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Evaluation of Depression and the Contributing Factors in Pregnant Women Referring to Urban and Rural Health Care Centers of Sarakhs City, Iran

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ABSTRACT

Background & aim: Clinical definition of depression disorder has changed and made precise over the time. Some studies reported depression during pregnancy was more common than postpartum depression. The purpose of this study is to evaluate prevalence and factors that may be contributing to the depression in pregnant women in Sarakhs city.

Methods: This cross sectional study was conducted on 300 pregnant women who was referred to the health centers in Sarakhs city, Razavi Khorasan province, Iran, 2011. Beck's Depression inventory questionnaire and demographic questionnaire were completed by trained interviewers. Data were analyzed by SPSS software version 16 by using T-test, man-Whitney, Chi-square tests. P-value less than 0.05 were considered as statistically significant.

Results: Prevalence of depression in pregnant women was 47.5% which the most of them had moderate depression. In this assay, depression significantly was related to mother age (P=0.02), her occupations (P=0.009), family income (P=0.04), ethnicity (P=0.03), place of living (P=0.01), number of children (P=0.001), unwanted pregnancy (P=0.001), and history of parities (P=0.001).

Conclusion: **:** Prevalence of depression during pregnancy makes it more important for providing antenatal care and supporting such women in seeking help. This study indicating the importance of the psychological state of pregnant women, screening depression with accurate assessment of the symptoms and diagnosis it as early as possible.

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Introduction

Pregnancy is a significant event in a woman's life and is associated with psychological and biological changes (1). Hormonal and lifestyle changes during pregnancy, including physical inactivity and weight gain, as well as low awareness about the importance of prenatal care, may lead to maternal stress and depression, which could persist for many years after childbirth (2). Approximately 85% of pregnant women suffer from postpartum mood disorders, which are manifested as depression after pregnancy (3). Recent studies have shown that depression during pregnancy is more common than postpartum depression (4). In fact, consequences of depression during pregnancy are not comparable to any other physical or mental changes (5).

Some suggested causes of depression during pregnancy include family history of depression, having more than three children, low income, age less than 20 years, family

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violence (6), gender of previous children, number of female children, cesarean delivery (1), unwanted pregnancy, lack of social support, stress, parity, and age at marriage (3). However, the most significant predictive factor for depression after pregnancy is depression before childbirth (7). In South Asian countries, depression during pregnancy was shown to be associated with cultural stigma due to gender discriminations and fetal anomalies (1).

Symptoms of depression include emotional instability of mother and infant, mother's abnormal behaviors, isolation, negligence of recommended care during pregnancy, sleep disorders, and anorexia (8). In children, low birth weight (9), developmental disorders (7), growth failure during infancy and childhood, and overweight are among the consequences of depression during pregnancy (8).

Impairment of daily activities, lack of prenatal care, poor diet (6), increased rate of abortion due to the consumption of multiple antidepressants (10), smoking and drug abuse, suicidal tendencies, preeclampsia, hypertension, and gestational diabetes are also associated with depression during pregnancy (9). Depression during pregnancy may ultimately lead to postpartum depression and reduce mothers' quality of life and breastfeeding. Moreover, the emotional rewards of pregnancy are spoiled due to the need for multiple hospitalizations and medical treatments for the mother and infant.

Sarakhs city, situated in Razavi Khorasan province, Iran, is ranked among the lowest in terms of regional development due to the unequal distribution of industrial resources and inappropriate health system structure, which needs to consider health indicators in families and women.

Identification of pregnancy depression during prenatal care, psychiatric treatments, and psychological counseling for the prevention of adverse maternal and neonatal outcomes seem essential. The aim of this study was to evaluate the prevalence of depression during pregnancy and the contributing factors in Sarakhs city, Iran.

Materials and Methods

This cross-sectional study was conducted on 300 pregnant women, referring to the health care centers of Sarakhs city in 2011. The sample size was determined using Morgan's statistical table and 95% confidence interval, according to the population of mothers in the rural and urban regions of this city.

The inclusion criteria were as follows: 1) pregnancy; 2) residing in Sarakhs city; and 3) willingness to participate in the study. Mothers, who referred to health care centers for routine or emergency care during pregnancy, were enrolled in the study via convenience sampling after obtaining informed consents. The study protocol was approved by the Medical Ethics Committee of Mashhad University of Medical Sciences (MUMS), Mashhad, Iran.

Data collection tools included Beck's depression inventory and a demographic questionnaire including demographic data and reproductive factors. All interviewers were trained to complete the questionnaires. The grading system in Beck's questionnaire was as follows: not depressed (0-10), mildly depressed (11-16), moderately depressed (17-40), and severely depressed (> 40).

The demographic questionnaire consisted of eleven items on personal and family characteristics (including age, parity, age at marriage, and monthly income), five items on prior history of childbirth (e.g., prior childbirth experiences, abortion, mode of delivery, pregnancy care, and use of contraceptive methods), and 23 items about the attitudes of women and their spouses about the current pregnancy (wanted or unwanted), infant's gender preferences, and contraceptive methods.

Content validity of the questionnaires was evaluated by a psychologist, two general physicians, and two family health nurses. The internal reliability was assessed by Cronbach's alpha (α=0.78 for the demographic questionnaire and 0.82 for Beck's depression inventory).

Descriptive statistical analysis was performed, using SPSS version 16 (SPSS Inc., Chicago, IL). Data in the tables are presented as mean±standard deviation. All quantitative data were assessed for normality by Kolmogorov-Smirnov test. T-test, Mann-Whitney, and Chi-square tests were also performed. Logistic regression was applied, considering the

prognostic effect of depression on the studied variables. P-value less than 0.05 was considered statistically significant.

Results

Among 300 pregnant women, 147 (49.2%), 133 (44.5%) and 18 (6%) cases were under 18 years, 18-35 years, and older than 18 years, respectively. In terms of educational level, 261 subjects (86.9%) were educated among whom 160 cases (53.4%) had high school diploma. Moreover, the subjects' mean age at marriage was 19.6±4 years.

Table 1. Comparison of demographic characteristics in depressed and non-depressed women

Variables	Depressed	Non-depressed	P-value
Age			
<18 years	71 (48.3)	76 (51.7)	
18-35 years	66 (49,6)	67 (50.4)	0.21
>35 years	5 (27.8)	13 (72.2)	
Educational level			
Under diploma	94 (47.7)	103 (52.3)	
High school diploma or higher	48(47.5)	53 (52.5)	0.97
Occupational status			
Housewife	136 (48.6)	144 (51.4)	0.21
Employee	6 (33.3)	12 (66.7)	
Family income			
<8,000,000 Rials	63 (47.8)	72 (52.2)	0.94
>8,000,000 Rials	79 (48.1)	84 (51.9)	
Ethnicity			
Fars	102 (48.1)	110 (51.9)	0.81
Others	40 (46.5)	46 (53.5)	
Place of residence			
Urban areas	58 (40.8)	64 (41)	0.98
Rural areas	83 (58.5)	92 (59)	
Type of pregnancy (based on the woman's viewpoint)			
Wanted	88 (37.8)	145 (62.2)	<0.001
Unwanted	54 (83.1)	11 (16.9)	
Type of pregnancy (based on the woman's viewpoint)			
Wanted	120 (44.6)	149 (55.4)	0.002
Unwanted	22 (75)	7 (25)	
Attempts to terminate the pregnancy			
Yes	63 (43.8)	81 (56.2)	0.12
No	79 (51.3)	75 (48.7)	

Table 2. Comparison of reproductive characteristics in depressed and non-depressed women

Variables	Depressed women (Mean±SD)	Non-depressed women (Mean±SD)	P-value
Age at marriage	18.9±3.8	20.3±4	0.001
Age at pregnancy	29.2±9.9	27.6±9.5	
Number of children	1±0.35	1±0.32	0.001
Number of pregnancies	1.3±1.39	1.3±1.6	0.002
Number of Parity	1.1±1.39	1.1±1.38	0.001

In terms of occupational status, 281 subjects (93.6%) were housewives and the rest were employees. The family income of 163 subjects (53.8%) was lower than 8,000,000 Rials (the

relative poverty line in Iran at the time of study). Moreover, 177 participants (59%) had two children.

Table 3. Results of logistic regression analysis of prognostic factors for depression during pregnancy

Variables	B	S.E.	OR	Sig.	95% C.I. for OR
Marital age	-0.09	.034	0.91	0.007	0.85-0.97
Unwanted pregnancy (partner's viewpoint)	2.04	.39	7.74	<0.001	3.57-16.78
Unwanted pregnancy (subject's viewpoint)	0.13	.55	1.14	0.81	0.38-3.36

Comparison of demographic characteristics, type of pregnancy (based on the opinions of women and their partners), and attempts to terminate the unwanted pregnancy in depressed and non-depressed women is presented in Table 1. There was a significant difference in terms of wanted pregnancy (based on women's opinions) between depressed and non-depressed women (P<0.05).

The infant's gender was not important for 231 subjects (77.3%), while other mothers preferred girls. Moreover, 189 partners (63%) had no gender preferences, while the rest (n=111, 37%) preferred boys. Additionally, as the results indicated, in 258 mothers (86.3%), the interval between childbirths was more than 3 years.

Use of oral contraceptive pills was reported in 205 subjects (67.4%). Additionally, regular pregnancy care was reported in 292 cases (97.7%). Also, as 29 partners (19.4%) and 27 women (9%) stated, lack of a proper interval since the last childbirth was the main reason leading to an unwanted pregnancy.

Depression was reported in 142 pregnant women (47.5%), among whom 74 cases had mild depression. Depression was more common in rural areas, compared to urban regions. The majority of depressed women were under 18 years of age and had less than a high-school diploma. Also, the family income of the majority of subjects was under 8,000,000 Rials and they were mostly housewives (P<0.05).

Table 2 shows the comparison of reproductive characteristics in depressed and non-depressed women. There was a significant relation between depression and number of children, parity, abortion, and young age at marriage.

Table 3 shows the logistic regression analysis of prognostic factors for depression during pregnancy. As it is indicated, based on mothers' viewpoints, depression was 1.14 times more common in unwanted pregnancies, compared to intended pregnancies. Also, with each one-year increase in marital age, risk of depression in pregnant women was 0.9 times lower.

Discussion

Recently, great efforts have been made for improving the physical health of pregnant women, whereas little attention has been paid to their mental health. Considering the worldwide increased prevalence of depression and its doubled incidence rate in women, compared to men, more attention needs to be paid to the effects of depression on women's physical health and quality of life (11).

In this research, the prevalence of depression during pregnancy was 47.5%, while in previous studies by Sajadi et al. (3), Stwart et al. (6), and Ahmed Waqas (1), the prevalence was estimated at 27.6%, 12.7%, and 31.8%, respectively. Moreover, according to a meta-analysis, which evaluated 21 previous studies, the prevalence of depression was 7.4% during the first trimester of pregnancy, 12.8% during the second trimester of pregnancy, and 12.0% during the third trimester (11). Additionally, the prevalence of depression in pregnant women in developed countries including USA was reported to be 7.8% (12).

As previous studies have reported, factors associated with depression during pregnancy include parity, socioeconomic status, educational level, employment status, unplanned pregnancy, duration of marriage, time interval between pregnancies, and satisfaction with child's gender (13).

Peenetal (14) reported that prevalence of depression during pregnancy in developed and urban areas was higher than that reported in

rural areas, while Rahmanand et al. (15) found an inverse correlation, similar to our study. Sexual discrimination, large age gap between partners, lack of facilities in rural areas (15), and low involvement of women in decision-making could be introduced as the major causes of depression in pregnant women in rural areas. Increased parity and insufficient social support for pregnant women could be considered as the other underlying causes of depression during pregnancy (3).

Our study results showed that employed women were less depressed than housewives, which might be due to their financial independence, enhanced social interactions, and high educational level. Different studies in Western countries have reported similar results (16).

In this regard, Peer and colleagues revealed that increased risk of depression among pregnant women might be related to racial and cultural circumstances (1). In the mentioned research and similar studies by Lancaster et al. (16), Westdahl et al. (17), and Blackmore et al. (18), prior history of unwanted pregnancy and abortion was significantly associated with depression during pregnancy.

In our study, opinions of pregnant woman and their spouses about unplanned pregnancy were significantly correlated with depression. Furthermore, negative reactions of husbands and close relatives to pregnancy were significantly correlated with depression in women (19). Bonari et al. (20) showed that some factors such as having more than three children, smoking, low family income, age under 20 years at the time of pregnancy, inadequate social support, domestic violence, and negative feedback to women's current status were correlated with depression during pregnancy.

In a study conducted by Ryan et al., risk factors for depression during pregnancy were a prior history of depression including ongoing depression (inadequately treated), family history of depression, young age, marital dissatisfaction, lack of social support, first pregnancy or unwanted pregnancy, and recent adverse life events such as the death of a parent; these findings were confirmed in our study (1).

Other risk factors included a family history of depression or bipolar disorders, maltreatments during childhood, single motherhood, having more than three children, cigarette smoking, insufficient income, age younger than 20 years, inadequate social support, and domestic violence. The consequences of depression during pregnancy included difficulty in performing daily activities, failure to seek prenatal care, and inadequate dietary intake. The impacts of age and number of children were confirmed in our study (2).

Conclusion

Cultural and ethnical variations reflect the differences in the prevalence of depression during pregnancy. It appears that the prevalence of depression during pregnancy in our country is high, similar to other developing countries. Given the impact of depression on pregnancy and postpartum care, interventions for depression screening and prevention are required. Regular evaluation of risk factors for depression at health care centers is highly recommended. Moreover, health professionals should be aware of the consequences of this condition and provide support for depressed pregnant women.

Conflicts of interest

Authors declared no conflicts of interest.

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