

Research Article

**Predictive Factors of Depression in Pregnancy:
a Cross Sectional Study in Iran**

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ABSTRACT:

Introduction: Maternal health is one of the major goals of reproductive health arena. Changes in pregnancy make women susceptible to mood and psychological disorders. The purpose of this study is to investigate the prevalence of depression and predicting its related factors in pregnant women.

Materials and Methods: This descriptive, cross-sectional study was performed on 907 pregnant women referring to health centers in Jahrom in 2016. The measurement tools were Beck Depression Inventory (BDI) and demographic information. The data were analyzed by descriptive statistics, linear regression and Chi-square test.

Results: The mean age of women was 26.45 ± 4.49 . The prevalence rate of depression in pregnant women was 80.5%. The score of depression in the first, second and third pregnancy trimesters was 67.9%, 83.5%, 85.8%, respectively and it was found that depression was significantly increased with the progression of pregnancy ($p = 0.001$). The results of regression analysis showed that the risk factors for depression in pregnancy included female education (OR = 4.67 95% .CI = 1.97-11.07), spouse's education (OR = 4.67 95% .CI = 1.97-11.07), self-employed spouse (OR = 4.67 95% .CI = 1.97-11.07), an increase in the number of children (OR = 4.67 95% .CI = 1.97-11.07), an increase in the number of pregnancy (OR = 4.67 95% .CI = 1.97-11.07), history of abortion (OR = 4.67 95% .CI = 1.97-11.07).

Conclusion: According to the results, the prevalence of depression in pregnancy is very high and the factors of education, occupation, the number of children, the number of pregnancies and history of abortion are considered the variables affecting depression in pregnancy. Then, holding screening and counseling classes for diagnosing and special care plays an important role in routine care during pregnancy.

Keywords: Depression, Pregnancy, Women, Beck questionnaire

INTRODUCTION:

Pregnancy is an acute period in women's life during which a lot of emotional, physical and social changes takes place (1). According to World Health Organization (WHO), depression disorder is one of the most important causes of women's disability in the world today and approximately 10–15% of

women experience depression during pregnancy, which is a major risk factor for postpartum depression (2). Various physiological, psychological and social changes, hormonal changes, physical discomforts associated with pregnancy such as nausea, vomiting, and anxiety related to sonography,

anxiety about the *baby's health* and even the type of delivery are affective in the development of mental disorders including depression during pregnancy (3 and 4). Depression is one of the psychological changes which have negative effects on the mother and the developing fetus (5). Depression during pregnancy can lead to self-neglect, lack of prenatal care, increased stress in pregnancy (6), lack of self-care, inadequate nutrition, smoking, pre-eclampsia (7), drug use, low birth weight and preterm delivery (8 and 9). The first psychological symptom of depression includes a decline in physical activity and motivation resulting in decreased activity and efficiency, reduced life expectancy, decreased self-care and a desire to die in a person. Recent studies suggest that women are more susceptible to depression from the postpartum period than during the pregnancy. Therefore, despite of the relative awareness about the effect of postpartum depression on the child health, mother and family, the issue of depression during pregnancy has been relatively neglected (11). Considering the importance of maternal health and also because of the fact that mother is the main focus of the child's social environment in the first year of life, therefore, the timely diagnose and management of pregnancy during depression is of particular importance. Thus, the aim of this study is to investigate the prevalence of depression and its related factors in pregnant women.

MATERIALS AND METHODS:

This was a descriptive-analytic study performed on 907 pregnant women referred to the Prenatal Care Clinic in 2016. The criteria inclusion were pregnant women without history of depression and psychiatric disorders before pregnancy, history of the use of psychotropic drugs and alcohol and drug addiction, lack of death of loved ones in the past year, lack of a history of high risk pregnancy (history of hypertension, diabetes, history of previous fetal death and ...). The data collection tool was comprised of two sections: the first section consists of the personal

characteristics of the subjects under study including age, education, occupation, husband's education, husband's job, number of pregnancy, number of children. Another questionnaire is the Beck Depression Inventory, which is standard one and has been used for pregnant women and its validity has also been confirmed. In this inventory, a score ranging from 0-15 indicates no depression (normal mean), (16-30) mild depression, (31-45) moderate to severe depression, and (46-63) severe depression(12). The data were analyzed by SPSS software version 18 and Chi square test, as well as linear regression was used for prediction of factors associated with depression.

RESULTS

The pregnant women aged between 17-45 years with a mean of 27.07 ± 4.88 years. The average age of marriage was 21.18 ± 4.08 . 76.2% of the samples lived in urban areas. The majorities of women (42.7%) had high school degree and were housewives (90.3%). 80.5% of the spouses were self-employed, and most of them (39%) had high school degree. 50.4% of women had a child and 47.7% experienced their first trimester of pregnancy, while 45.9% had their third trimester of pregnancy. 86% of women got pregnant naturally and 59.9% had a natural childbirth history. The frequency of depression in pregnant women showed that 46.1% of women had mild depression and (27.2%) moderate and (7.2%) severe and only 19.5% had no depression.

In comparing the results of depression between third trimesters of pregnancy using Chi-square test, it was found that there was a significant difference between the progression of pregnancy and increasing depression (Table 1).

The results of linear regression analysis among independent variables (male and female education, husband's job, number of children, number of pregnancies and previous abortion history) and depression showed that these variables are regarded as factors affecting depression during pregnancy; their results are shown in Table 2.

Table1-The Prevalence of depression during pregnancy between tree trimesters

pregnancy Trimmers	n=907	P value
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	YES		NO		P=0000 Df=2 X ² =33.88
	N	%	N	%	
First trimester	171	67.9	81	32.1	
Second trimester	193	83.5	38	16.5	
Tried trimester	351	85.8	58	14.2	
Total depression	730	80.5	177	19.5	

Table 2- Factors Related to Depression in pregnant women

	N(%)	B	Std. Error	p	OR	95%CI
Educational level				0.007	2.12	2.22-3.68
Uneducated	8(0.9)	0.75	0.28			
Primary school	190(20.9)					
Secondary school	387(42.7)					
College or University	322(35.5)					
Husband's Educational level				0.01	1.24	0.3-5.24
Uneducated	13(1.4)	-0.04	0.02			
Primary school	306(33.7)					
Secondary school	353(38.9)					
College or University	235(25.9)					
Husband Employment status				0.000		
Unemployment	731(80.6)	0.73	13.91		15.57	3.68-65.89
Employed	176(19.4)					
Number of child				0.02		
0	470(51.9)					
1-3	414(45.5)	-1.34	0.60		0.7	0.7-1.2
>3	23(2.5)					
Number of pregnancy				0.006		
First pregnancy	440(48.5)	1.25	0.48		2.81	1.37-5.79
Second pregnancy	337(37.2)					
Tried pregnancy	130(14.3)					
Previous abortion				0.000		
Yes	204(22.5)	-16.18	0.24		3.96	2.22-7.06
No	703(77.5)					

DISCUSSION:

The results of this study indicate that the prevalence rate of depression in pregnant women is 80.5%. In the study by Baghie et al. (2013), the prevalence of depression during the pregnancy in Iranian women has been reported to be 32.9% (13). In addition, in the study by Modabbernia, the prevalence was found 25% (14). In other countries, the rate of depression in pregnancy has been estimated at 5-17% (15 and 16). The prevalence of depression in pregnant women in our country is much higher than the rest of the world, which can be attributed to a different lifestyle, sampling instrument, sampling location, and special conditions for pregnant women. The results of this study showed that the mean score of depression increased with progression of pregnancy. Moreover, the results of a study by Malacoty and Kamali showed a significant difference

between different periods of pregnancy in terms of depression symptoms and the prevalence of depressive symptoms in the third trimester was also low (17). On the other hand, the findings of the study by Edward et al and Hosseini Sazi were consistent with our study (18). The low depression score in the first trimester may be attributed to the lack of exposure to pregnancy complications and difficulties increased in the second and third trimesters due to the progression of pregnancy as well as complications and problems of pregnancy and childbirth. However, there are few studies on the prevalence of depression in pregnancy trimesters and it requires further studies. Regarding the correlation of depression with the studied variables, the results indicate that there is a significant relationship between depression and educational status of women and their husbands. Low educational status of pregnant

women increases the risk of depression by 1.2%. Additionally, in the study by Rahmanie et al., (2011), a significant relationship was found between maternal education and depression (19). Also, the highest percentage of depression was reported in women with elementary education in the study by Hosseini Sazi (20). These results were in line with the findings of our study. High educational level raises maternal awareness of their social rights, promotes understanding and cooperation, and provided better and easier access to information resources (13). In the present study, mothers with a history of abortion had a higher prevalence of depression (3.9%). Similarly, in a study by Black et al., the history of abortion has a significant relationship with depression in pregnancy (21). Furthermore, in a study by Lolaie et al. (2007), mothers with abortion history were 2.94 times as likely to be depressed in pregnancy compared with mothers without a history (22). Women with a *history of pregnancy loss* are at *increased risk for depression*. The results of the study also showed that the number of children and the number of previous pregnancies increased 0.7 and 2.8 times the risk of depression. The study of Hosseinizadeh et al. showed that there was a significant statistical difference between depression and gravity that was consistent with the results of the study by Ross and Moddaberian (16, 20, 23). Furthermore, Rahmani et al. found in their study that there is a significant relationship between the number of children with depression during pregnancy (19); the result was in line with the result of our study. Our results indicated that the frequency of depression is high in women who experienced their first trimester, which could be attributed to the fear and excitement of women who have not yet experienced childbirth and are scared and anxious of being a mother and baby care. The results of all these studies were in line with our research. On the *other hand, our study suggests the relationship between the employment status of spouses and depression; depression in pregnancy is higher (15.5%) among women with husbands that are self-employed*. Therefore,

considering its significant effect on the mental and psychological well-being of pregnant women, it is important to specially pay attention to the employment of the spouses.

Conclusion: Given the high prevalence of depression in this study, paying attention to the diagnosis of mothers at risk of depression by health care providers is of great significance and pregnancy screening for mental and psychological problems in pregnant women should be considered *as part of routine care in pregnancy*.

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Conflict of interest

All authors declare no conflict of interest.

REFERENCES

1. Lara, M.A., Le, H.N., Letechipia, G., & Hochhausen, L. . Prenatal depression in latinas in the U.S. and Mexico, *Matern Child Health J* 2008 ; 379-384
2. Abdollahzade Rafi M, Hassanzadeh Avval M, Ahmadi Sh, Taheri M, Hosseini MA .Relationship between social support with depression and anxiety during third trimester pregnancy. *Iranian Journal of Nursing Research* 2012; 7 (36): 1-10.
3. Cantwell, R., & Cox, J.L. (2003). Psychiatric disorders in pregnancy and the puerperium, *Current Obstetrics and Gynecology*, 13, 7–13.
4. Campagne, D.M.. The obstetrician and depression during pregnancy, *European Journal of Obstetrics and Gynecology and Reproductive Biology*:2004: 116(6), 125–130.
5. Karacam, Z., & Ancel, G. (2007). Depression, anxiety and influencing factors in pregnancy: a study in Turkish population, *Midwifery* 2007; 10, 1016-1029.
6. Bayrami M, Zahmatyar H, Bahadori KJ. Prediction strategies to coping with stress

- in the pregnancy women with first experience on based factors hardiness and social support. *Iran J Nurs Res* 2013; 7(27):1-9.(Persian).
7. Moafi F, Dolatian M, Keshavarz Z, Alavi Majd H. ASSOCIATIONS OF DEPRESSION AND PREECLAMPSIA DURING PREGNANCY. *The Journal of Urmia Nursing and Midwifery Faculty*, 2014; 12(4).
 8. Jabbari Z, Hashemi H, Haghayegh SA. Survey on effectiveness of cognitive behavioral stress management on the stress, anxiety and depression of pregnant women. *J Health Syst Res* 2013; 8(7):1341-7. (Persian).
 9. M. Ranjbar, M. Heydarzadeh, M. Yazdani, M. Mirghafourvand, F. Mirza Ahmadi, Depression in Women during Pregnancy and After Delivery. *journal of advanced psychological research*. 2016; 10(40):1-15
 10. Ghanei R, Golkar F, Aminpoor E. Foot care in depressed and non-depressed diabetic patients. *Modern Cares J* 2013; 10(2):124-31. (Persian).
 11. Ryan D, Milis L, Misri N. Depression during pregnancy. *Can Fam Physician*. 2005; 1087-1093
 12. Holcomb WL Jr, Stone LS, Lustman PJ, Gavard JA, Mostello DJ. Screening for depression in pregnancy: characteristics of the Beck Depression Inventory. *Obstet Gynecol*. 1996; 88:1021-1025.
 13. Baghi V, Ghannei R, Roohi R, Qurashi H, Moradi N. The Relationship between Antenatal Depression and Sleep Apnea. *IJOGI* 2013; 16: 18-24.
 14. Bennett HA, Einarson A, Taddio A, Koren G, Einarson TR. Prevalence of depression during pregnancy: systematic review. *Obstet Gynecol* 2004; 103:698–709.
 15. Gavin NI, Gaynes BN, Lohr KN, Meltzer-Brody S, Gartlehner G, Swinson T. Perinatal depression: a systematic review of prevalence and incidence. *Obstet Gynecol* 2005; 106:1071–83.
 16. Modabernia M, Shodjaei Tehrani H, Heydari nezhad S. Survey the Frequency of Depression in the Last Third Months of Pregnancy. 3. 2009; 18 (71) :19-25
URL: <http://journal.gums.ac.ir/article-1-235-fa.html.111/5000>
 17. Malakoti J, Kamali M. Prevalence of depressive factors in pregnancy in mothers referring to health centers of the university of medical sciences. *Proceedings of the Nursing New Nursing Congress on Mental Disorders from Prevention to Rehab*. 1379:158-163
 18. Rich-Edwards JW, Kleinman K, Abrams A, Harlow BL, McLaughlin TJ, Joffe H, Gillman MW. Sociodemographic predictors of antenatal and postpartum depressive symptoms among women in a medical group practice. *J Epidemiol Community Health*. 2006 Mar; 60(3):221-7.
 19. Rahmani F, Seyedfatemi N, Asadollahi M, Seyedrasooli A. Predisposing factors of postpartum depression. *Iran J Nurs* 2011; 24 (72):78-87. (Persian).
 20. Hosaynisazi F, Poorreza A, Hosayni M, Shojaee D. Depression during pregnancy. *J Gorgan Uni Med Sci* 2005; 7 (1):60-65.(Persian).
 21. meshki M, Arman mehr W, CHarvi kh, The Relationship between Pregnancy Depression with Social Support and Some Demographic Variables in Pregnant Women. *IJOGI*, 2015; 18(124): pp. 11-20.
 22. Laloui A, Kashani Zadeh N. The identification of depression in pregnant women attending prenatal care clinics hospitals Baghiyatallah Najmiiyeh. *Tehran. Journal of Medical Council of Islamic Republic of Iran* 2007; 26(3): 317-323. (Persian).
 23. Ross LE¹, Sellers EM, Gilbert Evans SE, Romach MK. Mood changes during pregnancy and the postpartum period: development of a biopsychosocial model. *Acta Psychiatr Scand*. 2004 Jun; 109(6):457-66.