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Predictors of Quality of Life in Pregnant Women Visiting Health Centers of Tabriz, Iran

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ABSTRACT

Background & aim: To have successful pregnancy, it is necessary to focus on the mother's quality of life during pregnancy. This study was conducted to determine the predictors of quality of life among Iranian pregnant women.

Methods: This cross-sectional study was conducted on 565 pregnant women visiting health centers of Tabriz, Iran, 2015. The participants were selected using the cluster sampling method. Data were collected using socio-demographic and obstetrics characteristics questionnaire, Edinburgh Postnatal Depression Scale, and a specific questionnaire for quality of life in pregnancy. Data were analyzed by SPSS, version 16. General linear model was used to estimate the effects of the independent variables (depressive symptoms and socio-demographic and obstetrics characteristics) on the dependent variable (quality of life).

Results: The mean of the total score of quality of life was 2.9±0.3 from the achievable score range of 0-4. There was a significant negative correlation between depressive symptoms and quality of life (r=-0.53, P<0.001). Depressive symptoms, gestational age, and the place of receiving prenatal care were the predictors of quality of life during pregnancy. Women who had low scores of depressive symptoms, were at the second trimester, and received prenatal care from health centers had higher score of quality of life.

Conclusion: The most important components affecting pregnant women's quality of life are mother's depressive symptoms, gestational age, and place of receiving prenatal care. Interventions such as screening and early treatment of depression must be implemented to improve the quality of life.

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Introduction

Pregnancy is a natural stressful event for women. This experience is accompanied by a wide range of mental and physical changes in pregnant mothers (1, 2). During pregnancy, many biochemical, physiologic and anatomic changes occur in women's body. These changes are beyond women's control and are among the first changes making them mentally and spiritually vulnerable (3).

The quality of life is "the individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals" (4). During pregnancy, crucial changes occur in pregnant women's physical, spiritual, and social health, and in general, in their quality of life (5). It is necessary to concentrate on mothers' quality of life during pregnancy to ensure a successful pregnancy (6). Quality of life is one of the major concerns of health providers and the main indicator for assessing prenatal health status. Using information regarding quality of life may

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lead to more effective interventions (7). A study has reported an association between the reduced quality of life among healthy pregnant women and physical problems during the first trimester (8).

Depression is a common problem that affects people's quality of life and wellbeing (9). Depression is a psychological change negatively affecting the mother and her fetus. As an important life event, pregnancy is accompanied by hormone changes and raises the occurrence and reoccurrence of depression (2, 10). In a cross-sectional study on 454 pregnant women, Li et al. showed that depression is associated with both physical and mental dimensions of the quality of life (11). Another case-control study in Iran on 465 pregnant women also confirmed the significant correlation between depression and the quality of life (12). In all the studies conducted in this regard, the general scale of quality of life was used (7, 13, 14). As no specialized tool has been used for measuring the quality of life and considering the sociocultural differences among different societies and the potential effects of these differences on the quality of life, this study was conducted to determine the predictors of quality of life among Iranian pregnant women.

Materials and Methods

This cross-sectional study was carried out on 565 pregnant women with gestational age of more than 15 weeks visiting health centers of Tabriz, Iran, 2015.

The inclusion criteria were having Iranian nationality, being Muslim, residing in Tabriz, volunteering to participate in the study, having singleton pregnancy, living with spouse at the time of study, being available, and not working at night shift. The exclusion criteria were multiple pregnancy, fetal abnormality, history of depression, serious conflict with spouse, history of infertility, history of physician visits due to mental problems, history of drug consumption or hospitalization, medical problems during pregnancy such as thyroid diseases, hypertension, high-risk pregnancy, family history of mental problems, especially depression, facing m death of a family member, financial problems, losing her job or her husband's job, and/or stresses resulting from the relocation from the residency in last six months.

The sample size was calculated at 375 individuals based on the standard deviation of depression score in pregnancy (SD: 5.44) (5) and considering a 5% error, 0.08 accuracy around the mean (m=9. 8), and power of 90%. Since cluster sampling was carried out, the sample size was calculated at 562 taking into account a design effect of 1.5.

Sampling began after approval of the proposal and obtaining the ethics code from the Ethics Committee of Tabriz University of Medical Sciences (ethical code: 5/4/10676). Two-stage clustering method was used for sampling. Firstly, one-third of the health centers were randomly selected from 60 health centers and 25 health bases using www.random.org website. A list of all the eligible pregnant women was then prepared based on the health records available in each healthcare center. The number of samples selected from each center was determined based on the number of eligible pregnant women visiting the center. Afterwards, the participants were randomly selected and contacted to invite them to participate in the study. The participants were first evaluated in terms of demographic information and the inclusion and exclusion criteria. Comprehensive information regarding the reasons of performing the study, advantages, results, and confidentiality of the information were provided for them. In case of agreement to participate, the subjects were asked to sign the consent form.

The questionnaires included socio-demographic and obstetrics characteristics questionnaire, specific questionnaire for the quality of life in pregnancy (Quality of Life-Gravidarum), and Edinburgh Postnatal Depression Scale (EPDS).

The socio-demographic and obstetrics characteristics questionnaire included items on age, height, and weight before pregnancy, educational level, occupation, spouse's education, the sufficiency of income for living expenses (with three options including: 1- Completely sufficient ; 2- Relatively sufficient, and 3- Insufficient), housing status, satisfaction

with spouse's job, marital relationship, history of abortion or preterm labor, history of depression, place of receiving prenatal care, wanted pregnancy, women's satisfaction with fetal gender, and husband's satisfaction with fetal gender.

Edinburgh Postnatal Depression Scale (EPDS) is used to measure depressive symptoms during and after childbirth. It was developed by Cox et al. (1978) and revised in 1994 (15). The scale consists of 10 items. Each item is scored on a range of 0 to 3 with the minimum and maximum possible scores of 0 and 30, respectively. Scores higher than 12 approve depression. Montazeri et al. (2007) confirmed the validity of the scale (16).

A specific questionnaire for the quality of life in pregnancy (QOL-GRAV) was developed by Vachkova et al. (2013) using the short form of the quality of life inventory developed by the World Health Organization (WHOQOL-BREF). The scale consists of nine items to express personal experiences of the quality of life during pregnancy. Its internal consistency was higher than 0.7. Each item was rated on a 5-point Likert scale (from not at all [0] to completely [4]). The last three questions (i.e., 7, 8, and 9) are reverse scored. In case of low mean, the quality of life is higher in the absence of pregnancy problems (17). The reliability of the scale in Iran was confirmed by Mirghafourvand et al. Internal consistency of the questionnaire was higher than 0.7 (α=0.79). In addition, its internal consistency coefficient (ICC) was 0.86 (18).

Data were analyzed by SPSS, version 16. Descriptive statistics including frequency, percentage, mean, and standard deviation were used to describe socio-demographic and obstetrics characteristics and participants' depressive symptoms and quality of life. The normality of quantitative data was assessed by skewness and kurtosis and proved to have normal distribution. To determine the predictors of quality of life, all socio-demographic and obstetrics variables and the depressive symptoms were entered into the unadjusted general linear model. All the variables with P<0.05 based on unadjusted general linear model were then entered into the adjusted general linear model together. P-value less than 0.05 was considered significant.

Results

The mothers' mean age and the body mass index were 28.7±5.5 years and 25.2±2.3 kg/m2, respectively, and 33.5% of the participants had diploma and 98.0% were housewives. About two-thirds (63.8%) of the women reported that their monthly income was insufficient for living expenses, and 95.5% were satisfied with the care received from health centers and about two-thirds were satisfied with their spouse's job. Further, 76.5% stated that they had a wanted pregnancy, and 78.8% of women and 76.3% of their husbands were satisfied with the gender of the fetus (Table 1).

The mean of the total score of quality of life was 2.9±0.3 from the achievable score range of 0-4, and the mean depression score was 4.7±3.7. According to Pearson's correlation test, depression was found to be significantly correlated with the quality of life (r=-0.527, P<0.001; Table 2). The unadjusted general linear model revealed a significant correlation between some variables, including the age of pregnancy, marital relationship, satisfaction with spouse's job, the place of receiving prenatal care, wanted pregnancy, and mother's and father's satisfaction with the fetus's gender, and the quality of life (P<0.05). According to adjusted general linear model, the variables of depression, marital r, and the place of receiving prenatal care were the predictors of quality of life; they could predict 29.6% of the quality of life variance among the pregnant women (Table 3).

Table 1. Socio-demographic characteristics of the participants (n= 565)

Characteristic	Number (%)*	Characteristic	Number (%)*
Age (years)		Body mass index (kg/m^2)	
<18	6 (1.1)	<19.8	11 (2.0)
18-25	152 (27.4)	19.8-25.9	388 (70.8)
25-30	194 (35.0)	26-29	125 (22.8)
>30	202 (36.5)	>29	24 (4.4)
Mean (SD)**	28.7 (5.5)	Mean (SD)**	25.2 (2.3)
Education level		Husband's education level	
Illiterate	19 (3.4)	Illiterate	10 (1.8)
Elementary	151 (26.7)	Elementary	165 (29.2)
Secondary school	116 (20.5)	Secondary school	145 (25.7)
High school	49 (8.7)	High school	38 (6.7)
Diploma	189 (33.5)	Diploma	152 (26.9)
University	41 (7.3)	University	55 (9.7)
Job		Sufficiency of income for expenses***	
Housewife	549 (98.0)	Relatively sufficient	197 (36.2)
Employed	11 (2.0)	Insufficient	347 (63.8)
Home ownership status		History of abortion	154 (27.3)
Private	207 (36.6)	Place of receiving prenatal care	
Rental	358 (63.4)	Health center	538 (95.9)
History of preterm labor	7 (1.2)	Private clinic	5 (0.9)
Marital relationship		Health center and Private clinic	18 (3.2)
Very good	92 (16.3)	Satisfaction of husband job	
Good	368 (65.4)	Fairly satisfied	202 (35.8)
Fairly good	103 (18.3)	Completely satisfied	362 (64.2)
Wanted Pregnancy	432 (76.5)	History of depression	2 (0.4)
Woman's satisfaction with fetal gender	443 (78.8)	Husband's satisfaction with fetal gender	427 (76.3)

*Valid percent has been reported in all the variables because of missed data.
**All data indicate number (percent), unless has been specified.
***2 cases reported that the income was completely sufficient.

Table 2. Total score of quality of life and its relationship with depression in the participants (n=565)

Variable	Mean (SD*)	Obtainable range	Correlation with depression r (p)*
Quality of life	2.9 (0.3)	0 to 4	-0.53 (< 0.001)
Depression	4.7 (3.7)	0 to 30	

*According to Pearson Correlation test

Discussion

In this study, the pregnant women's quality of life was at an average level, and there was a significant negative correlation between the quality of life and the depressive symptoms. In addition to depressive symptoms, gestational age and the place of receiving prenatal care were the predictors of quality of life.

The quality of life is a subjective factor by which people can make a judgment about the quality of their lives. Reaching such judgment is sometimes difficult and health providers can have a good estimation of the quality of life. The health-related quality of life is associated with the aspects of physical, mental, and social health and affected by beliefs, perceptions, and expectations (19).

Women facing prenatal depressive symptoms are less concerned about their own health. This causes them not to go after prenatal cares and makes them prone to alcohol, drug, and tobacco consumption. Such mothers suffer from problems such as insomnia and anorexia resulting in reduced quality and quantity of nutrition (20). Therefore, an association has been reported between prenatal depressive symptoms and low weight at the time of

Table 3. Relationship between socio-demographic characteristics and quality of life in the pregnant women based on general linear model (n=565)

Variables	Unadjusted		Adjusted	
	β (CI95%*)	P	β (CI95%*)	P
Depression	-0.05 (-0.05 to -0.04)	<0.001	-0.04 (-0.05 to -0.03)	<0.001
Gestational age (Reference: Third trimester)				
Second trimester	-0.08 (-0.14 to -0.02)	0.005	-0.05 (-0.10 to -0.00)	0.044
Marital relationship (Reference: Fairly good)				
Very good	0.20 (0.11 to 0.29)	<0.001	-0.02 (-0.07 to 0.11)	0.619
Good	0.09 (0.02 to 0.16)	0.015	0.01 (-0.06 to 0.08)	0.784
Satisfaction with husband's job (Reference: Completely satisfied)				
Fairly satisfied	-0.25 (-0.30 to -0.11)	<0.001	-0.06 (-0.12 to -0.00)	0.055
Place of receiving prenatal care (Reference: Health center and private clinic)				
Health center	-0.39 (2.36 to 2.66)	<0.001	0.20 (0.07 to 0.34)	0.004
Private clinic	0.18 (-0.14 to 0.50)	0.266	0.13 (-0.22 to 0.47)	0.469
Wanted pregnancy (reference: No)				
Yes	0.09 (0.03 to 0.16)	0.006	-0.03 (-0.10 to 0.17)	0.436
Woman's satisfaction with fetal gender (reference: No)				
Yes	0.14 (0.07 to 0.20)	<0.001	0.04 (-0.08 to 1.84)	0.509
Husband's satisfaction with fetal gender (reference: No)				
Yes	0.11 (0.05 to 0.18)	0.001	-0.01 (-0.13 to 0.11)	0.885

Adjusted R^2=30%, * Confidence Interval 95%

childbirth (21). Depression screening is highly important during pregnancy and should be performed in each trimester (22). Nicholson et al. (7) in a study on 175 women with the gestational age of less than 20 weeks showed that women with depressive symptoms in their early pregnancy suffered from low quality of life. Their results are in alignment with those of the present study. In a case-control study, Abbaszadeh et al. examined the relationship between quality of life and depressive symptoms. They conducted their study on pregnant women with a gestational age of 7 to 41 weeks, the case group included 112 depressed pregnant women, and the control group consisted of 353 non-depressed pregnant women. Data were collected using Beck depression and the quality of life (SF-36 questionnaire) inventories. According to their findings, depressed pregnant women had a low quality of life (12).

In a cross-sectional study conducted on 574 women with the gestational age of 1 to 40 weeks, Li et al. (11) showed a significant correlation between depressive symptoms and the quality of life. As all studies on the association between depressive symptoms and the quality of life present similar results, it seems necessary to develop programs for screening all pregnant women in terms of depression. Health experts should not completely concentrate on identifying physical problems and pregnancy complications, and pregnant women's quality of life should be considered, as well. As prenatal depression is a predictor of postpartum depression, the best time to screen and identify such problems is during pregnancy.

In the present study, gestational age was revealed to be a predictor of pregnant women's quality of life. Zahedi et al. (23) revealed that the mean score of quality of life decreased as gestational age increased. In the same vein, Abasszadeh et al. (3) claimed that increasing gestational age diminished the quality of life and reported that the highest mean for the quality of life is in the first trimester and the lowest mean in the third trimester. However, Makvandi et al. (24) observed no association between the gestational age and the quality of life. This discrepancy could be attributed to the small sample size in the study by Makvandi et al.

The place of receiving prenatal care was found to be associated with the quality of life. Those visiting health care centers had higher quality of life, which signifies the high quality of care provided by Tabriz health care centers. Comparing health care centers and hospitals, Mirmolaei et al. (25) found that a high percentage of those visiting health care centers were highly satisfied and physical cares were

provided well by health centers.

As a cross-sectional study, we could not outline the causal relationships between the quality of life and depressive symptoms, gestational age, and the place of receiving prenatal care. Among other limitations, we can refer to the fact that we did not longitudinally assess the participants' quality of life in each trimester. Thus, future studies are suggested with a longitudinal design. The strength of this study was utilizing a specific questionnaire for evaluating the quality of life in pregnancy.

Conclusion

According to the results, the most important components affecting pregnant women's life quality are the mother's depressive symptoms, gestational age, and place of receiving prenatal care. Diagnosis and treatment of depression during pregnancy are important to mothers' health during pregnancy and can prevent adverse events for both mother and her baby. Reducing such consequences is a critically important issue.

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Conflicts of interest

The authors declare no conflicts of interest.

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