postpartum females who completed the demographic, obstetric variables section and the EPDS questionnaire were included in this study. The average age was 32.1 ± 7.2 years, 93.1% were Saudi. Only 26 (7.2%) were smokers. More than half 209 (58.1%) were housewives, 119 (33.1%) were students. More than half 194 (53.9%) had a university degree and 204 (56.7%) from group monthly income more than 8000 SR, 100 (27.8%) attend high school and 106 (29.4%) from group monthly income 5000-8000 SR. The majority of the participants reported that their husband was employed 303 (84.2%), with a university degree or higher (79.1%) (Table 1).

Out of the 360 postpartum females, 101 (28.2%) reported a medical problem, 15 (4.2%) reported Previous psychological problems and 68 (19%) reported a family history of PPD (Table 2).

Out of the 360 postpartum females 206 (57.2%) planned for pregnancy, 101 (28.1%) reported medical problems during pregnancy, those who had Marital problems numbered 69 (19.2%), those who suffered from depression during last pregnancy at least for one semester numbered 340 (94.4%). Out of the 360 postpartum females 298 (82.8%) delivered in governmental hospital and 56 (15.6%) delivered in a private hospital, those who spent Puerperal duration in her family house numbered 204 (56.7%), most of the female 232 (64.5%) delivered Spontaneously, 281 (78.1%) reported that baby gender they wish. More than two-third 265 (73.6%) and 253 (70.2%) reported (very good- excellent) prenatal and postnatal care respectively.

3.06/0boy, 184 (51.1%) baby reported a medical problem, and 169 (46.9%) reported bottle feeding (Tables 3-5 and Figures 1-3).

The EPDS mean score was 9.0 ± 5.0 rang (0-30), and the median score was 7 with quartile (2,12). The score was divided into two categories with cut off > 13 , out of the 360 mothers, 81 (23%) had depressive symptoms (EPDS score > 13), and 271 (77%) did not have depressive symptoms (EPDS scores ≤ 13) (Figure 4).

The results showed a significant association between PPD and the following sociodemographic and medical characteristics (maternal age, maternal education, maternal occupa-

tion, monthly income, being smoker, prenatal care, postnatal care, baby gender, semester depression, family history of PPD and previous psychological problems) were older age, lower level of education, working mother, lower monthly income, being smoker, depression during pregnancy, lower level of prenatal care, lower level of postnatal care, having boy, positive family history of PPD and previous psychological problems showed higher scores in EPDS ($p=0.003$, $p=0.036$, $p=0.007$, $p=0.019$, $p=0.023$, $p<0.0001$, $p=0.009$, $p=0.014$, $p=0.044$, $p<0.0001$ and $p=0.014$) respectively (Tables 6 and 7).

DISCUSSION

Several studies were conducted about the prevalence of PPD and the associated risk factors, where PPD had big influence on the baby emotional and social development and this influence continues during teenage and adult years.^{20,21} In industrial countries there is rapid screening for PPD so an early intervention can be done to decrease the negative effects of PPD on mothers and babies' lives.^{20,22}

The present study aimed to investigate the prevalence and assess risk factors of post-partum depression symptom among post-partum mother in Al-Madinah, Saudi Arabia.

Results of this study showed that almost the fourth of participants' mothers (23%) had depressive symptoms during post-partum period. This score was lower than previous studies in Saudi Arabia and Nepal which reported the prevalence of PPD 30-33% with cut off score ≥ 10 ,^{3,15,20} also the results from Pakistan studies showed that the prevalence was a range between 28%-63%,²³ and in Indian studies the prevalence was between (15.0%-26.0%).²⁴

While the current prevalence was higher than other studies with the cut off ≥ 12 with the prevalence of 6%-12%,^{20,25,26} and when the cut off ≥ 13 the prevalence was 15.4% in the Turkey study.²⁰

This variety in the prevalence rate could be due to multi-cultural and multi-social factors, the difference cut off, sample size and methods.^{3,20,26-29}

The findings of the current study showed that mother aged more older mothers are more likely to develop PPD than younger mother ($r=0.163$, p value=0.03), similar results were found in Singapore, Saudi Arabia, Nepal and Canada studies the authors reported a high prevalence of PPD among women aged 35-40,^{2,29} in contrast in Turkey and Canada studies the authors reported high prevalence of PPD among young mother.^{3,27,30,31}

Several studies investigated the association between PPD occurrence and sociodemographic data (mother's education and occupation, monthly income and father's education

and occupation),³²⁻³⁶ where the results showed contradictory evidence, in Nepal, Singapore, Turkey and Saudi study there was no association between mother's education level, occupation and low monthly income and PPD,^{2,3,20,27} while in other studies there was a positive association between PPD and mother's lower education, being a housewife, and lower monthly income,^{3,20,27,37-42} also in 2007 study the authors reported a significant association between lower partner education and occupation and PPD.^{27,43} In contrast in 2017 Saudi Arabia study, the authors reported a significant association between PPD and mother low educational level, working mothers and high monthly income.¹⁵ In the current study showed consistent with the previous study regarding mother occupation and monthly income, where, working mothers and high monthly income had higher rate of PPD. Controversy the result showed that mother high educational level had the highest prevalence of PPD.

This difference in the percentage could be due to several factors such as socio-economic factors, sample size, and studies nature.

The current study findings showed that any medical problems in any time before or during pregnancy, during or after delivery had a strong effect on developing PPD ($p=0.03$, $p=0.004$, $p=0.03$, $p=0.01$), this consistent with previous studies,^{2,3,20,32,44-46} In Saudi Arabia study the authors reported a significant association between anaemia during pregnancy and PPD,²⁰ in Singapore study there was a significant association between medical problem during pregnancy such as Gestational diabetes mellitus GDM and hypertension and PPD.^{20,47,48}

Besides, stressful life such as family problem, weak relation with the husband or his family, previous psychological problems especially anxiety, exhausts, pregnancy depression, tearful and lack of sleep, and family history of PPD either first-degree relative or second-degree relative,^{2,3,15,20,32} In Nepal studies the authors reported that there is the relation between PPD and early contractions during pregnancy and maternity blues after seven days from delivery,^{3,49} in Turkey study the authors confirmed the relation between PPD and antepartum depressive symptoms which assessed by Hospital Anxiety and Depression Scale- Depression HADS-D, and they reported that thinking in committing suicidal during pregnancy is a high-risk factor in developing PPD (odds ratio 6.99, CI 2.08–23.49),^{27,50,51} similar results were found in Singapore study where the authors reported high prevalence of PPD among women with previous psychological problems.^{2,47,48} Inconsistent, the current study reported a significant relationship between the high score of EPDS and having previous psychological problems ($p<0.0001$), depression during last pregnancy ($p=0.014$) and having a family history of PPD ($p<0.0001$).

Regarding planning pregnancy and baby gender, the results of the current study showed no significant association between developing PPD and unplanned pregnancy. While there was a significant association between developing PPD and baby gender ($p=0.04$), this controversy with Turkey study.²⁷

Several studies reported that breastfeeding decreases the risk of developing PPD. Where in the Riyadh study the score of EPDS was lower at 2 and 4 months ($p < 0.0037$ and $p < 0.0001$, respectively).⁵² Also in the Spain study, the authors reported that the long duration of exclusive breastfeeding the huge reduction of PPD incidence.⁵³ This consistent with the result of the current study, where the lowest score was among mothers who breastfeeding 4 scores for breastfeeding 8 scores for bottle vs 9 scores for mixed feeding.

According to educational level, occupation and monthly income, this could be due to the facts that educational and employed women have more responsibilities and stressful life. Regarding age factor, previous pregnancies, place of delivery and previous pregnancy complications. This result could be because women who have several experiences and were pregnant had more responsibilities, previous experience with pain and pregnancy' problem such as thick child, long labour, health problems.

CONCLUSION

Post-partum depression was reported among fourth of participant mothers. Both prenatal and postnatal care had a significant effect on developing PPD. Also, PPD was higher among boys' mothers than girls' mothers. Mothers with PPD were those older, higher educator, employed, high monthly income, those who previous psychological problems or depression, and those with a family history of PPD. We recommend that primary health care providers are requested to provide the necessary health education about PPD for all pregnant women through ANC. Encourage pregnant women to talk about PPD with their doctors. Mothers with a previous diagnosis of PPD or other psychological problems need more support from husbands and families. Further nation-wide studies on the assessment of PPD need to be conducted in larger sample size and regions other than AlMadinah Almunawarah, to identify the prevalence and associated risk factors.

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Table 1: Demographic data

Variable	Mean ± SD	Rang (min-max)
Age	32.1 ± 7.2	(21-45)
Variable	Median	Quartile (25,75)

Table 1: (Continued)

Variable		Mean $\pm$ SD	Rang (min-max)
Number of children		5	(3,6)
Variable		N	%
Nationality	Saudi	335	93.1
	Non-Saudi	25	6.9
Smoking	Yes	26	7.2
	No	334	92.8
Educational level	Elementary or lower	40	11.1
	Intermediate or High school	100	27.8
	University degree	194	53.9
	Post graduate	21	5.8
	Unknown	5	1.4
Occupation	Housewife	209	58.1
	Student	21	5.8
	Employee	119	33.1
	Unknown	11	3.1
Salary	More than 8000	204	56.7
	5000-8000	106	29.4
	Less than 5000	44	12.2
	Unknown	6	1.7
Husband educational level	Elementary or lower	28	7.8
	Intermediate	38	10.6
	High school	120	33.3
	University degree	165	45.8
	Unknown	9	2.5
Husband occupation	Employee or Business man	303	84.2
	Professional craftsman	31	8.6
	Retired	18	5.0
	Unknown	8	2.2

Table 2: Medical characteristics obstetrics (pregnancy and delivery) characteristics

Variable		Median	Quartile (25,75)
Gravidity		3	(2,5)
Abortion		1	(0,1)
Chronic illness#	Variable	N	%
	Non	269	74.8
	DM	22	6.2
	HTN	11	3.1
	Hypothyroidism	38	10.6
	Others	30	8.3

Table 2: (Continued)

Variable		Median	Quartile (25,75)
Previous psychological problems	Yes	15	4.2
	No	345	95.8
Specify psychological problems	Depression	7	46.6
	Tearful	1	6.8
	Anxiety and uncomfortable	4	26.6
	Unmentioned	3	20.0
Family history of PPD	Yes	68	19.0
	No	293	81.0
Who #	Sister	39	11.1
	Mother	21	6.0
	Aunt (sister of mother)	16	4.5
	Aunt (sister of father)	6	1.7

Multiple responses

Table 3: Obstetrics (pregnancy) characteristics

	Variable	N	%
Prenatal care level	Excellent	131	36.4
	Very good	134	37.2
	Good	58	16.1
	Average	24	6.7
	Poor	13	3.6
Medical problems during last pregnancy	Non	259	71.9
	Marital problems	69	19.2
	Traffic accidents	5	1.4
	Losing family member	27	7.5

Table 4: Obstetrics (delivery) characteristics

Variable		Median	Quartile (25,75)
Labour duration		5	(3,8)
Variable		N	%
Birth place	Governmental hospital	298	82.8
	Private hospital	56	15.6
	Home	3	.8
	Unknown	3	.8
Puerperal duration place	My home	141	39.1
	My husband family house	10	2.8
	My family house	204	56.7
	Unknown	5	1.4
Postnatal care level	Excellent	124	34.4
	Very good	129	35.8
	Good	66	18.3
	Average	30	8.4
	Poor	11	3.1

Table 4: (Continued)

Variable		Median	Quartile (25,75)
Feeding type	Breastfeeding	119	33.1
	Bottle	169	46.9
	Both	56	15.6
	Unknown	16	4.4
Delivery mode	Spontaneous	232	64.5
	Caesarean	123	34.2
	Unknown	5	1.4

Table 5: Neonatal section

Variable		N	%
Child gender	Boy	40	11.1
	Girl	230	63.9
	Unknown	90	25.0
Child health	Health	171	47.5
	Sick	184	51.1
	Unknown	5	1.4

Table 6: The relation between PPD and demographic data

Variable		Median	P-value
Nationality	Saudi	7.0	0.242
	Non-Saudi	6.0	
Smoking	Yes	10	0.023*
	No	7	
Educational level	Elementary or lower	6	0.036*
	Intermediate or High school	6	
	University degree	8	
	Postgraduate	10	
Occupation	Housewife	7	0.007*
	Student	8	
	Employee	9	
Salary	More than 8000	8	0.019*
	5000-8000	7	
	Less than 5000	6	

Table 7: The relation between PPD and medical characteristics

Variable		Mean	P-value
Previous psychological problems	Yes	14	0.014*
	No	10	
Family history of PPD	Yes	11	0.0001**
	No	7	

Table 7: (Continued)

Variable		Mean	P-value
Prenatal care level	Excellent	7	0.009*
	Very good	6	
	Good	9	
	Average	7	
	Poor	12	
Depression during the last pregnancy	Yes	15	0.0001**
	No	7	
Postnatal care level	Excellent	7	0.014*
	Very good	6	
	Good	9	
	Average	8	
	Poor	10	
Feeding type	Breastfeeding	6	0.043*
	Bottle	8	
	Both	9	
Child gender	Boy	9	0.044*
	Girl	7

Figure 1: Planing pregnancy.

Figure 3: Gender baby did not consistent with the wishes of the family or you.

Figure 2: Depression during last pregnancy.

Figure 4 : EPDS score.