Early Detection of Postnatal Depression and Its Associated Factors in Saudi Arabia

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Research Article

ABSTRACT

Aim: The aim of the study is to estimate the incidence rate of post-natal Depression (PND) and examine its associated factors among studied subjects.

Design: A descriptive cross-sectional study design has been used to conduct this research.

Setting: The study conducted in postnatal wards in two hospitals at eastern region of Saudi Arabia.

Subject: A total of 48 mothers were participating in the study 21 mothers delivered at KFHU and 27 mothers from MCH. The study has two stages, the first stage which include all available women within the first two days of their postnatal period and the second stage is the follow up period where all women who agreed to participate at the day 12-20 postpartum through the phone call.

Tool: 10-item Edinburgh Postnatal Depression Scale (EPDS) has been used in this study to find out the rate of PND and second questionnaire to assess factors which associated with PND.

Results: The result shows that 35.5% of mothers have a positive postnatal depression. Also there were a positive significant correlation between PND and marital conflicts, exposure of difficult life events, gravidity, parity, newborn birth order, unwanted pregnancy and breastfeeding.

Conclusion: In this study, postnatal depression was found almost in third of the mothers which give the health professional alarm to give more attention towards this problem and investigate more on it.

Keywords: Post-natal depression, Breastfeeding, Gravidity, Parity

INTRODUCTION

Childbearing years mainly put the women at high-risk of developing a depressive state, due to increased liability to mood disorders throughout pregnancy and postnatal period [1]. According to World Health Organization (WHO) "the perinatal period commences at 22 weeks of gestation (154 days) when the average birth weight is 500 g and ends completed days (168 h) after birth" [2]. The WHO definition indicated that the term perinatal includes prenatal and one week of the postnatal periods, which is considered as a critical period. During the perinatal time the woman in risk to develop depression [3]. Postnatal period is the period from childbirth to the day 42 following birth [4]. This period is recognized as a major leading cause of disease-related disability among women in childbearing years identified in most countries in the world [5,6]. Postnatal depression considered as the most common mental health problem in women childbearing years, which refers to the period of non-psychotic depression [6-8]. The prevalence rate of PND worldwide ranging from 10%-15% [9], PND includes minor, major and depressive events that either began within the first twelve months after birth or is a continuation of the depression of time of pregnancy. It was recommended that PND could be recognized from the third week until the end of the first year after childbirth [7,10]. While recent research highlighted on

the incidence of occurrence of PND might start from the period of natal and post-natal until the first year after delivery [6]. Put a light in the first year after delivery, which most postnatal depression related research focused on and studied [11].

There is a similarity in the signs and symptoms between postnatal depression and common perinatal discomforts which often goes unrecognized [3]. A mother with PND may have depressed mood, interrupted sleep, fatigue, appetite changes, and lack of interest in some enjoyable activities. Unusual behaviors, suicidal and homicidal ideation might present in severe situations [12]. According to Shakespeare and Knight, a depressed mother often experienced social and medical problems that drive them to display suicidal thoughts leading to death [13]. During this period many risk factors and complications might affect the woman psychological health status, which extends from the mother to the baby and can affect the whole family [14]. Some risk factors are related to life stressors, for example, lack of social support, poor marital relationship and exposure to challenging life events [15]. Townsend found that there is a depression related societal beliefs of the new mother that can influence the likelihood of depression. Hormonal changes, genetic susceptibility and stressful life can increase the exposure rate of PND [16]. Exposure to depressive episodes can interrupt normal mother-child relationship and negatively affect child growing [17]. Furthermore, one of the factor might be the reason for PND is conflicting marital relationship and family dynamics in general [18]. Thus, assessment and detection of PND using screening tool, together with a follow-up may act a major role in preventing complications and improving health outcomes for the whole family [3].

During postnatal care and assessment, the nurse or/and midwife are health providers who can carefully assess and detect any mood and behavioral changes of the mother. That is why it is one of the essentials that health provider must comprehend. Early detection of PND prevents further complications of depressive symptoms. Also, it enhances motherhood adaptation and improves the best mother-child bonding [19]. Consequently, any research done to detect PND may show the significance of problem to be recognized and treated early to overcome severe consequences that may be life-threatening to every member of the family. Saudi Arabia ranked as one of the biggest countries in the Middle East [20] and has a diverse population with different sociocultural background compared to other nations in the region [21]. In fact, studies done related to postnatal depression and the role of health professionals in preventing and detecting the disease, are considered few in the region and more awareness must be raised. Given this context, it is important to build up knowledge and data about the incidence of PND in the eastern region of Saudi Arabia which can be used as a baseline for further studies. As well as recognizing PND associated factors that may afford the data needed to design educational programs which will help in overcome risks and identify women at danger. Furthermore, supporting health care providers to assess PND by the available screening tools to enhance early detection and prevent further complications. The aim of the study is to estimate the attack rate of postnatal depression and examine its associated factors among studied subjects.

METHODS

A descriptive cross-sectional study design was used to conduct this research. The study was conducted in postnatal wards during April to May, 2017 in King Fahd Hospital of the University (KFHU) in Al-Khobar and Maternity and Children Hospital (MCH) in Dammam, Eastern Province of Saudi Arabia. The king Fahad Hospital is governmental and affiliated to ministry of higher education with capacity of 465 inpatient beds and 21 beds are specified for postpartum unit. Maternity and Children Hospital has capacity of 400 beds and 50 of them are specified for postpartum cases.

Sample Size

Sample size was calculated using Fisher's formula with 5% of level of significance and 80% of power, also the prevalence rate of 10.3% included. The estimated sample size was 65, but only 59 were included as per the inclusion criteria.

The study included women within 1-20 days of their postpartum period, delivered at King Fahd Hospital of the University (KFHU) and Maternity and Children Hospital (MCH). A total of 93 women were invited to participate in this study, 59 mothers agreed to participate and signed the consent form. The 59 women, who entered the study, were asked for their information and to provide their contact numbers. Of these 59 mothers, 48 were responded to the phone call in the follow up stage to fill up the Edinburgh Postnatal Depression Scale (EPDS). Therefore a total of 48 samples were collected by convenient method of sampling.

Inclusion Criteria

- 18 years old and older.
- Mother has delivered a single live baby.
- Mother at day 1-12 postnatal.

Exclusion Criteria

Due to time limit of data collection, the researcher took all available postpartum women and those who refused to participate were excluded from the sample.

Data Collection Tool

Two tools were used for data collection in this study:

• Socio-demographic and clinical data sheet

This sheet was prepared by the researcher through reviewing recent literature. It includes four parts: Socio-demographic data, Antenatal and delivery data, Medical history and obstetrical history. Each section has five to thirteen questions including the age of the mother, maternal quality of life, maternal medical/psychological history, maternal obstetrical history and data about the newborn.

• Edinburgh Postnatal Depression Scale (EPDS)

This tool was used as a screening tool for postnatal depression. EPDS is a well-consisted screening tool consist of 10 self-report questions that mother should answer by selecting one of the four responses that most nearly described how they felt over the past seven days. Each item the result had a value between 0-3, giving a total score ranging from 0-30. Mothers who score 10 and above are expected to have a depressive illness of varying severity and careful clinical evaluation to confirm the diagnosis should be carried out. As a part of the process to ensure the tool is valid, the tool has been translated into Arabic for this study to ensure accuracy and equivalence of meaning. An expert in translation has completed the translation from English to Arabic. To ensure accuracy, a second person competent in both written languages translated the Arabic version back into English. Two qualified individuals who were highly educated and had experiences in translation from English to the Arabic language reviewed the translated questionnaire. They checked for ease of understanding, content and terminology. The author mentioned the permission to use Edinburgh scale at the end of the original copy of EPDS.

Statistical Analysis

All categorical variables were represented by frequency with percentage, and continuous data were presented by Mean with Standard deviation, also Median (IQR) was used for abnormal data. Chi-square and Fisher exact test was used for testing the significance of qualitative data. In addition to, correlation coefficient (r) used to test the significance of cross correlations between PND and the risk factors (Maternal age, Newborn birth order, gravidity, parity, number of abortions, gestational age, newborn Apgar score, newborn weight as well as the total number of living children either males or females). Statistical Package for Social Science (SPSS) version 21 was used for all analysis. A p value less than 0.05 were considered as significant.

RESULTS

Reliability Statistics showed the value of Cronbach's Alpha coefficient for the whole scale as 0.718, which is an excellent internal consequence of the validity of this questionnaire. In addition, the reliability for the sub scales ranging from 0.721 to 0.810. Based on these measures, we can conclude that this tool is reliable and valid tool for measuring this research objective.

Table 1 shows the social and psychological characteristics of the studied subjects. The majorities (89.6%) of the participants were Saudi national and had a good level of education. As seen in the **Table 1**, 54% of subjects had a high school level of education and 35% had university qualification. Eighty eight percent of participants were housewives whereas the rest 12% were having jobs. The majority of mothers in both settings have a monthly income between 5000 and 10000 SR. The majority 92% of participants were living in a nuclear family and only 8.3% of them were living in a rural zone. Almost all participants (93.8%) were in good marital relationship status, while 6.3% of mothers in MCH had marital conflicts. The majority of participants equally in both hospitals (62.5%) were staying at their family house during postpartum period. Only a small group (16.7%) had been exposed to difficult life events.

Table 2 shows that the age of the Participants ranged between 17 and 38 years old and the mean age in both hospitals is 28 years old. As seen in the table, the majority of mothers were multipara, having children for both genders.

Table 3 indicated that 93.8% of the participants have no past history of depression and only 12.5% who suffered from medical problems. According to life style, 20.8% of subjects were performing exercises and less than half of subjects (43.8%) were going for a postpartum specific diet.

Table 1. The distribution of postnatal mothers, according to their social and psychological characteristics and also the place of delivery.

Social and Psychological risk factors	Place of Delivery N (%)		
	KFHU	MCH	Total
A. Social risk factors			
Nationality			
Saudi	19 (39.6)	24 (50)	43 (89.6)
Non-Saudi	2 (4.2)	3 (6.3)	5 (10.4)
Education			
Primary	0 (0.0)	1 (2.1)	1 (2.1)
Intermediate	1 (2.1)	2 (4.2)	3 (6.3)
Secondary	11 (22.9)	15 (31.3)	26 (54.2)
University	8 (16.7)	9 (18.8)	17 (35.4)
Above	1 (2.1)	0 (0.0)	1 (2.1)
Occupation			
House wife	17 (35.4)	25 (52.1)	42 (87.5)
Working	4 (8.3)	2 (4.2)	6 (12.5)
Residence			
Rural	16 (33.3)	16 (33.3)	32 (66.7)
Urban	5 (10.4)	11 (22.9)	16 (33.3)
Family type			
Nuclear	18 (37.5)	26 (54.2)	44 (91.7)
Extended	3 (6.3)	1 (2.1)	4 (8.3)
Income			
<5000 SR	3 (6.3)	9 (18.8)	12 (25)
5000 SR	12 (25)	12 (25)	24 (50)
≥ 10000 SR	6 (12.5)	6 (12.5)	12 (25)
B. Psychological risk factors			
Marital relationship			
Good	18 (37.5)	27 (56.3)	45 (93.8)
Have Conflicts	3 (6.3)	0 (0.0)	3 (6.3)
Postpartum place			
Husband's House	6 (12.5)	12 (25)	18 (37.5)
Family House	15 (31.3)	15 (31.3)	30 (62.5)
Exposure of Difficult Life Events			
No	17 (35.4)	23 (47.9)	40 (83.3)
Yes	4 (8.3)	4 (8.3)	8 (16.7)

Table 2. The distribution of postnatal mothers according to their biological characteristics and place of delivery.

Biological Risk factors	KFHU	MCH	P value
	Med (IQR)	Med (IQR)	
Age	26 (9)	29 (11)	0.714
Total Number of Living Children	2 (3)	3 (1)	0.332
Total Number of Living Male Children	1 (1)	1 (1)	0.914
Total Number of Living Female Children	1 (2)	1 (1)	0.149

Table 3. The distribution of postnatal mothers according to their medical and life style characteristics and place of delivery.

Medical and Life style Risk Factors	Place of Delivery			Test of significance
	KFHU N (%)	MCH N (%)	Total N (%)	
A. Medical risk factors				
Physical Illness				
Yes	3 (6.3)	3 (6.3)	6 (12.5)	0.941
Past History of Depression				
Yes	0 (0.0)	3 (6.3)	3 (6.3)	0.319
B. Life style risk factors				
Exercise				
Yes	6 (12.5)	4 (8.3)	10 (20.8)	0.664
Special Diet				
Yes	9 (18.8)	12 (0.25)	21 (43.8)	0.014

Table 4 describes obstetrical characteristics of the studied subjects. Regarding the factors of previous obstetrical history, the majority of participants does not experience premenstrual dysphonic disorder (93.8%) or had lost their children (97.9%). The majority of the participants have had no complications during pregnancy, delivery and postpartum (87.5%, 87.5%, 97.9) consequently. The participants normal delivery method was 85.4% and 59.8% were breastfeeding.

Table 4. The distribution of postnatal mothers according to their obstetrical characteristics and place of delivery.

Qualitative obstetrical risk factors				
Obstetrical Risk Factors	Place of Delivery			P value
	KFHU N (%)	MCH N (%)	Total N (%)	
A. Previous history				
Premenstrual Dysphonic Disorder				
Yes	1 (2.1)	2 (4.2)	3 (6.3)	0.645
Dead Children				
Yes	0 (0.0)	1 (2.1)	1 (2.1)	0.554
B. Current history				
B.a. Maternal current History				

Reaction toward pregnancy					
Wanted	14 (29.2)	19 (39.6)	33 (68.8)	0.748	
Accepted (unwanted)	7 (14.6)	8 (16.7)	15 (31.3)		
Complications during pregnancy					
Yes	2 (4.2)	4 (8.3)	6 (12.5)	0.021	
Complications during delivery					
Yes	3 (6.3)	3 (6.3)	6 (12.5)	0.945	
Complications during postpartum					
Yes	1 (2.1)	0 (0.0)	1 (2.1)	0.614	
Mode of Delivery					
Normal	14 (29.2)	27 (56.3)	41 (85.4)	0.006	
Assisted	2 (4.2)	0 (0.0)	2 (4.2)		
C-section	5 (10.4)	0 (0.0)	5 (10.4)		
Breastfeeding					
Yes	19 (39.6)	27 (56.3)	46 (59.8)	0.021	
B.b. Newborn current History					
Health status (Jaundice/Disability)					
Normal	20 (41.7)	16 (33.3)	36 (0.75)	0.006	
Abnormal	1 (2.1)	11 (22.9)	12 (.25)		
Gender of newborn					
Male	12 (0.25)	10 (20.8)	22 (45.8)	0.031	
Female	9 (18.8)	17 (35.4)	26 (45.8)		

Table 5 describes the comparison between KFHU and MCH and if there are any differences between two settings in terms of birth place and obstetrical risk factors. The results showed that it is statistically significant among gestational age at the time of delivery, Apgar score and the birth order of the newborn and the place of birth with P values of 0.03, 0.002 and 0.04, respectively. On the other hand, the baby birth weight, Gravidity, parity and number of abortions were not statistically significant.

Table 5. Obstetrical risk factors and the significance to birth place.

Quantitative obstetrical risk factors										
Obstetrical Risk Factors	Place of Delivery									P value
	KFHU			MCH			Total			
	Min-Max	$\bar{x} \pm SD$	Med (IQR)	Min-Max	$\bar{x} \pm SD$	Med (IQR)	Min-Max	$\bar{x} \pm SD$	Med (IQR)	
A. Previous history										
Gravidity	1-7	2.67 ± 1.71	2 (3)	1-7	3.19 ± 1.84	3 (2)	1-7	2.65 ± 1.5	2 (2)	0.301
Parity	1-6	2.48 ± 1.57	2 (3)	1-7	2.89 ± 1.5	3 (1)	1-7	2.7 ± 1.5	2.5 (2)	0.396
No. of Abortions	0-2	0.91 ± 0.41	0 (0)	0-5	0.41 ± 1.01	0 (1)	0-5	0.31 ± 0.82	0	0.359

B. Newborn current History									
Gestational age	36-41	38.5 ± 1.47	38 (2)	37-41	39.3 ± 0.9	39 (1)	36 -41	38.9 ± 1.2	39 (2)	0.032
Apgar Score	7-9	8.38 ±0.74	9 (1)	6-10	8.89 ± 6.41	9 (0)	6-10	8.67 ± 0.72	9 (1)	0.002
Newborn weight	1.9-4	2.79 ± 0.55	2.7 (0.75)	2.1-8	3.15 ± 1.03	8 (0.8)	1.90-8	3 ± 0.86	3 (0.6)	0.119
Birth Order	1-6	24.8 ± 1.56	2 (3)	1-7	2.85 ±1.5	3 (1)	1-7	2.69 ± 1.53	2 (2)	0.045

The Rate of Postnatal Depression According to the Place of Delivery

Table 6 shows that 18.8% had possible depression and 16.7% had postnatal depression. Nearly two third (64.6%) of postnatal mothers were normal. In addition, although it is not statistically significant but the result shows slight differences between King Fahd University Hospital (KFHU) in Al-Khobar city (Median=9) and the Maternity and Child Hospital (MCH) in Dammam city (Median=6).

Table 6. Distribution and mathematical presentation of postnatal depression score among postnatal mothers according to Edinburgh Postnatal Depression Scale and the place of delivery.

Edinburgh Postnatal Depression Scale (EPDS)	Place of Delivery			P value
	KFHU N (%)	MCH N (%)	Total N (%)	
Normal (0-9)	13 (27.1)	18 (37.5)	31 (64.6)	
Possible Depression (10-12)	6 (12.5)	3 (6.3)	9 (18.8)	
Postnatal Depression ($\geq$ 13)	2 (4.2)	6 (12.5)	8 (16.7)	0.199
	21 (43.8)	27 (56.3)	48 (100)	
Min-Max	2-18	0-9	0-19	
$\bar{x}$ ± SD	8.5 ± 4	7.4 ± 5.4	7.9 ± 4.8	
Med (IQR)	9 (6)	6 (9)	7 (7)	0.219

The Relation between Edinburgh Postnatal Depression Scale (EPDS) and the Associated Factors

Table 7 shows the relationship between Edinburgh Postnatal Depression Scale (EPDS) and social factors which indicate the statistically significant between EPDS score and the conflict within marital relationship and the mother exposure to difficult life events with P values as following 0.04 and 0.02, respectively. It is important to notice that increase level of education is associated with lower EPDS score, Primary level of education mothers scored EPDS=9 and higher education mothers scored EPDS=4.

Table 7. Describes median of Edinburgh Postnatal Depression Scale (EPDS) according to social and psychological risk factors; *) Statistically Significant at P<0.05.

Social Risk Factors		EPDS	P value
Nationality	Saudi	7	0.458
	Non-Saudi	4	
Education	Primary	9	
	Intermediate	5	
	Secondary	9.5	
	University	5	
	Above	4	0.119
Occupation	House wife	7	0.789

	Working	8	
Residence	Rural	7	
	Urban	6	0.409
Family type	Nuclear	7	
	Extended	8	0.978
Income	<5000 SR	6.5	0.874
	5000 SR	8	
	≥ 10000 SR	6	
Marital relationship	Good	7	
	Have Conflicts	12	0.041
Postpartum place	Husband's House	8	
	Family House	7	0.229
Exposure of Difficult Life Event	Yes	16	
	No	6	0.021

Table 8 shows the significant correlation between EPDS score and the total Number of Living children as P value 0.02. Another factor where the gender of the newborn, it showed statistically significant between the baby gender and the EPDS score increasingly with male children as P value=0.05.

Table 8. Describes median of Edinburgh Postnatal Depression Scale (EPDS) according to biological risk factors; Statistically Significant at P<0.05/r=Correlation coefficient.

Biological Risk Factors	Test of Significance	
Maternal Age	r=0.24	P=0.119
Total Number of Living Children	r=0.33*	P=0.026
Total Number of Living Male Children	r=0.28*	P=0.055
Total Number of Living Female Children	r=0.17	P=0.349

Table 9 shows the relationship between Edinburgh Postnatal Depression Scale (EPDS) with medical and life style factors which was not statistically significant.

Table 9. Describes median of Edinburgh Postnatal Depression Scale (EPDS) according to Medical and life style risk factors.

Medical and life style Factors	EPDS	P value
A. Medical risk factors		
Physical Illness Yes	5.5	0.519
Past History of Depression Yes	13	0.264
B. Life style risk factors		
Exercise Yes	10	0.415
Special Diet	7	0.778
Yes		

Tables 10a and 10b illustrate the correlation between Edinburgh Postnatal Depression Scale (EPDS) and Obstetrical factors. **Table 10a** shows the reaction toward pregnancy is significantly associated with PND as P value=0.03. Unwanted pregnancy increases the score of EPDS. Also, **Table 10b** showed that breastfeeding mothers had a lower risk to develop PND as P value=0.03. There was statistically significant in the relation of EPDS with Gravity P=0.02 and parity with P=0.009. The relation between newborn obstetrical risk factors with EPDS score, Newborn birth order showed statistically significant differences as the P=0.02, birth order increase risk of PND. In **Table 10** showed no significant difference between the type of delivery and the EPDS among postnatal mothers.

Table 10a. Describes median of Edinburgh Postnatal Depression Scale (EPDS) according to Obstetrical risk factors; *) Statistically Significant at P<0.05.

Qualitative obstetrical risk factors		
Obstetrical Factors	EPDS	P value
A. Previous history		
Premenstrual Dysphonic Disorder		
Yes	7	0.814
Dead Children		
Yes	13	0.255
B. Current history		
B.a. Maternal current history		
Reaction toward pregnancy		
Wanted	6	
Accepted (unwanted)	11	0.031
Complications during pregnancy		
Yes	5.5	0.513
Complications during delivery		
Yes	3.5	0.361
Complications during postpartum		
Yes	11	0.449
Mode of Delivery		
Normal Vaginal	7	
Assisted Delivery	8	
C-section	9	0.814
Breastfeeding		
Yes	7	0.746
Another		
Breastfeeding		
Exclusive	5.5	
Predominant	10	0.031*

Partial	14	
B.b Newborn current history		
Gender of newborn		
Male	7	
Female	6	0.945
Health status (Jaundice/Disability)		
Yes	6	0.714
Gender of newborn		
Male	7	
Female	6	0.945

Table 10b. Describes median of Edinburgh Postnatal Depression Scale (EPDS) according to Obstetrical risk factors.

Quantitative obstetrical risk factors		
Obstetrical Risk Factors	**Test of Significance**	
A. Previous history		
Gravidity	r=0.34*	P=0.021
Parity	r=0.38*	P=0.009
No. of Abortions	r=0.25	P=0.091
B. Newborn current history		
Gestational age	r=0.24	P=0.097
Apgar Score	r=0.04	P=0.812
Newborn weight	r=0.02	P=0.941
Newborn Birth Order	r=0.34*	P=0.025

Discussion

Postnatal depression (PND) has become a global issue of concern [21,22]. Which consider a common complication following delivery [23]. It has important risk factors that can affect maternal health, mother-child relationship and child development [21]. In developed countries, most health care professionals regularly screen for PND in order to take appropriate care for both mother and child [24]. The present study was conducted to measure PND and its associated factors among postnatal mothers in both King Fahd University Hospital (KFHU) and Maternity, and Child Hospital (MCH) in the eastern rejoin of Saudi Arabia. The current study includes 48 postnatal mothers aged between 17 and 38 years old. All participants were married, from Saudi Arabia as nationality (89.6%) and the majority were educated and having high qualification (35%) and not working (87.5%). Half of participants had a monthly income between 5000 and 10000 SR, the husband was the main source of living expenses provider. Regarding the family type, almost all of participants were living in a nuclear family and two third of participants were living in a rural zone. The majority of participants (62.5%) depended the postnatal period at family house where their family member took care of them and had good family support. Only 20.8% of subjects were performing exercises and less than half of subjects (43.8%) were taking a postpartum specific diet.

This study revealed that (18.8%) of postnatal mothers had possible depression and 16.7% of them had postnatal depression; however nearly two third (64.6%) have no postnatal depression according to EPDS. The findings of the present study was within the range of the results conducted in Jeddah, Saudi Arabia by Almarzouki et al. which estimated the prevalence of PND to range between 7.6 to 39% [21]. Alharbi and Abdulghani conducted a study on 352 females from week 8-12 postpartum to assess the prevalence of PND and risk factor in Saudi Arabia, study result indicates that PND rate was (33.2%) [25]. Another study which is almost similar to the present study was carried out in Riyadh by Alanizi et al.

Saudi Arabia, estimated the prevalence of PND to be (20.5%) [26]. The present study result is not far away from most of the previous studies which monitored approximately the same rate. Knowing the range of postnatal depression among mothers after delivery helps to detect and manage the subgroups within that community. In nearby country Qatar, a study done by Al-Kuwari et al. who reported that (27.8%) of studied subject had a clinically significant depressive symptoms [27]. In the international studies, it was found by Felice et al. that the estimated prevalence of PND to be 15.5% during pregnancy and (8.7%) at 8 weeks postpartum [28].

The differences between the result of Felice et al.'s [28] and current study for postpartum possible depression (16.7%) was may be due to different methodology and the study sample between both studies. As Norhayati et al. revealed that variations of incidence of PND are due to differences in data collection tool, socioeconomic levels, the environment and cultural background of the women [29] as well as that variation could affected by the timing of postpartum follow-up [30]. In our study, the researcher includes postnatal mothers from different hospitals and different nationalities. Also, the follow up by telephone call was carried out to measure PND by EPDS in nearly consistent time period from 7-20 days postnatal whereas in Felice et al.'s [28] study; they had the follow up 8 weeks post-delivery which might make a big difference in the results.

In current study the main causes of positive EPDS score were related to many factors such as presence of marital conflict, exposure to difficult life events, increase number of pregnancy, delivery and lack of breastfeeding. There was positive and significant relation between postnatal depression and decrease in practice of breastfeeding, based on Nishioka et al. Hamdan studies results it is important to screen for PND in non-breastfeeding mother [31,32]. Also other study about PND done by Hatton et al. reported that symptoms of depression were significantly lower in those who were breastfeeding at 6 weeks but not at 12 weeks postpartum [33]. Other study conducted by Tashakori et al. also confirmed that breastfeeding mothers are less depressed [34]. Postnatal depression related risk factors were examined in many researches [35].

The association of PND with Biological, Social, Medical and Obstetrical factors is the focus of our study too. Biological factors include maternal age, month of delivery, exercise and postpartum special diet. Although some studies had positive correlations between maternal age and PND [36-38] but in current study, biological factors have shown no significant association with PND. Rich-Edwards et al. stated in their study that young maternal age was the strongest factor which can predict antenatal depression, since it is related to financial difficulties, undesirable pregnancies and absence of partner support [39]. Another study carried by Chaudron et al. also found that younger age is consider a significant risk factors for PND [40]. However, Cantilino et al. reported no significant difference between depressed and non-depressed Brazilian mothers with regard to age [41]. That finding is similar to our study results where P value=0.1 suggesting that maternal age has no significant relation with PND.

Although current study shows that the educational level has no significant relation with PND. It is important to notice that the study results demonstrated that increasing score of EPDS were correlated with lower educational levels. In contrast with a research done by Miyake et al. where the results demonstrated that there were no relationships between educational levels and postpartum depression [42]. The present study revealed that there is no statistically significant relation between performing exercise and decreasing the risk of PND. Although some other researches demonstrated the benefit of exercise to the physical and psychological health of postnatal women [43,44]. Several studies have demonstrated that diet (nutritional supplements) plays a significant role in PND. Rechenberg et al. reported that nutritional interventions can be used as prophylactic measures which may decrease the incidence or severity of perinatal depression [45]. This study shows no significant relation between diet and PND; perhaps it is due to small sample size and limited data about diet and nutrition.

Findings of the current study indicate that social risk factors such as nationality, education, occupation, residence, family type and monthly income, have insignificant relationship with PND. Similar results found in a study conducted by Josefsson et al. demonstrated that there were no significant social differences between women with or without a depressive symptomatology [46]. While the result of a study done by Abdollahi et al. showed a strong evidence of the importance of low income, that can affect mental health [47]. Unemployment is a predictive index of low socioeconomic status, and this factor reported to be associated with the increased risk of postnatal depression [48]. Another study represented the educational level as a significant factor that increase possibility of PND [21]. In relation to the social risk factors of PND, Amr and Hussein Balaha explained that urban residence is consider significant factor that increase likelihood of postnatal mental disorders [49]. The difference between present study and previous findings may be related to different in methodology used and small sample size.

The current study found that more than one-third of the participated postnatal mothers didn't experience any depressive symptoms. This may be due to good marital status, around (94%) of the mothers having good relationship with the spouse with no problems. At the same time the majority of them had good family support, more than two third of the mothers (62.5%) spent the postpartum period in their family house where they found care for them and their children as a study done by Al-Madani [50]. Although the majority of the participants had good marital relationship but the results

found positive correlation between marital conflicts and risk factors for PND. This finding congruent with other studies which have demonstrated that presence of marital problems plays significant roles in PND [51]. According to self-determination theory, other studies identified that marital conflicts, lack of husband's support, and divorce were risk factors of this disorder [52]. "Variations in needs satisfaction will directly predict variations in indices of psychological and physical wellbeing and the satisfaction of psychological needs must be satisfied to foster wellbeing and health" [53].

The findings of the study done by Vigod et al., PND is related risks among mothers with premature infants or low-birth weight newborn, lack of social support was one of the factors that increase PND exposure rate [9]. In this study, exposure to stressful life events and postnatal depression seems to be positively associated. Specifically, many researches were highlighted the significant association of this disorder with the exposure to difficult life events [54]. Many other studies confirmed the relation of depression and anxiety during pregnancy with significant contributors to PND [18] and other psychological disorders during pregnancy are also connected to PND [55]. This come parallel to a study reported by Mousa et al. which indicated that perceived stress and exposure to stressful events occurs when an individual demonstrates a feeling of helplessness to control the stressful situation or to deal with the resulting emotional response. Therefore, there will be a correlative interaction between the individual and the environment, and the individual's appraisal of the stressful events in shaping his responses toward the perceived stress and occurrence of postnatal depression [56].

A previous history of depression was not found as a risk factor for mother depression in the current study, low reported incidence of personal or family history of depression may be related cause. This may be due to the person reluctance to mention the presence of past history as a result of his sense of being stigmatized. Another explanation may be that postpartum depression in this sample was a reactive depression rather than genetic. This data is inconsistent with several studies which demonstrated a strong correlation between depression and previous history of psychiatric illness [18]. This study did not find any association between the medical history and postnatal depression. Unlike a study conducted in Nigeria reported that the number of cases of postnatal depression were also more common among mothers who had one form of physical illnesses [57].

Findings of the current study indicated that there was a positive and significant relation between unwanted reaction toward pregnancy and postnatal depression. Unwanted pregnancy can cause negative physical, psychological and social effects on women [58]. Other studies concluded that high risk of PND found in mothers with unwanted pregnancies [59]. Also, there was a positive and significant relation between postnatal depression and parity. Likewise, Iwata et al. which his study found that Primiparity was a strong risk factor for depressive symptoms specially on the first 4 weeks postpartum [60]. Early detection of postnatal depression using screening tool may play a significant role to improve mother- child health outcomes and prevent further complications.

CONCLUSION

In this study, we found that postnatal depression (PND) was detected among postnatal mothers and it present a significant problem which need further investigation. Also, the results supported that PND is associated with marital conflicts, exposure of difficult life events, gravidity and parity, newborn birth order, unwanted pregnancy and breastfeeding. PND need to address affective responses and discussing way of dealing with it for all post-partum mothers. EPDS can detect postnatal depression and findings of the present study are not far from the previous studies. EPDS can be used as valid screening tool for PND for early detection, prompt treatment and to prevent possible consequences.

LIMITATIONS OF THE STUDY

We would also like to recommend that further studies are needed with larger sample size by using random sampling in the Saudi community to investigate further some of the risk factors that were found to be associated with PPD.

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