Original Article

The association of depression and preterm labor

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Abstract

Background: There are situations in every woman's life that impressively affect her whole life. Pregnancy is one of those situations. Pregnancy period is usually accompanied with positive emotions for the women and their families. Sometimes depression during pregnancy disturbs daily activities, acceptance of new roles, pregnant woman´s life responsibilities and pregnancy consequences. The goal of this study was to investigate the association between depression during pregnancy and preterm labor consequences and some personal characteristics.

Materials and Methods: This was a cohort study in which the data were collected through cross-sectional method. Primarily, 10 health care centers in Isfahan were randomly selected. The subjects included 378 pregnant women selected based on the number of the pregnant women under the coverage of each health center. The data collection tool was a questionnaire which was filled in two phases. The first phase was during pregnancy and included both personal characteristics and Beck Depression Inventory II and the second phase was after delivery and included the subjects' pregnancy age at the time of delivery. Content validity and Cranach's alpha were employed for validity and reliability of the questionnaires, respectively.

Findings: Prevalence of depression in the population studied was 26.7%. The results showed that there were significant association between depression during pregnancy and preterm labor ($p < 0.001$), the education of pregnant women ($p < 0.001$) and their spouses' education ($p = 0.001$), the pregnant women's occupation ($p = 0.04$) and their spouses' occupation ($p = 0.009$). There was no significant association between depression during pregnancy and the women' age of pregnancy.

Conclusions: The findings of the study showed a relationship between depression during pregnancy and preterm labor. Therefore, mental health counselors and programmers are suggested to have some educational programs about psychiatric health for midwives and the personnel who provide health care services for pregnant women.

Key words: Depression, preterm labor, pregnancy

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Introduction

Depression is the most prevalent mental disease that can prevent individuals' progress and duties due to reducing their abilities. According to the report by world health organization(WHO), depression is the most important reason for inability of the women in the world.[1] About 10% to 15% of women are affected by depression during pregnancy, which is an important risk factor for depression after the delivery.[2] Pregnancy, together with its psychological and physiological factors and the effects of endocrine glands, has enormous effects on the physical and psychological aspects of women and can influence their natural life trends.[3] The increase of cortisol in plasma is observed in depression during pregnancy.[4] Depression during pregnancy is a change of mood accompanied by a combination of sadness, sorrow, disappointment and hopelessness which sometimes disturbs the performance of daily activities, accepting a new role and responsibilities of a pregnant women.[5] Some studies have shown that depression during pregnancy may triple the possibility of early labor.[6] The results of some studies

show that depression during pregnancy could shorten the length of pregnancy resulting in early labor.[7,8,9] WHO has emphasized on the importance of reducing the rate of early labor in the past decades. Due to the importance of the mental health of pregnant women, this research aimed to analyze the association between depression during pregnancy and early labor in pregnant women referring to selected health centers of Isfahan in 2010 to 2011.

Materials And Methods

This research is descriptive and analytical two steps, two group multi-variables cohort study. The population of the study consisted of 378 pregnant women referring to and having health records in the selected health centers in Isfahan from the beginning to the end of their pregnancies. The inclusion criteria with the age between 18 to 35, the gestation age (according to the first day after the last menstruation) between the 31th to 34th weeks of pregnancy, normal amniotic liquid volume, presentation of the embryo according to cephalic presentation ultrasound, lack of medical limitation(placenta previa, intense mental disorders, previous history of depression, cerclage, history of early labor, repeated abortion, cardiac problems, diabetes, hypertension, renal problems, thyroid problems, multiple pregnancy, growth limits and fetal disorders according to ultrasound). The questionnaire included 3 sections and was filled in two steps. The first step was in pregnancy including two parts: the first part was collecting subjects' demographic characteristics and the second part was the Beck II depression questionnaire that was given to the subjects to be completed. Beck questionnaire has 21 multiple choice questions scoring from 0 to 3 in which score 3 is for lack of depression symptoms. Total score is from 0 to 63. The threshold score for diagnosing depression, according to screening studies is 21.[10] The women who scored more than or equal to 21 (after completing the questionnaire) were grouped in the depressed group and the women who scored less than 21 were in the non-depressed group. The second step to complete the questionnaire by the pregnant women was after the delivery and the third part of the questionnaire included the gestation age and the time of labor completed on the first visit of the women to the relevant centers (3-5 days post-delivery), in accordance with the birth certificate of their children by the researcher. There have been numerous studies regarding high validity and reliability of Beck questionnaire.[11] This questionnaire has been accredited by Ghassemzadeh et al. and is approved as a valid evaluation scale for depression.[12] The date were analyze by descriptive and inferential statistical tests (chi-square, independent t-test, Mann-Whitney) through SPSS software version 20. Average values were reported as mean (standard deviation).

Findings

In this study, 108 depressed women and 270 non-depressed women out of 296 non-depressed mothers with final sample size of 404 subjects randomly entered the research. The results showed that the depression frequency was 26.7% with mean score of 14.7 (9.9). About 65.1% of the subjects suffered from minor to major depression (minor depression 29.5%, moderate 26.7% and acute depression 8.9%). The gestation age at child birth was 33 weeks and 6 days, to 42 weeks with mean of 39 weeks. About 14% of the subjects had early labor. The frequency of depression in early labor was 6.5% for minor, 19% for moderate and 22.2% for major depression. Early labor was 25.4% in the depressed group and 9.3% in the non-depressed group. Chi-square test showed a significant difference ($p < 0.001$) among the two groups concerning early labor. The age ranged the same in both groups with mean of 26.45 years. The mean age of the depressed and the non-depressed groups were 26.50 (4.78) and 26.39 (4.17) respectively. The independent t-test showed that there was no significant

Table 1. Frequency distribution of parents' education in depressed and non-depressed groups

Variable	Group	Depressed group		Non-depressed group		Total		P
		No.	Percent	No.	Percent	No.	Percent	
Subjects' education	Less than high school	52	48.2%	61	22.6%	111	29.4%	p < 0.001
	High school graduate	48	44.3%	140	51.9%	190	50.3%	
	Associate degree	2	1.9%	19	7.0%	21	5.6%	
	Bachelor's degree	6	5.6%	48	17.8%	54	14.3%	
	Master's degree	0	0.0%	2	0.7%	2	0.5%	
	Total	108	100%	270	100%	378	100%	
Education of subjects' spouses	Low school graduate	58	53.7%	103	38.1%	161	42.6%	p = 0.001
	Associate	42	38.9%	116	43.0%	158	41.8%	
	High school graduate	2	1.9%	15	5.6%	17	4.5%	
	Bachelor	5	4.6%	28	10.4%	33	8.7%	
	Master degree	1	0.9%	8	3%	9	2.4%	
	Total	108	100%	270	100%	378	100%	

Table 2. Frequency distribution of parents' job in depressed and non-depressed groups

Variable	Group	Depressed group		Non-depressed group		Total		P
		No.	Percent	No.	Percent	No.	Percent	
Subjects' occupation	Employed	107	99.1%	256	94.8%	363	96%	p = 0.04
	Housewife	1	0.9%	14	5.2%	15	4%	
	Total	108	100%	270	100%	378	100%	
Occupation of the subjects' spouses	Unemployed	2	1.9%	2	0.7%	4	1.1%	p = 0.009
	Worker	32	29.6%	71	26.3%	103	27.2%	
	Employee	8	7.4%	62	23%	70	18.5%	
	Self employed	66	61.1%	135	50%	201	53.2%	
	Total	108	100%	270	100%	378	100%	

difference ($p = 0.82$) between the age in both groups. As presented in table 1, Man-Whitney test showed a significant difference concerning education in both groups ($p < 0.001$) and education of the subjects' spouses ($p = 0.001$).

With regards to the subjects' occupations, as presented in table 1 Fisher Exact Test showed a significant difference in both groups ($p = 0.04$). As presented in table 2, there was also a significant difference ($p = 0.009$) in occupations of the subjects' spouses.

Discussion

The result of the present study shows that there is a significant association between the depression in pregnancy period and early labor Dayan[13] showed that 14.5% of the subjects were depressed. Depression had an association with education and occupation, which is consistent with the present research. The gestation age for the time of child birth is 29 to 42 weeks, with the mean of 39.2 weeks. The rate of early labor was 9.7% and 4% in the depressed group and non-depressed group respectively. The education level was lower in the depressed group. There was an association among age and occupation with depression during pregnancy, but the depression had no association with education. Depressed pregnant women had a shorter gestational age ($p < 0.001$). The mean of gestational age was 39 weeks in Tony´s research and the early labor was observed in 5% of the subjects. About 6.6% of the pregnant women suffered from depression. No demographic factors were related to depression during pregnancy. The prevalence of depression was reported 17%. The results of the research showed an association between early labor and depression during pregnancy. The studies by Couto et al.[13]and Diego et al.[14] showed that the depression during pregnancy has an association with early labor. According to the obtained results of the present research, subjects' and their spouses' education was higher in non-depressed group compared to the depressed group. Employment was seen more among the subjects and their spouses in non-depressed group compared to the depressed group. So, women's employment and its effect on their mental health status should be closely considered. Regarding the association between depression and early labor, screening of depression in pregnant women as well as in-time interventions can be an effective action to promote the mental health status in pregnant women and improvement of delivery outcomes.

References

1. Campagne DM. The obstetrician and depression during pregnancy. Eur J Obstet Gynecol Reprod Biol 2004; 116(2): 125-30.
2. Cuijpers P, Munoz RF, Clarke GN, Lewinsohn PM. Psychoeducational treatment and prevention of depression: the "Coping with Depression" course thirty years later. Clin Psychol Rev 2009; 29(5): 449-58.
3. Steiner M, Youngers K. Depression in women-translated. Trand. Bahadoran P, Kavian J, Oreizi HR. 1st ed. Isfahan: Jahad Daneshgahi Publication; 2004. [In Persian].
4. Mokhber S. Heavenly child or competent child. 34th ed. Qom: Nouur Alzahra Publication; 2007.
5. Lynch JE, Trenoweth S. Contemporary issues in mental health nursing. New Jersey: J. Wiley; 2009.
6. Humenick SS, Howell OS. Perinatal experiences: the association of stress, childbearing, breastfeeding, and early mothering. J Perinat Educ 2003; 12(3): 16-41.
7. Larsson C, Sydsjo G, Josefsson A. Health, sociodemographic data, and pregnancy outcome in women with antepartum depressive symptoms. Obstet Gynecol 2004; 104(3): 459-66.
8. Chung TK, Lau TK, Yip AS, Chiu HF, Lee DT. Antepartum depressive symptomatology is associated with adverse obstetric and neonatal outcomes. Psychosom Med 2001; 63(5): 830-4.
9. Dayan J, Creveuil C, Marks MN, Conroy S, Herlicoviez M, Dreyfus M, et al. Prenatal depression, prenatal anxiety, and spontaneous preterm birth: a prospective cohort study among women with early and regular care. Psychosom Med 2006; 68(6): 938-46.
10. Beck AT. Title Cognitive Therapy of Depression. New York: Guilford Press; 1987.
11. Kaplan HI, Sadock BJ. Comprehensive Textbook of Psychiatry. Philadelphia: Lippincott Williams & Wilkins; 2000.
12. Ghassemzadeh H, Mojtabai R, Karamghadiri N, Ebrahimkhani N. Psychometric properties of a Persian-language version of the Beck Depression Inventory--Second edition: BDI-II-PERSIAN. Depress Anxiety 2005; 21(4): 185-92.

13. Couto ER, Couto E, Vian B, Gregorio Z, Nomura ML, Zaccaria R, et al. Quality of life, depression and anxiety among pregnant women with previous adverse pregnancy outcomes. Sao Paulo Med J 2009; 127(4): 185-9.
14. Diego MA, Field T, Hernandez-Reif M, Schanberg S, Kuhn C, Gonzalez-Quintero VH. Prenatal depression restricts fetal growth. Early Hum Dev 2009; 85(1): 65-70.

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