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The Frequency of Depression and Its Related Factors in Pregnant Women: A Case Study of Women Visiting the Health Centers Affiliated with Kerman University of Medical Sciences in 2017

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Abstract

Background: Depression is one of the common problems during pregnancy that can have adverse effects on the fetus and mother and even after delivery can adversely affect the baby and mother. To this end, this study aimed to determine the frequency of depression and its related factors in women in the third trimester of pregnancy visiting the health centers affiliated with the Kerman University of Medical Sciences.

Methods: This descriptive-analytical cross-sectional study was conducted in 2017 in health centers affiliated with the Kerman University of Medical Sciences. The participants were pregnant women in the third trimester of pregnancy who were selected using convenience sampling. The data in this study were collected using the Edinburgh Postnatal Depression Scale (EPDS). The collected data were analyzed with SPSS software (version 22).

Results: The frequency of depression in women in the third trimester of pregnancy was 12.7%. The frequency of depression was higher in the age group of over 30 years, the age of the spouse under 30 years, the age at the time of marriage over 20 years, housewives, the first pregnancy, and in planned pregnancy. Multivariate logistic regression analysis showed that the young age of the spouse was associated with a significant increase in depression during pregnancy (adjusted OR = 13.72, 95% CI: 2.60-27.72, P-value = 0.002).

Conclusion: Given the relatively high prevalence of depression in pregnant women in the third trimester, screening and identification of these women are very important. Furthermore, organizing training courses on depression for women and their husbands and effective behavioral and treatment solutions should be considered one of the priorities of health centers.

Keywords: Depression, Frequency, Clients of Health Centers, Pregnant Women, Kerman

Background

Pregnancy and childbirth are considered natural events and critical periods in the lifespan of women, during which many emotional, physical, and social changes occur (1). Although pregnancy is considered a natural function for women, at the same time, it is considered a stressful experience for some mothers mainly due to worries and fears related to childbirth and lack of preparation for maternal responsibilities (2). This experience is associated with extensive mental and physical changes in pregnant mothers (3). These changes can lead to depression during pregnancy (2). Depression is considered the most important mental disorder during pregnancy, which is known as a global public health problem due to its negative effects on women's general health and children's development (4).

Depression during pregnancy is a multifactorial mental disorder involving social, psychological, biological, and genetic factors (5). Studies have shown that life stress, history of depression, maternal anxiety, lack of social support, low physical activity, obesity and overweight, unwanted pregnancy, spousal violence, adverse childhood experiences, low income, low education, and smoking are among the risk factors for depression during childbirth (6-8).

Recent research by the Centers for Disease Control and Prevention showed that 1 out of every 8 women experiences symptoms of postpartum depression. In addition, a recent analysis by the same centers indicated that the number of diagnosed postpartum depression cases is increasing and in 2015 it was seven times higher than in 2000 (9, 10). A review study conducted in 2016 that focused on longitudinal studies showed that the prevalence of prenatal and postpartum depression was 17% and 13%, respectively. Furthermore, 39% of depressed women experienced postpartum depression during pregnancy (11). A meta-analysis reported the prevalence of depression during pregnancy to be 16.3% in China, showing an upward trend during the last decade (12). In another meta-analysis in Pakistan, the prevalence of prenatal depression was 37% and the prevalence of postpartum depression was 30% (13).

Recent studies have indicated women are more prone to depression during pregnancy than during the postpartum period (11, 14). Depression during pregnancy can have adverse consequences for the health of the mother and child (5) including fetal growth delay, low birth weight, low Apgar score, infant sleep problems, increased pre-eclampsia, placental abnormalities, spontaneous abortion, maternal sleep disorders, postpartum depression, and decreased breastfeeding (8, 15, 16). Moreover, other outcomes such as social isolation (17), marital discord (18), failure to use prenatal care, lack of self-care, insufficient nutrition, and smoking have been reported to be associated with depression during pregnancy (19, 20).

Most of the studies on depression in pregnant women have focused on postpartum depression, and less focus has been placed on depression during pregnancy (1, 4). Investigating depression during pregnancy is important because screening for depression during pregnancy can lead to early diagnosis and subsequently timely treatment of this disorder (21) and also reduce the burden of this mental disorder by decreasing the adverse effects on the mother and the child. Thus, given the paucity of research on depression during pregnancy, the present study sought to determine the frequency of depression among pregnant women in the third trimester and its related risk factors in Kerman.

Methods

This descriptive-analytical cross-sectional study was conducted in 2017 on pregnant women in the third trimester visiting health centers in Kerman. There are 10 health centers in Kerman, and a total of 47 health units operate under the supervision of these centers. Health centers were divided into 10 clusters. Health units were selected from each cluster based on the population they covered. A total of 15 health centers were selected. Following a similar study conducted by Bazargani Pour et al., considering the prevalence of depression 41% (22), the confidence level 95%, the error level 0.082, and the effect size 1.3, the minimum sample size was estimated as 181

persons . However, 188 persons were enrolled in this study.

The participants were 188 pregnant women visiting health centers and were selected using convenience sampling. The inclusion criteria were being between 16-35 years old, being in the third trimester of pregnancy, not having mental problems, not experiencing severe stress in the last 9 months, and not having a history of smoking and drug abuse. The main exclusion criteria were hospitalization of the mother, having a sick or disabled child, and unwillingness to participate in the study.

The data were collected using the Edinburgh Postnatal Depression Scale (EPDS). This scale has 10 four-point Likert items. Items 1 and 2 are scored on a Likert scale as follows: "As much as I always could (0), Not quite so much now (1), Definitely not so much now (2), and Not at all (3)". Items 3 to 10 are scored on a four-point Likert scale as follows: "No not all (0), Hardly ever (1), Yes, sometimes (2), and Yes, very often (score of 3)". The minimum and maximum scores on this scale are 0 and 30, respectively. A score greater than 13 was considered depression (23). The validity and reliability of the Persian version of the scale were confirmed by Montazeri et al. (2007) in Iran (24). The participants' demographic characteristics assessed in this study included participants' age (less than 24 years/25-29 years/more than 30 years), the husband's age (less than 30 years/more than 30 years), age at marriage (less than 20 years/more than 20 years), education (primary/middle school, high school diploma, or associate degree/undergraduate or postgraduate degree), occupation (housewife/ employee), pregnancy rank (1, 2, 3, more than 3) and type of pregnancy (unplanned/planned).

Data analysis was performed using SPSS software (version 22). The frequency of depression was calculated by dividing the number of participants with depression in each subgroup by the total number of participants. Besides, the percentage of depression was calculated by dividing the number of participants with depression by the total number of participants in that subgroup who were depressed. The quantitative data were described by mean and standard deviation indicators, and the qualitative data were described by percentage and frequency. Logistic regression analysis was run to investigate factors related to depression during pregnancy. The significance level in this study was considered less than 0.05 ($p<0.05$).

Results

Most of the participants (70.2%) were 25 to 29 years old. The age of the husband was more than 30 years in 56.9%. Moreover, 12.6% of the participants had primary/middle school education, a diploma, or an associate degree. The data also indicated that 46.8% of the participants had their first pregnancy and 87.2% had planned pregnancies. Furthermore, most of the participants (87.2%) were housewives (Table 1).

Table 1. The participants' demographic data

Variables	Categories	Total number	Total percentage	Depression				Percent of depression (%)	P-value
				Having depression		Not having depression			
				Number	%	Number	%		
Age (year)	< 24	64	34	6	25	58	35.4	3.19	0.139
	25-29	70	37.5	7	29.2	63	38.4	3.72	
	≥ 30	54	28.7	11	45.8	43	26.2	5.85	
Husband's age	< 30	98	43.1	16	66.7	82	50	8.51	0.127
	≥ 30	90	56.9	8	33.3	82	50	4.25	
Age at marriage	< 20	81	52.1	6	25	75	45.7	3.19	0.055
	≥ 20	107	47.9	18	75	89	54.3	9.57	
Education	Lower education, high school diploma, or associate degree	122	64.9	17	70.8	105	64	9.04	0.514
	Undergraduate/postgraduate	66	35.1	7	29.2	59	36	3.72	
Occupation	Housewife	164	87.2	19	79.2	145	88.4	10.1	0.205
	Employee	24	12.8	5	20.8	19	11.6	2.65	
Pregnancy rank	1	88	46.8	12	50	76	46.4	6.38	0.640
	2-3	84	44.7	9	37.5	75	45.7	4.78	
	> 3	16	8.5	3	12.5	13	7.9	1.59	
Type of pregnancy	Planned	164	87.2	20	83.3	144	87.8	10.63	0.540
	Unplanned	24	12.8	4	16.7	20	12.2	2.12	

The frequency of depression in women in the third trimester of pregnancy was 12.7%. The lowest frequency of depression was observed in the subgroup of pregnancy rank more than three (1.59%) and the highest frequency of depression was observed in the subgroup of women with planned pregnancy (10.63%) (Table 1). Depression was not related with any demographic variable (P-value>0.05).

The results of multivariate regression analysis showed that age less than 24 years (adjusted OR=0.04, 95% CI: 0.008-0.29, P-value =0.001) and mother's age 25-29 years (adjusted OR=0.08, 95% CI: 0.01-0.45, P-value=0.004) compared to age over 30 years were associated with a decreased risk of depression during pregnancy. The husband's age of less than 30 years compared to an older age was associated with a significant increase in the risk of depression during pregnancy (adjusted OR=13.72, 95% CI: 2.60-27.72, P-value =0.002) (Table 2).

Table 2. The results of univariate and multivariate logistic regression analysis for the relation between depression and its risk factors in pregnant women

Variables	Categories	Univariate logistic regression		Multivariate logistic regression	
		Crude OR (95% CI)	P-value	Crude OR (95% CI)	P-value
Age (year)	< 24	0.40 (0.13-1.17)	0.097	0.04 (0.008-0.29)	0.001
	25-29	0.43 (0.15-1.20)	0.110	0.08 (0.01-0.45)	0.004
	≥ 30	1	-	1	-
Husband's age	< 30	2.00 (0.81-4.93)	0.132	13.72 (2.60-72.27)	0.002
	≥ 30	1	-	1	-
Age at marriage	< 20	0.36 (0.14-1.04)	0.062	0.52 (0.17-1.62)	0.267
	≥ 20	1	-	1	-
Education	Lower education, high school diploma, or associate degree	1.36 (0.53-3.48)	0.515	-	-
	Undergraduate/postgraduate	1	-	-	-
Occupation	Housewife	0.49 (0.16-1.48)	0.212		
	Employee	1	-	-	-
Pregnancy rank	1	0.68 (0.17-2.76)	0.594	-	-
	2-3	0.52 (0.12-2.18)	0.371	-	-
	> 3	1	-	-	-
Type of pregnancy	Planned	0.69 (0.21-2.24)	0.542	-	-
	Unplanned	1	-	-	-

Discussion

The frequency of depression in women in the third trimester of pregnancy was 12.7%. The age of the mother less than 30 years was associated with a decreased risk of depression during pregnancy, and the husband's age of less than 30 years was associated with a significant increase in the risk of depression during pregnancy. A systematic review study conducted in Iran reported that the prevalence of depression during pregnancy was estimated at 41.22% (25). Thus, it seems that the prevalence of depression in pregnant women in Kerman is lower than the national average possibly due to the differences in the sample size, the instrument used to measure depression, and the inclusion criteria.

A meta-analysis study by Woody et al. reported the overall prevalence of depression in pregnant women in the world to be 11.9%, which was in line with the results of the present study (26). The studies conducted around the world reported the prevalence of depression in low-income countries such as Ethiopia at 24.94%, Nigeria at 24.5%, and high-income countries such as Western Europe at 8.6%, the Middle East at 19.5%, South Asia at 18.5%, the United States 11.7%, and Greece 28% (27-31). The data also indicated that the prevalence of depression during pregnancy in Iranian pregnant women is lower than in other countries and even other Middle Eastern countries. However, given the significance of depression during pregnancy, screening and diagnosis of depression during pregnancy should be a priority for health officials and healthcare centers.

The data in this study showed that the risk of depression in women aged less than 30 years is lower than in women at older ages. In contrast, a study in Ethiopia in 2019 showed

that mothers aged 20-30 years were exposed to an increased risk of depression (4). Sheeba et al. also showed that maternal age is not a significant predictor of depression during pregnancy (1). In another study in Iran, Gholami et al. revealed that the increasing age of mothers is associated with increased depression in mothers (32). These contradicting results could be attributed to the difference in the education given to mothers before and during pregnancy, the difference in different age classifications in different studies, and the social support received by mothers.

The findings of the present study indicated that the type of pregnancy had no significant relations with education and the number of pregnancies. Habibzadeh et al. and Gholami et al. reported that depression is more common in unwanted pregnancies than in planned pregnancies (32, 33). Gholami et al. found no significant relation between depression and pregnancy rate (32). However, a study conducted in Greece reported that the mother's education and the type of pregnancy are not related to depression (29). Following the findings of the present study, a study conducted in Gonabad (Iran) showed no significant relation between depression, education, and unplanned pregnancy (34). Prior mental preparation for pregnancy can be effective in controlling women's feelings and emotions during pregnancy and make pregnant women more aware of the changes during pregnancy. Thus, women who had a planned pregnancy can deal with these changes more efficiently.

The data in the present study showed no significant relation between maternal education and depression during pregnancy, as reported in previous studies such as Khorramirad et al. and Moshki et al. (35, 36). In contrast, Rahmani et al. found a significant relation between education and depression in mothers (37). A high level of education increases mothers' awareness of social rights, increases their knowledge, and facilitates easier access to information sources, helping them identify and seek the symptoms of depression as soon as possible.

One of the limitations of the present study was that its sample was limited to women visiting health centers in urban areas. Thus, the research population was not representative of the target population as the participants were selected using convenience sampling and the findings did not establish the causality between the research variables.

Conclusion

Following the findings reported in this study, it seems that the prevalence of depression in pregnant women in Kerman is relatively high. Thus, managers of healthcare systems are required to conduct interventions needed to diagnose and prevent depression in pregnant women before this disorder creates more problems for these women and their infants. Besides, holding training courses can create some valuable insights in women about depression and its symptoms during pregnancy and can help them protect the mother's and infant's health. Prenatal care provides a great opportunity to prevent and treat the emotional problems of pregnant women. This goal can be achieved by training women and raising their awareness.

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Ethical considerations

The protocol for this study was reviewed and approved by the Ethics Committee of Kerman University of Medical Sciences (IR.KMU.REC. 1396.1787). The participants were informed about the objectives of the study. They were also assured that their data would remain confidential. The questionnaires were completed anonymously.

Conflict of interest

The authors declared no conflict of interest.

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