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The Relationship between Prenatal Coping Strategies and Irrational Beliefs in Pregnant Woman

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ABSTRACT

Background & aim: Physiological changes during pregnancy cause high levels of stress in the mother. Thus, the need for maternal psychological adjustment using coping strategies is important. Coping strategies can be influenced by individual beliefs and attitudes. Therefore, this study was performed to determine the relationship between irrational beliefs and prenatal coping strategies.

Methods: This descriptive correlational study was conducted on 702 low-risk pregnant women at 35-39 weeks of gestation (gravidity: 3≥) who referred to the health centers of Mashhad, Iran, during 2015. Multi-stage random sampling was used to select the participants (stratified, cluster proportional to size). Data collection tools included Demographic and Midwifery questionnaire, Irrational Beliefs Test, and Revised Prenatal Coping Inventory. Reliability of the scales was determined with inter-class correlation coefficient. Data were analyzed using descriptive statistics, Spearman correlation, regression, and general linear models by SPSS, version 16.

Results: Total score of irrational beliefs had a significant direct correlation with avoidance coping strategies ($r=0.24$, $P<0.001$), but it had no significant correlation with planning-preparation and spiritual-positive coping strategies ($P>0.05$). Also, types of irrational beliefs were significantly related to the dimensions of perinatal coping strategies ($P<0.001$).

Conclusion: Considering that types of irrational beliefs can affect stress coping behaviors, it is necessary to include the evaluation of these two issues in prenatal screening.

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Introduction

Pregnancy is a physiological event, which can cause stress and anxiety in the mother due to neuroendocrine, physical, psychological, and social changes (1). In this period, mothers should adapt to their new role. For some women, change and taking on the increasing pregnancy-related responsibilities is challenging (2). In addition to daily stresses, pregnant women are concerned about the health of their child and the unknown process of delivery (3). Holmes and Rahe also accounted pregnancy as a stressful event, and gave it a score of 40 out of 100 (4).

Studies performed in England and Sweden reported the prevalence of stress in pregnancy to range from 33% to 37% and from 5% to 7%, respectively (1). The study of Bahadoran (2005) in Isfahan, Iran, showed that 19.27% and 25.58% of the pregnant women suffered from moderate and severe levels of stress, respectively (5). Complications of stress during pregnancy, delivery, and lactation include abortion, nausea

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and vomiting, preeclampsia, weight loss, preterm labor, low birth weight, episiotomy infection, postpartum depression (6, 7), and increased probability of elective or emergency cesarean section (8), hence the need for mental coping strategies (8, 9). Prenatal coping strategies are a series of cognitive and behavioral efforts that an individual uses to manage the stressful event during pregnancy (10).

Yali and Lobel stated that coping behaviors during pregnancy are divided into three categories of planning- preparation, spiritual-positive coping, and avoidance (11). Pregnant women who seek information about pregnancy, childbirth, and meeting the pregnancy needs use planning-preparation strategy to cope with stress. Women who practice praying and go to religious places in order to cope with stress and have a good pregnancy and a healthy child use spiritual-positive strategy, and those who cannot ignore the physical changes during pregnancy and try to conceal their feelings about pregnancy use the avoidance strategy (11-12-13).

Huizink et al. (2002) showed that using inappropriate coping strategies is associated with postpartum depression and adverse pregnancy outcomes (14). According to the study of Yali et al. (1999), most women use the spiritual-positive strategy to cope with pregnancy-induced stress (15). Anja et al. (2002) reported that the best coping mechanisms in early pregnancy are emotive-focused, while in late pregnancy, they are problem-focused (14). Individuals give diverse responses to the same stressors. People's responses are hinged upon genetic factors and personality characteristics such as the person's assessment of the stressor, coping skills, living conditions, social support, and prior experiences (16).

Skills can be easily influenced by the beliefs and attitudes of individuals, and highly susceptible individuals do not use their abilities when they have low self-confidence (17). An individual's belief system consists of a set of rational and irrational beliefs (18). Irrational beliefs are ineffective, dogmatic, divergent, and unrealistic (19) and are misleading in defining external facts, environmental stimuli, and behaviors that impede adaptation (20). Many of these beliefs are acquired from important people in a person's life, and on a wider scale, from the community (21).

Individuals with irrational beliefs need to be supported by people who know them or are interested in them (19). Research suggests a relationship between irrational beliefs including demand for approval, high self– expectations, dependence, and reaction to frustration among women (22). Stanculete et al. (2015) showed that irrational beliefs have an inverse relationship with problem-focused and emotive-focused coping strategies and a direct relationship with the avoidance coping strategy (23). According to the study of Toorani (2013), in mothers with mentally retarded children, irrational thoughts can predict the changes related to problem-focused, emotive-focused, and avoidance coping strategies when facing stressful situations (24).

Due to individual differences, some cannot use appropriate coping strategies when experiencing stress(25-26). Therefore, knowing the factors affecting stress management can play a major role in women's mental health during pregnancy. As of yet, the irrational beliefs of pregnant women have not been investigated and there are no published studies on the association of irrational beliefs with coping skills during pregnancy. Accordingly, we performed this study to evaluate the relationship of irrational beliefs and coping skills during pregnancy.

Materials and Methods

This descriptive correlational study was carried out on 702 eligible pregnant women referring to Mashhad health centers in 2015. The inclusion criteria were Muslim, Iranian, consent to participate in the study, aged 18-35 years, reading and writing literacy, gestational age of 35-39 weeks based on last menstrual period or the first trimester ultrasonography, singleton and live pregnancy, parity ≤ 3, and no history of diabetes, hypertension, hyperthyroidism, hypothyroidism, liver dysfunction, cardiac, respiratory, and renal diseases, coagulation, epilepsy, paralysis, psychiatric diseases (as diagnosed by a psychiatrist or psychologist), preeclampsia, gestational diabetes mellitus, preterm labor, fetal growth restriction, fetal death, premature rupture of membranes,

placental abruption, amniotic fluid volume disorders, placenta previa, and embryonic anomalies.

The exclusion criteria at the beginning of the study entailed pregnancy following infertility treatment, use of hookah, cigarettes, narcotics, alcohol, and psychotropic drugs, history of referring to a psychiatrist or psychologist, drug abuse, or hospital admission due to mental illnesses during the past year, major stress during the past six months (serious disease of mother, husband, or children, death of close relatives, immigration, accident, or severe family disputes), history of cesarean section or any indications for cesarean section (e.g., multiple gestation, small pelvis, diabetes, and hypertension), history of instrumental vaginal delivery, recurrent abortions (≥2 consecutive abortions), unwill-ingness to continue collaboration, partial completion of the questionnaires, incidence of adverse and stressful events, pregnancy-related complications (e.g., preeclampsia, abnormal uterine bleeding, fetal death, premature rupture of membranes, and placental abruption), hospitalization, and termination of pregnancy during the study.

The sample size was calculated at 702 based on the results of a pilot study on 50 cases and the correlation coefficient formula with confidence coefficient of α=95% and test power of β=80%. At the beginning of the study, 740 cases were enrolled, 38 of whom were excluded from the study (13: delivery before ending the follow-up period, 6: reluctance to continue cooperation, 8: incomplete questionnaires, 9: lack of access during follow-up, 1: hospital admission due to preeclampsia, and 1: severe marital conflicts).

Sampling was performed using multistage cluster sampling (three steps). After dividing the health centers of five areas of Mashhad into populous and low-population groups, the clusters were randomly selected from each group proportional to the number of centers. Then, in the selected centers, proportional to the size and number of patients, sampling was conducted using convenience sampling (569 cases from high population centers and 213 from the low population centers).

The data collection tools included the unit selection form, personal and midwifery characteristics form, irrational beliefs questionnaire of Jones, and Revised Prenatal Coping Inventory. The face and content validity of the sample recruitment checklist and the personal and midwifery characteristics form were confirmed. The Irrational Beliefs Questionnaire of Jones consists of 100 items rated using a 5-point Likert scale (completely agree to completely disagree), which assesses 10 subscales of demand for approval, high self–expectations, self-deprecation, reaction to frustration, emotional irresponsibility, stressfulness, problem avoidance, dependence, helplessness, and perfectionism. High scores in this questionnaire indicate high irrational beliefs. The possible scores range from 100 to 500 (each scale 10-50). Donapoush (1998) confirmed its face and convergent validity using the correlation of Jones test with Beck depression test and achieving a coefficient of 0.82 (25). Jones established the reliability of the test by retest method (0.92 for the whole test and 0.66 to 0.80 for the components). In Iran, Taghipour (1998) calculated the reliability of the test to be 0.71 (26). In this study, using inter-class correlation coefficient (ICC), the reliability for total score of irrational beliefs was determined as 0.93 with confidence interval of (0.90-0.95) and from 0.53 to 0.80 for the components.

Revised Prenatal Coping Inventory examines stress coping strategies in all the three trimesters using 32 items. It has three dimensions of planning-preparation (15 phrases), avoidance (11 phrases), and positive spiritual (6 phrases). Scoring is based on a 5-point Likert scale (never= 0, rarely= 1, sometimes= 2, most times= 3, always= 4). The scores are separately calculated in each dimension. Due to the difference in the number of phrases in each dimension, the total score of each dimension was determined 0-4 based on the mean. This questionnaire was used as a valid tool in the Hamilton and Jada study (2008) in New York. The Cronbach's alpha coefficients in the first, second, and third trimesters of pregnancy for the subscale of planning-preparation were 0.82, 0.85, and 0.86, for the subscale of avoidance they were 0.77, 0.79, 0.8, and for the subscale of positive spiritual 0.73, 0.78, and 0.77, respectively (8). In the study of Azari et al. (2014), content validity was confirmed and reliability coefficients of the tool

in the first, second and third trimesters of pregnancy for the subscale of planning-preparation were 0.93, 0.91, 0.94, for the avoidance subscale were 0.85, 0.88 , 0.90, and for the positive spiritual they were 0.89, 0.81, and 0.90, respectively (10). In this study, after performing a pilot study on 50 pregnant women (GA: 35-38 w), using intra-group correlation coefficient, the reliabilities of the planning-preparation, positive spiritual, and avoidance subscales were 0.80, 0.81, and 0.70 with the confidence interval of (0.62-0.87).

Ethical considerations

Prior to the initiation of the study, we obtained the approval of the Ethics Committee, presented an introduction letter to the respective authorities, and obtained a written informed consent from the eligible participants.

Statistical analysis

Kolmogorov-Smirnov and Shapiro-Wilk tests were used to evaluate the normality of the quantitative variables. To analyze the data, descriptive statistics, Spearman correlation coefficient, linear regression, and general linear models with 95% confidence interval were used in SPSS, version 16. P-value less than 0.05 was considered statistically significant.

Results

The mean age of the participants was 26.6±4.7 years (age range: 18-35 years), and the age group of 24-29 years constituted 41.3% of the participants (n=290). Most of the studied mothers (n=624, 88.9%) were housewives and did not participate in the educational class for reducing labor pain (n=476, 67.8%). In general, 293 (41.7%) mothers had sought gynecological care from both health care centers and gynecologists and 257 (36.6%) had only referred to a health center. The status of the current pregnancy in 554 cases (77.5%) was wanted pregnancy. Other information is presented in Table 1.

Mean score of irrational beliefs was 357.8±34.8 and the highest means were related to emotional irresponsibility, dependency, and demand for approval. The mean scores of the components of irrational beliefs and prenatal coping strategies are provided in Table 2.

The relationship between the components of irrational beliefs and prenatal coping strategies was evaluated in each individual. Spearman correlation test showed that the total score of irrational beliefs had a direct linear correlation with avoidance dimension of prenatal coping strategies ($P<0.001$, $r=0.24$), but the relationship was not significant with planning-preparation and positive spiritual strategies. The correlation equation based on the regression test is as follows: (Irrational beliefs score × 0.04) + (0.17) = Avoidance score.

In addition, the subscales of stressfulness, problem avoidance, helplessness, and perfectionism had a significant and negative correlation and self-deprecation had a positive correlation with planning-preparation dimension of prenatal coping strategies (Table 3).

The components of Anxious over Concern and helplessness for change had reverse linear relationship, and the Frustration Reactive and Emotional Irresponsibility had a direct linear relationship with positive spiritual dimension of

Table 1. Distribution of absolute and relative frequency of personal characteristics, history of pregnancy, and delivery of the pregnant mothers

Variable	Rank	N	%	Variable	Rank	N	%
Age (year)	18-23	205	29.2	Gestational age (week)	35	217	30.9
	24-29	290	41.3		36	182	25.9
	30-35	207	29.5		37	104	14.8
Education	Basic	8	1.1		38	111	15.8
	Elementary	73	10.4		39	88	12.5
	Secondary	127	18.1	Gravidity	First	342	48.7
	Diploma	294	41.9		Second	204	29.1
	College	200	28.5		Third	156	22.2
Occupational status	Housewife	624	88.9	Parity	No	392	55.8
	Student	28	4		Yes	310	44.2
	Employed	50	701				

Table 2. Mean scores of irrational beliefs and prenatal coping strategies in the pregnant mothers

Variable	Mean±SD	Range of obtained scores	Range of possible scores
Irrational beliefs	357.7±34.8	493-271	500-100
Demand for approval	37.0±4.4	50-23	50-10
High self–expectations	35.7±4.8	50-22	50-10
Self-deprecation	36.5±4.6	50-21	50-10
Reaction to frustration	34.9±4.8	50-21	50-10
Emotional irresponsibility	37.9±5.1	50-20	50-10
Stressfulness	34.8±5.7	50-18	50-10
Problem avoidance	33.7±4.6	50-18	50-10
Dependence	37.5±4.5	50-23	50-10
Helplessness	34.8±5.4	50-17	50-10
Perfectionism	34.8±5.3	50-21	50-10
Prenatal coping strategies			
Planning-preparation	59.7±14.2	620-134	58-7
Positive spiritual	79.2±13.0	310-73	24-3
Avoidance	33.7±12.5	310-44	41-3

Table 3. Correlation coefficient between the scores of irrational beliefs and prenatal coping strategies in the pregnant mothers

Variables	Coping behaviors for antenatal stress		
	Planning-preparation	Positive spiritual	Avoidance
Irrational beliefs	r=-0.04 P=0.25	r=-0.007 P=0.85	r=0.24** P<0.001
Demand for approval	r=0.07 P=0.06	r=-0.02 P=0.59	** R =0.14 P<0.001
High self-expectations	r=-0.06 P=0.87	r=-0.05 P=0.15	r=0.28** P<0.001
Self-deprecation	r=0.09* P=0.01	r=0.07 P=0.06	r=0.12** P=0.001
Reaction to frustration	r=0.04 P=0.31	r=0.08* P=0.03	r=0.02 P=0.51
Emotional irresponsibility	r=0.07 P=0.07	r=0.19** P<0.001	r=0.02 P=0.51
Stressfulness	r =-0.12** P=0.001	r=-0.07 P=0.04	** r=0.3 P<0.001
Problem avoidance	r= -0.08* P=0.03	r=-0.03 P=0.39	** r=0.23 P<0.001
Dependence	r=0.04 P=0.27	r=0.06 P=0.09	r=0.13** P<0.001
Helplessness	r=-0.11** P=0.05	r=-0.07* P=0.05	r =0.24** P<0.001
Perfectionism	r=-0.13** P<0.001	r=-0.01 P=0.78	r =0.15** P<0.001

*P<0.05; **P<0.01

prenatal coping strategies (Table 3).

The components of the Demand for approval, High self – Expectations, Blaming Proneness Anxious over Concern, Problem avoidance, dependency, helplessness for change, and perfectionism had a direct linear relationship with the avoidance dimension of prenatal coping strategies (Table 3).

Investigating the simultaneous effect of the intervening variables on the relationship between the main variables showed that among the variables, only education had a significant relationship ($p<0.05$).

Discussion

The present study was conducted to determine the relationship between irrational beliefs and dimensions of prenatal coping strategies as an approach to psychological dimension of pregnant women. Since there were no other similar studies, it was impossible to compare the results. The results of this study showed that pregnant mothers with high mean scores of irrational beliefs used avoidance dimension of prenatal coping strategies, but there was not a significant relationship between the total score of irrational beliefs and the dimensions of planning-preparation and positive spiritual. The study of Stanculete et al. (2015) in Romania on 70 people with irritable bowel syndrome showed that irrational beliefs had a direct relationship with avoidance coping strategy and had a reverse relationship with problem-focused and emotive-focused coping strategies (23).

The study of Toorani (2014) on 87 mothers of mentally retarded children showed that irrational thoughts could predict the changes related to the problem-focused, emotive-focused and avoidance coping style swhen faced with stressful condition (24). In the present study, our findings regarding the relationship between the total score of irrational beliefs with the avoidance dimension of prenatal coping strategy were consistent with the two above-mentioned findings, while our findings regarding the planned preparation and positive spiritual dimensions of prenatal coping strategy were inconsistent with them. The reason for this discrepancy may be the difference in the study population. Because stress in mothers with mentally retarded children is different from prenatal stress, stress coping behaviors were different in these groups. In the above-mentioned studies, the general tools for evaluating coping with stress were used, while in the present study, a specific questionnaire for investigating stress coping behaviors during pregnancy was used.

Based on the results of this study, various kinds of irrational beliefs are related to the dimensions of prenatal coping strategy. The results of the study of Ali Akbari et al. (2013) on 238 patients with cardiovascular diseases and 240 healthy subjects in Tabriz showed that the two groups were significantly different in terms of irrational beliefs of demand for approval, reaction to frustration, emotional irresponsibility, perfectionism, and coping styles, and the mean of all the three styles were significantly higher in the patient group than in the healthy group (27). Also, the study of Honarparvaran et al. (2012) on 100 infertile women in Shiraz showed a linear relationship between irrational beliefs and self-consciousness affection with sexual desire, and irrational beliefs had a negative effect on sexual desire. The two components of perfectionism and demand for approval had a negative impact on sexual desire of infertile women (28).

Our study was in line with that of Ali Akbar and Honarparvaran from the following aspects: 1- The research community of cardiac patients and infertile women are high-risk groups and are similar to the population of this study, which was pregnant women. Considering that pregnancy is a stressful condition, it shows that various kinds of irrational beliefs are observed in people in stressful conditions; 2- both used Jones's Irrational Beliefs Questionnaire for data collection. The study of Hamilton et al. (2008) on 321 pregnant women showed that optimism and pregnancy distress were the most powerful predictors of Planning-Preparation dimension, and higher anxiety and distress during pregnancy were the most powerful predictors of the avoidance dimension, and higher optimism and religious beliefs were the most powerful predictors of positive spiritual dimension (8).

The study of Azhari et al. (2015) on 500 low-risk pregnant women in the first, second, and third trimesters of pregnancy showed the significant direct relationship of optimism with planned preparation and positive spiritual dimensions, and they demonstrated a significant reverse linear relationship between optimism and avoidance dimension of prenatal coping strategies (9). The results of Huizink et al. (2002) on 230 nulliparous women showed that problem-focused and emotive-focused coping

styles were associated with pregnancy complications. Maternal characteristics including locus of control, education, age, situation evaluation, and depression were the predictors of the type of stress management strategy. The high educational level and internal control source predicted high scores in emotive-focused coping style (14). The results of the studies of Hamilton, Azhari, and Huizink were consistent with the present findings, which could be due to similar research populations and data collection tools. In agreement with our results, they indicated that maternal characteristics could affect stress coping behaviors.

In explaining the correlation between research variables, we can say that problem-focused coping is useful when individuals encounter controllable stressors (29). However, when situations cannot be changed, avoidance coping strategies are more efficient (10, 30). Due to psychopathological changes, pregnant women experience anxiety and stress, the levels of which vary depending on the stage of pregnancy, pregnancy status (low-risk and high-risk), mother's concerns during pregnancy, living environment, social support structures, and experiences (11, 30-32). In addition, adapting to the increasing pregnancy-related responsibilities is challenging for some women (2); it is also worth mentioning that when people have poor belief in themselves, they use less of their abilities (17).

Individual differences, mental, psychological, and environmental status, and even differences in the perceptions of the participants were effective in their responses to the questions, controlling for which was not possible; thus, the statements of the subjects were considered valid. Prolongation of the sampling process due to the large sample size was also another limitation of this study. The results of this study could be beneficial in clinical and educational contexts to increase the awareness of health care personnel and mothers regarding the types of irrational beliefs, as well as stress management and coping skills. Future studies are recommended to determine the relationship between irrational beliefs and prenatal coping strategies.

Conclusion

Considering that types of irrational beliefs can affect stress-coping behaviors, it is necessary to include the evaluation of these two issues in perinatal screening to help the pregnant women use more appropriate stress management behaviors during pregnancy.

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Conflicts of interest

None declared.

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