VOLUME - 11, ISSUE - 02, FEBRUARY - 2022 • PRINT ISSN No. 2277 - 8160 • DOI : 10.36106/gjra

Original Research Paper

Medicine

DEPRESSION STATUS AMONG THE FEMALES DURING THE FIRST POSTPARTUM PERIOD AT CLINICAL SETTINGS OF PRIMARY HEALTH CARE CENTRES IN ARAR CITY, SAUDI ARABIA.

Dr. Wafa Mohammed Falah Alanazi*	R4 Resident, Family Medicine Academy, Arar Province, Saudi Arabia. *Corresponding Author
Khulud Falah Alanazi	R4 Resident, Family Medicine Academy, Arar Province, Saudi Arabia.
Rehab Abdullah Alanazi	R4 Resident, Family Medicine Academy, Arar Province, Saudi Arabia.
Mohammed Ali Khalaf Alhowaish	R4 Resident, Family Medicine Academy, Arar Province, Saudi Arabia.
Hossam Khleif	Dr. Hossam Khleif, Ex. Trainer at Arar Province, Saudi Arabia.
Chandra Sekhar Kalevaru	Professor and Trainer at Family Medicine Academy, Qassim Health Cluster, Saudi Arabia.

ABSTRACT

Background: Postpartum depression is one of the most common, but often unrecognized, complications of childbirth and is considered as a serious psychological disorder that can affect women during or after birth and during pregnancy. Its risk increases during the first 90 days and can last up to nearly two years.

Objectives: To determine the prevalence of postpartum depression (PPD) and correlate it with variables of obstetric and demographic predictors among females attending primary health care centres in Arar city.

Methodology: This was a cross-sectional study carried out by using Arabic version of questionnaire of Edinburgh Postnatal Depression Scale (EPDS) tool during the study period from August to September 2021. A total of 383 sample was taken by using convenience sampling method. Analysis was done by using Statistical Package for Social Sciences.

Results: The prevalence of postpartum depression was 30.5%. Multiple associated factors were found to be significantly increase the risk of PPD such as: females who had caesarean section delivery, unplanned pregnancy, complicated pregnancy, their baby had medical problem and had no or less husband support, had psychiatric disorders, had chronic medical problem, taking chronic medication, had life stressor, low education and low income ($P < 0.05$). The results of the logistic regression analysis showed that the odds of PPD significantly increase in females had caesarean section delivery compared to vaginal delivery ($P = .002$), females had rare support from the husband ($P = .002$), females had psychiatric disorders ($P = 0.016$) and had life stressor ($P = .000$).

Conclusions: The prevalence of postpartum depression in the city of Alar was clearly high. Our study also showed important predictors that could be used to identify high-risk females. It is advisable to provide social support to females during both prenatal and postnatal periods. Regular screening of women for postpartum depression should be encouraged for early detection and prompt intervention.

KEYWORDS : Depression, Postpartum period, Edinburgh Postnatal Depression Scale, Saudi Arabia

INTRODUCTION:

Postpartum depression, which includes major and minor depressive episodes that occur in the first 12 months after delivery, is one of the most common mental disorders during the postpartum period [1]. Although there are numerous studies examining the prevalence and correlates of postpartum depression in mothers from many countries, the estimated prevalence of postpartum vary widely among different studies, depending upon systematic review studies in different countries. [2]. As such, the present study is designed to investigate what percentage of mothers in Arar city, Saudi Arabia during a first 12 months postpartum period which have postpartum depression (PPD) and potential correlates of postpartum depression. This will help to target active prevention and intervention more precisely for mothers and their children at risk.

Prior studies based in different countries have examined the prevalence of postpartum depression. Prevalence rates vary widely across in developing and developed countries and also in different regions. Structured clinical face to face interview shows a much lower prevalence range from 0.1% in Finland to 26.3% in India [2]. Studies in clinical settings estimate that the prevalence of depression among postpartum women is approximately 10 to 16 percent [3]. Prevalence of postpartum depression (PPD) was 10% in Sharjah, United Arab Emirates and 17.6% PPD was observed in Qatar country [4,5].

Postpartum depression prevalence in Lebanon in the year 2014, stated was 12.8% [6] and among the rural women in the same year in Minia, Egypt and revealed that postpartum prevalence was 49.5% [7]. Few other studies on postpartum prevalence conducted in Dammam region, Saudi Arabia revealed that 17.8% of prevalence among postpartum mothers [8]. While in the same year, another study conducted among the postpartum mothers in Riyadh, the prevalence reported as 33.2% [9].

In Australia and New Zealand reported that mothers with past mental disorders were associated with an increased risk of postpartum depression and also found that lower maternal education level and poor economic status are predisposed to a high prevalence of postpartum depression [10]. Empirical literature and other literature has consistently showed that poor relationships with husbands or family members are linked to a greater risk of experiencing postpartum

depressive symptoms after delivery [11,12].

Some studies had demonstrated that a lack of psychological preparedness for pregnancy are associated with a higher risk of postpartum depression [13]. Several studies in Asian contexts (e.g., India, China) had shown that the delivery of a baby girl led to a greater risk of postpartum depression among mothers compared to the delivery of a baby boy [14,15].

The existing literature suggest that PPD was common across female in Arabian population. However, the needs for studies that can shed light on what percentage of Saudi mothers during a first year postpartum period have postpartum depression and multiple predictors to determine the associated factors with postpartum depression prevalence in Saudi Arabian context to do the necessity for further research. Therefore, the present study is thus designed to address two research questions: (a) How prevalent is depression in mothers, who attending primary care centres in Arar city, during their first year postpartum? (b) what correlates (i.e., mothers 'education, economic status, preparation for pregnancy, past associated medical problems, relationship with husbands, and babies 'age and sex) are associated with depression in mothers during first year postpartum period.

OBJECTIVES:

The main objective of this study is to determine the prevalence of postpartum depression (PPD) among females attending primary health care centers in Arar city and correlate them with possible predictors.

Study Methods

Study Design

This was a cross-sectional study was carried out using Arabic version of questionnaire of Edinburgh Postnatal Depression Scale (EPDS).

Study Setting

The study was conducted during a postgraduate training programme for Family Medicine in Arar city in the Northern Borders Region of Saudi Arabia. The Northern Borders Region represents 1.2% of the general population of Saudi Arabia. The total population of Arar city is 150,819, and there are 11 primary health care centres with different catchment area for every centre with an average outpatient attendance of 1100 patients per day. The centres have different number of clinicians in charge according to their catchment area. Clinical training is implemented in government institutions (precisely, four primary health care centres and four secondary hospitals).

Health care services in Arar are offered by both governmental hospitals, primary health care centres and private health centres. The Gynaecology and Obstetrics unit in Governmental hospital provides all deliveries for women in the city. All delivered mothers who have postpartum follow up and child vaccinations were in governmental primary health care centres. Clinical setting based cross-sectional study was conducted at primary health care centres in Arar city. To get representation of the population of Arar through the training program, various health care centres were selected in this study. The centres were selected by random method namely Badana, Azizyia, and Salihia Awsat centres.

Study Subjects

Using the convenience sampling approach, women who visited for a routine postpartum follow-up, any medical complaint, or immunization of their new-borns was target sample population for the study. All females aged 18 to 45 years attending at the primary health care centres, who have delivered through the past 12 months, were invited to take part in the study.

Participation

The participants, who included in this study, are the patients attending above primary health care centres in Arar during the period (August to September 2021). Participation was voluntary and selection and inclusion criteria in this study are the females aged 18 to 45 years attended the primary health care centres for any medical complaint. The study excluded those are suffering from an illness causing inability to talk or those in an emergency condition needing urgent medical care.

Sampling

The sample size was calculated using sample size calculator software [17], by considering the following assumptions; the population size (P) =75000, the level of confidence (CL) =95%, margin of error (d) =5% and 50% response distribution. Based on above calculation, the total sample was 383 [16].

Data Collection

This study used a questionnaire including of socio-demographic, known risk factors for postpartum depression, and Edinburgh Postnatal Depression Scale (EPDS). Edinburgh Postnatal Depression Scale (EPDS) that was developed in Edinburgh by Cox and colleagues to screen for depression in the postnatal period [17,18]. The scale consists of 10 short questions. A participant checks off one of four possible answers those responses are scored 0, 1, 2 and 3 based on the seriousness of the symptom. The total score was calculated by adding together the scores for each of the 10 items giving a maximum total score of 30. Participants score was above 11 are likely to be suffering from depression and should seek medical attention. Since all participants are Arabic, an Arabic version was used for the study. And for the validity of Arabic version of the questions, we used forward and backward translation.

The data collection team are composed of Family Medicine residents from the training program. This team was trained by their supervisor on method of dealing with the participants in the targeted setting, present them the study form, and collect their responses. A pilot study was conducted in Badana centre among 30 participants to see the feasibility of the study. Data was collected in closed room after written informed consent. The participants completed the survey by themselves. Each survey form consists of a demographics section and the standard Edinburgh Postnatal Depression Scale (EPDS). The estimated time of administration and completion of the survey is approximately 10 min. The participant, who will score >11 by the study, was informed and follow up by researcher for proper management.

Data Analysis

The collected data was entered into jamovi software [19](version 1.6.23). Descriptive statistics of the socio-demographic characteristics and bivariate analysis of the study sample was conducted using the Pearson test. Descriptive analysis was carried out and chi square test was used as a test of significance for categorical variables at 95% level of confidence. A Probability (P) value of less than or equal to 0.05 was considered to be significant.

Ethical Approval

The study protocol was submitted and approved from Arar local Institutional Review Board. Data was collected after the ethical clearance and obtained permission to get the study from Directorate of Health Affairs in the northern border area. Participation is voluntary and informed consent was obtained beforehand. Researchers explained the consent to participants in Arabic language, and then the participants were asked to sign. The researchers assured of confidentiality to participants and their health care was not affected by their decision to participate in the study or not.

RESULTS

Socio-demographic Details

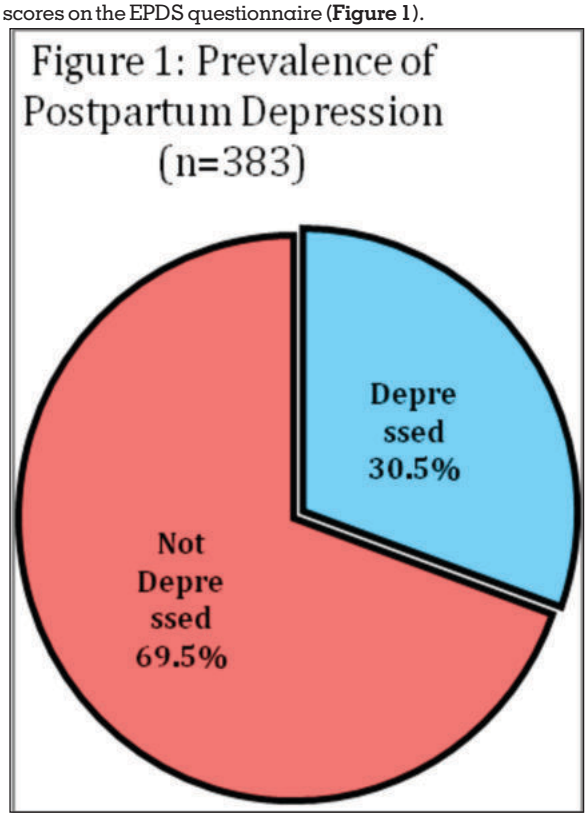
A total of 383 females participated in this study. **Table 1** stated that the baseline characteristics of the participants. The majority of females were Saudi (93.2%) and aged between 25 to 34 years (47.8%). Regarding their level of education, 232 have completed their higher studies (60.6%) and 135 had secondary education or less. All the participating females were married during the time of study (100%). 69 (18%) of the females was working and 313 (81.7%) had enough income.

Table 1: Socio-demographic Characteristics Of Study Participants (n=383)

Variable	Category	Frequency	Percent
Age (Years)	< 25	92	24%
	25 - 34	183	47.8%
	35 - 44	106	27.7%
	≥ 45	2	0.5%
Nationality	Saudi	357	93.2%
	Non-Saudi	26	6.8%
Educational level	None	16	4.2%
	Secondary or less	135	35.2%
	Higher education	232	60.6%
Marital status	Married	383	100%
	Divorced	0	0
Occupation status	Yes	69	18%
	No	314	82%
Do you have enough income?	Yes	313	81.7%
	No	70	18.3%

Prevalence Of Postpartum Depression (PPD) Among Females

The prevalence of postpartum depression among the females was 30.5% (EPDS ≥ 12) while 266 (69.5%) of them had normal scores on the EPDS questionnaire (**Figure 1**).



Risk Factors Associated With Postpartum Depression (PPD)

More than half (55.1%) of the females had two to three pregnancies and most of them (64.8%) had vaginal delivery in the last pregnancy. The last pregnancy had been planned in 176 females (46%) and 86 (22.5%) had complications during their last pregnancy. The baby age of most of the participating females (47%) was 2 to 6months and 345 (90.1%) their baby had no medical problem.

The majority of the females their husbands support them all the times (30.3%) or most of the times (31.3%). 49 (12.8%) females breastfeed their children. Regarding history of psychiatric disorders, 58 (15.1%) of the females had psychiatric disorders, only 7 (1.8%) consulted a psychiatrist, no one of the females taking psychiatric medications and 9 (2.3%) had a family history of psychiatric disorders. 36 (9.4) of the females had chronic medical problem, 33 (8.6) taking chronic medications and 165 (43.1) had life stressor.

The relationship between PPD and different risk factors was assessed. Females who had caesarian section delivery, had unplanned pregnancy, had complicated pregnancy, their baby had medical problem and had no or less husband support were found to having significant post partum depression ($P < 0.05$).

Also female who had psychiatric disorders, had chronic medical problem, taking chronic medication and had life stressor were found to having significant higher prevalence of PPD compared to others ($P < 0.01$). More information is provided in **Table 2**.

Table 2: Risk Factors In Relation To Postpartum Depression Among The Study Participants

Variable	Category	Postpartum Depression		Total	P value
		Yes (n=117)	No (n=266)		
Number of pregnancies	Once	32 (27.4)	82 (30.8)	114 (29.8)	.772
	2-5 times	66 (56.4)	145 (54.5)	211 (55.1)	
	> 5 times	19 (16.2)	39 (14.7)	58 (15.1)	
Route of delivery	Normal delivery	58 (49.6)	190 (71.4)	248 (64.8)	.000
	Caesarian section	59 (50.4)	76 (28.6)	135 (35.2)	
Plan for last pregnancy	Yes	44 (37.6)	132 (49.6)	176 (46)	.030
	No	73 (62.4)	134 (50.4)	207 (54)	
Complicated pregnancy	Yes	35 (29.9)	51 (19.2)	86 (22.5)	.020
	No	82 (70.1)	215 (80.8)	297 (77.5)	
Baby age	< 1 month	22 (18.8)	41 (15.4)	63 (16.4)	.395
	2 - 6 months	49 (41.9)	131 (49.2)	180 (47)	
	7 - 12 months	46 (39.3)	94 (35.3)	140 (36.6)	
Baby medical problem	Yes	18 (15.4)	20 (7.5)	38 (9.9)	.018
	No	99 (84.6)	246 (92.5)	345 (90.1)	
Husband support	All the times	22 (18.8)	94 (35.3)	116 (30.3)	.000
	Most of times	25 (21.4)	95 (35.7)	120 (31.3)	
	Sometimes	35 (29.9)	54 (20.3)	89 (23.2)	
	Rarely	26 (22.2)	18 (6.8)	44 (11.5)	
	Not at all	9 (7.7)	5 (1.9)	14 (3.7)	
Breastfeeding	Yes	17 (14.5)	32 (12)	49 (12.8)	.500
	No	100 (85.5)	234 (88)	334 (87.2)	

Psychiatric disorders	Yes	28 (23.9)	30 (11.3)	58 (15.1)	.001
	No	89 (76.1)	236 (88.7)	325 (84.9)	
Consulting a psychiatrist	Yes	1 (0.9)	6 (2.3)	7 (1.8)	.346
	No	116 (99.1)	260 (97.7)	376 (98.2)	
Psychiatric medications	Yes	0 (0)	0 (0)	0 (0)	-
	No	117 (100)	266 (100)	383 (100)	
Family history of psychiatric disorders	Yes	3 (2.6)	6 (2.3)	9 (2.3)	.854
	No	114 (97.4)	260 (97.7)	374 (97.7)	
Chronic medical problem	Yes	22 (18.8)	14 (5.3)	36 (9.4)	.000
	No	95 (81.2)	252 (94.7)	347 (90.6)	
Chronic medication	Yes	21 (17.9)	12 (4.5)	33 (8.6)	.000
	No	96 (82.1)	254 (95.5)	350 (91.4)	
Life stressor	Yes	82 (70.1)	83 (31.2)	165 (43.1)	.000
	No	35 (29.9)	183 (68.8)	218 (56.9)	

Observed differences in order to investigate the impact of the socio-demographic factors on the prevalence of PPD among the studied population, we applied a chi-square test to find the associations between the two or categorical variables. In the present study, we found that educational level and income showed significant association with PPD ($P < 0.01$). Females with low education level and females having not enough income tend to have higher prevalence of postpartum depression compared to others. Other factors did not affect the prevalence of PPD ($P > 0.05$). More information is provided in **Table 3**.

Table 3: Association Between Socio-demographic Characteristics And Postpartum Depression

Variable	Category	Postpartum Depression		P value
		Yes (n=117)	No (n=266)	
Age (Years)	< 25	30 (25.6)	62 (23.3)	.175
	25 - 34	53 (45.3)	130 (48.9)	
	35 - 44	32 (27.4)	74 (27.8)	
	≥ 45	2 (1.7)	0 (0)	
Nationality	Saudi	109 (93.2)	248 (93.2)	.980
	Non-Saudi	8 (6.8)	18 (6.8)	
Educational level	None	10 (8.5)	6 (2.3)	.001
	Secondary or less	50 (42.7)	85 (32)	
	Higher education	57 (48.7)	175 (65.8)	
Occupation status	Yes	15 (12.8)	54 (20.3)	.079
	No	102 (87.2)	212 (79.7)	
Do you have enough income?	Yes	85 (72.6)	228 (85.7)	.002
	No	32 (27.4)	38 (14.3)	

Predictors Of Postpartum Depression (PPD)

We conducted multivariate logistic regression with PPD as dependent variable. The results revealed that the odds of PPD significantly increase in females had caesarian section delivery compared to vaginal delivery ($P = .002$). We also identified the following group to significantly increase the odds of PPD: rare support from the husband ($P = .002$), having psychiatric disorders ($P = 0.016$) and having life stressor ($P = .000$). Other factors did not show any significant effect with PPD. Further information is provided in **Table 4**.

Table 4: Predictors Of Postpartum Depression (PPD)

Variable	Odds Ratio	95% Confidence Interval		P value
		Lower	Upper	
Saudi nationality	0.95	0.31	2.88	.927
Age				.984
< 25	1			
25-34	1.05	0.49	2.25	.892
35-44	0.91	0.35	2.36	.839
> 44	4.68	0	.	.999
Education				.132
Higher education	1			
Secondary or less	1.57	0.83	2.95	.163
None	3.56	0.87	14.63	.078
Having Occupation	0.53	0.24	1.19	.126
Having enough income	0.72	0.37	1.40	.326
No. of pregnancies				.620
Once	1			
2-5 times	1.21	0.60	2.43	.592
> 5 times	0.79	0.26	2.40	.674
Caesarian section delivery	2.49	1.39	4.45	.002
Planning for pregnancy	0.60	0.34	1.09	.094
Having complicated pregnancy	0.74	0.36	1.56	.432
Baby age				.362
< 1 month	1			
2-6 months	0.87	0.39	1.90	.717
7-12 months	1.36	0.61	3.03	.450
Having medical problem	1.78	0.71	4.47	.221
Support husband				.002
All the times	1			
Most of the times	1.38	0.63	3.05	.427
Sometimes	2.19	0.95	5.05	.067
Rarely	6.67	2.53	17.57	.000
Not at all	2.76	0.58	13.21	.204
Breastfeeding	2.02	0.81	4.99	.130
Having Psychiatric Disorders	2.71	1.20	6.11	.016
Consulting psychiatrist	0.11	0.01	1.61	.106
Having Family history	0.53	0.09	3.28	.498
Having chronic problem	0.89	0.06	13.21	.930
Taking Chronic medications	3.95	0.24	64.53	.336
Having Life stressor	4.13	2.32	7.37	.000

DISCUSSION:

The current study was conducted to determine the prevalence of postpartum depression (PPD) and other factors associations and predictions among postpartum females attending primary health care centres in Arar city, Saudi Arabia during the period in the year 2021. Screening of depression symptoms was conducted by using Arabic version of questionnaire of Edinburgh Postnatal Depression Scale (EPDS) tool. This study seems to be one among the limited studies that examine postpartum depression and its risk factors among population in Saudi Arabia.

In the present study, the prevalence of Post partum depression (PPD) was 30.5%. There was different varieties prevalence of PPD has been reported all over the world. It was recorded 5% in Denmark, 13.4% in Brazil, 36% in Chile [20], and 13.8% in Japan [21]. In Saudi Arabia, our results were higher than other studies in Dammam and Jeddah, prevalence was 17.8%, 20.9 respectively [22,23]. However, our findings were lower than study was conducted in Riyadh, prevalence was 38.5% [24]. Furthermore, our finding was lower than other studies in Nigeria, prevalence was 35.6% [25] and in Iran, prevalence was

38.8% [26], but was higher than systemic review was carried out in Middle East, which reported that the overall prevalence of PPD among the Middle East women is 27% [27]. Differences in prevalence of various studies from this study may be due to differences in geographic location, study design, various screening cut off point and postnatal period consideration in which the study was performed.

Regarding mode of delivery, our results were consistent with many studies that showed significant association between caesarean section delivery and PPD [25, 28]. similarly, previous study in Dammam, Saudi Arabia showed that unsupportive husband, stressful life events, and unwanted pregnancy were all significantly associated with the PPD, which confirm our results [22]. Therefore, family partners play an important role in preventing the onset or worsening of depression, or the psychological symptoms that may occur during or after childbirth. In general, the stages of life during pregnancy, especially after childbirth, must be treated carefully by the relevant family members.

However, another study conducted in Jeddah revealed that support from husbands or family during the pregnancy did not contribute to the depression among the studied group of women [23]. Based on the study of European longitudinal study of pregnancy and child hood by Czech reported that no association observed between PPD and unplanned pregnancy [29]. There was significant association between PPD and unplanned pregnancies as it becomes tough to adapt the maternal roles and responsibilities. Therefore, this can lead to women with serious psychological problems during the postpartum period. We also found that pregnancy complications were significantly associated with PPD. The presence of complications can trigger the onset of depression, as the mother's body undergoes many changes during pregnancy and childbirth. This is consistent with another study in Riyadh [24].

Similar to another studies, the present study found significant association between socio demographic characteristics like income, education, and PPD [28, 29]. Conversely, other studies in Saudi Arabia did not showed any significant association between socio demographic variables and PPD [22,23]. This may due to the differences in study population. Logistic regression analysis was applied and stated that caesarian section delivery, rare support from the husband, having psychiatric disorders and having life stressor (P = 0.001) significantly associated with PPD. Universal phenomenon stated as the presence of stressful life events can trigger the development of depression, as the mother's body undergoes many changes during pregnancy and childbirth specially in first birth given mothers.

Limitations of the study; firstly, we used the Arabic version of EPDS to identify depressive symptoms. This was considered suboptimal for the identification of clinically significant depressive syndromes and was not a substitute for systematic clinical interviews. Some studies revealed that EPDS contains many items that were not related to depression, which has the tendency to give a high rate of false positives. Additionally, there was no consensus on the detection of EPDS-based depression. EPDS thresholds for identifying patients at risk for PPD vary from study to another. Another limitation is that it was a cross sectional study. It could only explain a significant association among different factors and could not determine the causal relationship of these events, so further research would be needed.

CONCLUSION:

This study revealed a high prevalence of PPD among women in Arar city, Saudi Arabia. Females who had caesarean section delivery, unplanned pregnancy, complicated pregnancy, their baby had medical problem and had no or less husband support, had psychiatric disorders, had chronic medical problem, taking chronic medication, had life stressor, low education and low income were significantly contributed to PPD. Policy makers should consider screening for PPD in all postpartum females. Further studies are required to substantiate the present study findings and recommending education and counseling programs are recommended to reduce PPD. The results of our research serve as evidence that can be used for future research and health policy.

Source of Funding: None declared.

Conflict Of Interest: None

Ethical Clearance:
Ethical clearance taken from the Regional Ethics Committee, Arar province, Saudi Arabia.

Acknowledgements:
All the authors are extremely thankful to our all study participants, all the Directors of the Health Centres for their co-operation in successful completion of the study.

REFERENCES:

1. Committee on Obstetric Practice. The American College of Obstetricians and Gynecologists Committee opinion no. 630. Screening for perinatal depression. Obstetrics and gynecology. 2015 May; 125(5):1268-71.
2. Norhayati MN, Hazlina NN, Asrenee AR, Emilin WW. Magnitude and risk factors for postpartum symptoms: a literature review. Journal of affective Disorders. 2015 Apr 1; 175:34-52.
3. Gaillard A, Le Strat Y, Mandelbrot L, Keïta H, Dubertret C. Predictors of postpartum depression: prospective study of 264 women followed during pregnancy and postpartum. Psychiatry research. 2014 Feb 28; 215(2):341-6.
4. Hamdan A, Tamim H. Psychosocial risk and protective factors for postpartum depression in the United Arab Emirates. Archives of women's mental health. 2011 Apr; 14(2):125-33.
5. Burgut FT, Bener A, Ghuloum S, Sheikh J. A study of postpartum depression and maternal risk factors in Qatar. Journal of Psychosomatic Obstetrics & Gynecology. 2013 Jun 1;34(2):90-7.
6. El-Hachem C, Rohayem J, Khalil RB, Richa S, Kesrouani A, Gemayel R, Aouad N, Hatab N, Zaccak E, Yaghi N, Salameh S. Early identification of women at risk of postpartum depression using the Edinburgh Postnatal Depression Scale (EPDS) in a sample of Lebanese women. BMC psychiatry. 2014 Dec;14(1):1-9.
7. Mohammed ES, Mosalem FA, Mahfouz EM, AbdElHameed MA. Predictors of postpartum depression among rural women in Minia, Egypt: an epidemiological study. Public Health. 2014 Sep 1;128(9):817-24.
8. Alasoom LI, Koura MR. Predictors of postpartum depression in the eastern province capital of Saudi Arabia. Journal of family medicine and primary care. 2014 Apr;3(2):146.
9. Alharbi AA, Abdulghani HM. Risk factors associated with postpartum depression in the Saudi population. Neuropsychiatric disease and treatment. 2014;10:311.
10. Schmied V, Johnson M, Naidoo N, Austin MP, Matthey S, Kemp L, Mills A, Meade T, Yeo A. Maternal mental health in Australia and New Zealand: a review of longitudinal studies. Women and Birth. 2013 Sep 1;26(3):167-78.
11. Saligheh M, Rooney RM, McNamara B, Kane RT. The relationship between postnatal depression, sociodemographic factors, levels of partner support, and levels of physical activity. Frontiers in psychology. 2014 Jul 14;5:597.
12. Martini J, Petzoldt J, Einsle F, Beesdo-Baum K, Höfler M, Wittchen HU. Risk factors and course patterns of anxiety and depressive disorders during pregnancy and after delivery: a prospective-longitudinal study. Journal of affective disorders. 2015 Apr 1;175:385-95.
13. Martin A, Horowitz C, Balbierz A, Howell EA. Views of women and clinicians on postpartum preparation and recovery. Maternal and child health journal. 2014 Apr 1;18(3):707-13.
14. Rodrigues M, Patel V, Jaswal S, De Souza N. Listening to mothers: qualitative studies on motherhood and depression from Goa, India. Social science & medicine. 2003 Nov 1;57(10):1797-806.
15. Xie RH, He G, Liu A, Bradwejn J, Walker M, Wen SW. Fetal gender and postpartum depression in a cohort of Chinese women. Social science & medicine. 2007 Aug 1;65(4):680-4.
16. warehttp://www.raosoft.com/ last accessed date 17.07.2021.
17. Cox JL, Holden JM, Sagovsky R. Detection of postnatal depression: development of the 10-item Edinburgh Postnatal Depression Scale. The British journal of psychiatry. 1987 Jun;150(6):782-6.
18. K. L. Wisner, B. L. Parry, C. M. Piontek, Postpartum Depression N Engl J Med vol. 347, No 3, July 18, 2002, 194-19
19. https://www.jamovi.org/ (Şahin MD, Aybek EC. Jamovi: an easy to use statistical software for the social scientists. International Journal of Assessment Tools in Education. 2019 Dec 19; 6(4):670-92.)
20. Limon, F. J., Lamson, A. L., Hodgson, J., Bowler, M., &Saeed, S. Screening fordepression in Latino immigrants: A systematic review of depression screening HEALTH CARE FOR WOMEN INTERNATIONAL 9 instruments translated into Spanish'. Journal of Immigrant and Minority Health, 18(4), 787–798.doi:10.1007/s10903-015-0321-y.
21. Miyake, Y., Tanaka, K., Sasaki, S., &Hirota, Y. Employment, income, and

education and risk of postpartum depression: The Osaka maternal and child health study. Journal of Affective Disorders, 130(1/2), 133–137. doi:10.1016/j.jad.2010.10.024.
22. Alasoom LI, Koura MR. Predictors of postpartum depression in the eastern province capital of saudiarabia. J Family Med Prim Care. 2014 Apr;3(2):146-50. doi: 10.4103/2249-4863.137654. PMID: 25161973; PMCID: PMC4139996.
23. Alsayed NA, Altayyeb JF, Althuniyyan LS, Alzubaidi SK, Farahat F. Prevalence of Postpartum Depression and Associated Risk Factors Among Women in Jeddah, Western Saudi Arabia. Cureus. 2021 Apr 21;13(4):e14603. doi: 10.7759/cureus.14603. PMID: 34040904; PMCID: PMC8139603.
24. Al Nasr RS, Altharwi K, Derbah MS, Gharibo SO, Fallatah SA, Alotaibi SG, Almutairi KA, Asdaq SMB. Prevalence and predictors of postpartum depression in Riyadh, Saudi Arabia: A cross sectional study. PLoS One. 2020 Feb 10;15(2):e0228666. doi: 10.1371/journal.pone.0228666. PMID: 32040495; PMCID: PMC7010279.
25. Adeyemo EO, Oluwole EO, Kanma-Okafor OJ, Izuka OM, Odeyemi KA. Prevalence and predictors of postpartum depression among postnatal women in Lagos, Nigeria.Afr Health Sci. 2020 Dec;20(4):1943-1954. doi: 10.4314/ahs.v20i4.53. PMID: 34394261; PMCID: PMC8351853.
26. Afshari P, Tadayon M, Abedi P, Yazdizadeh S. Prevalence and related factors of postpartum depression among reproductive aged women in Ahvaz, Iran. Health Care Women Int. 2020 Mar;41(3):255-265. doi: 10.1080/07399332.2019.1578779. Epub 2019 Mar 29. PMID: 30924721.
27. Alshikh Ahmad H, Alkhatib A, Luo J. Prevalence and risk factors of postpartum depression in the Middle East: a systematic review and meta-analysis. BMC Pregnancy Childbirth. 2021 Aug 6;21(1):542. doi: 10.1186/s12884-021-04016-9. PMID: 34362325; PMCID: PMC8343347.
28. Burgut FT, Bener A, Ghuloum S, Sheikh J. A study of postpartum depression and maternal risk factors in Qatar. J PsychosomObstetGynaecol. 2013 Jun;34(2):90-7. doi: 10.3109/0167482X.2013.786036. Epub 2013 May 23. Erratum in: J PsychosomObstetGynaecol. 2015;36(3):133. PMID: 23701432.
29. Fiala A, Švancara J, KlánováJ, Kašpárek T. Sociodemographic and delivery risk factors for developing postpartum depression in a sample of 3233 mothers from the Czech ELSPAC study. BMC Psychiatry. 2017 Mar 21;17(1):104. doi: 10.1186/s12888-017-1261-y. PMID: 28327118; PMCID: PMC5361789.