The Role of Health-Promoting Behaviors in Predicting the Quality of Life of Pregnant Women

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Introduction: High quality of life during the pregnancy is of great importance for both mother and the fetus. In order to identify factors affecting the quality of life of pregnant women, this study was conducted to show the role of health promoting behaviors in predicting the quality of life of pregnant women.

Methods: This was a cross sectional study. Statistical population consisted of all pregnant women who had referred to the Health Centers of Gilan-e Gharb City for receiving the prenatal care from March 2013 to September 2013, of whom, 90 people were selected by purposive non-random sampling method and data were collected by questionnaires of Health Promoting and Short Form 36 Quality of Life Questionnaire (SF-36). The data were analyzed by Pearson correlation coefficient and multiple regression analysis.

Results: The mean and standard deviation age (SD) of the pregnant women was 26.72 ± 4.45. There was a positive relationship between quality of life of pregnant women and an overall score of health promoting behaviors and variables of heath responsibility, good nutrition, spiritual growth, interpersonal relationships and stress management ($P<0.005$). Regression analysis also showed that 37% of the total variance in the quality of life of pregnant women is explained by interpersonal behaviors.

Conclusion: Results of this study show that health responsibility, good nutrition, spiritual growth, interpersonal relationships and stress management improve quality of life of pregnant women. Of these styles, interpersonal relationships play an important role in predicting quality of life. These results highlight the importance of training the health promoting behaviors notably effective interpersonal relationships during pregnancy.

Keywords: Health Promoting Behaviors (HPBs), Quality of Life, Women, Pregnancy.

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Introduction

Pregnancy is one of the most important events that happen in the lives of women and it is often called time of excitement, anticipation and change. Pregnant women should cope with many physical and chemical changes in their bodies, changes in body organs; endogenous glands considerably affect women's physical and mental health (1, 2). As a result, quality of life during the pregnancy is changed and manywomen show more concerns on mental health (3, 4, and 5). Physical symptoms of pregnancy such as nausea, vomiting, back pain, anal pain and breast irritation, etc. (6)maycause confusion and negativelyaffect the mental health of the pregnant women. Studies show a high prevalence of psychological disorders, especially depression before antenatal stage (7, 8, 9, and 10). Epidemic cognitive studies conducted in different cultures show that there is a significant relationship between pregnancy and reduced quality of life (2, 7, 8, and 9).

Quality of life of women during pregnancy is greatly affected by the special style of personal life. Studies indicate that among factors determining health, the behaviors or styles of life are the underlying factors of the disease prevention (11). According to research evidence, unhealthy life styles or behaviors such as lack of exercise, poor nutrition, smoking, drinking alcohol and substance abuse can threaten the health of mother and fetus (includingcarcinogenicityand low birth weight);on the contrary, the healthy living styles can improve their health and their infants(12, 13).

The American College of Obstetricians and Gynecologists (ACOG) recommend that pregnant women should take exercise according to their physical condition and stop it when they feel tired (14). The pregnant women who are obese are more likely suffer from preeclampsia, diabetes, abortion and delivery complications (15). Hausenblas and Downs (2004) found that there was a correlation between exercise during pregnancy and decrease depression, increase self-confidence, body image and controlling weight increase (16). Research findings show that if women take exercise during pregnancy, there is no premature fetus or low birth weight (17). Tee et al (2006) concluded that training the HPBs such as participating in sport clubs, lack of alcohol use, and controlling the blood pressure played a major role in promoting the quality of life (19). Lin et al. (2009) showed that HPBs in pregnant women depended on educational level, socioeconomic status, chronic disease, exercise habits, sleep duration and rate of perceived health (20) Adams et al. (2000) founded that the pregnant women that received social support grow healthier habits and behaviors (21). Wulandari (2011) stated that family support was an important factor during pregnancy (22). Vinikoor-Imler et al (2011) in his study on pregnant women showed that there was a relationship between high level of physical unawareness and harmful consequences of pregnancy; they showed that high level of walking was inversely related to the pressures of pregnancy (23). Roberts et al (2014) conducted a study on the promotion of psychological well-being of women with PKU Fateel during pregnancy and considered psychological support as a key factor for improving psychological well-being during pregnancy (24) In a study on older women, Morovvati Sharifabad et al (2004) concluded that there was a relationship between HPBs and perceived religious support (25). In another study Baheiraet al (2011) showed that that there was a relationship between HPBs of women and social support (26). Oteng-Ntim et al. (2015) in a meta-analysis study on the effect of lifestyle interventions in obese and overweighed pregnant women came to the conclusion that interventions on the effectiveness of lifestyle on overweight and obesity of women during pregnancy just had a moderate reduction in their harmful consequences (27). questionnaire

It can be said that women has a shared life experiences. Productive performance of women and their traditional roles as wife and mother is a set of variables of physical health, psychological health and social health that affect their quality of life. Review the evidence states the conflicting results about quality of life of pregnant women and the factors affecting it. Given the importance of the quality of life of women during pregnancy, this study aimed to determine the role of HPBs in predicting the quality of life of pregnant women.

Methods

This was a cross sectional study. Statistical population consisted of all pregnant women

who had referred to the Health Centers of Gilan-e Gharb City (Kermanshah) for receiving the prenatal care from March 2013 to September 2013. Usually, in correlational studies, 30 people as a sample size are sufficient for each predictor variable (28).

In this study, with respect to one predictor variable, 60 people were enough; but, for increasing the validity of data, 90 subjects were considered by purposive non-random sampling method.

For implementing this study, after necessary arrangements, of all pregnant women who referred to Health Centers of Gilan-e Gharb City for receiving pregnancy care, women aged 20-35 years old were purposefully selected by considering the inclusion criteria, having the elementary literacy and having no physical or mental disease, no abnormal delivery and exceptional children. After explaining the research objectives and taking their consent, they were asked to attend the health center and complete the demographic data, self-report questionnaires of HPBs and quality of life.

For observing the ethical considerations, all subjects were free to participate in the research and before completing the questionnaire, research objectives were explained to them and they were assured about confidentiality of data. Finally, four questionnaires were excluded since they were incomplete.

In this study, three following questionnaires were used for data collection. Demographic data that included questions about age, educational level, month of pregnancy, fetus gender, and the family monthly income. Lifestyle questionnaire of promoting health was developed by Walker et al. (1987) (29)based on Pender's health promotion model to measure HPBs. This questionnaire is a multi-dimensional assessment tool of HPBs, consisting of 52 questions and six aspects of HPBs, including diet, physical activity, spiritual growth, health responsibility, stress management and the interpersonal relationships. Each item is scored based on four point Likert scale as never (1), sometimes (2) usually (3), and always (4). So, minimum score of subjects in this questionnaire is 1 and maximum is 204. The reliability of the subscales of the test by Cronbach's alpha method has been reported in the range of 0.74 to 0.94 (29).

In a study by Zaidi et al (30), total Cronbach's alpha coefficient of this tool was 0.82 and for the subscales was from 0.64 to 0.91. Results of the exploratory factor analysis identified six main causes that explained 58 percent of the total of variance. These coefficients were obtained for the sample of this study in a range of 0.73 for stress management to 0.98 for responsibility. Short Form 36 Quality of Life Questionnaire (SF-36) was developed by Ware et al in 1993.

It consists of 36 items and is widely used to assess the quality of life. It was translated into Persian and its reliability and validity were determined by Montazeri et al (32) in Tehran and for people aged 15 years and above. SF-36 scale has eight dimensions including physical functioning, physical role, body pain, general health, vitality, social functioning, emotional role and mental health with alpha coefficients as 0.90, 0.85, 0.71, 0.65, 0.77, 0.84, and 0.77, respectively. These indicate suitable internal consistency of this dimension.

Reliability coefficient for the subscales of this instrument was reported from 0.77 to 0.90. Overall Results show that the Iranian version of this questionnaire is a perfect tool to measure quality of life (32). Cronbach's alpha coefficient of this test was 0.87 in this study.

For moral considerations in this study, subjects were free to participate in the study after taking written consent. They were also assured them that the collated data were reserved and will be analyzed as a group. Finally, after completing and collecting the questionnaires, data were analyzed using SPSS-16 software. The data were analyzed by the Pearson coefficient tests and multiple regression analysis.

Results

In this study, 86 women with a mean age and SD of 26.72 ±4.45 were studied. Most pregnant women, 54 (62.8%) women with

their first pregnancy, 22 (25.6%) women with second pregnancy and 10 (11.6%) women with their third pregnancy. Of these, 4 (4.7%) women were in the first month of pregnancy, 8 (9.3) in the third month of pregnancy, 12 (0.14%) in the fourth month of pregnancy, 12 (0.14%) in the fifth month of pregnancy, 12 (0.14%) in the sixth month of pregnancy, 20 (23.3%) in the seventh month of pregnancy, 10 (11.6%) in the eighth month of pregnancy and 8 (9.3%) in the ninth month of pregnancy. Of this number, 42 (48.8%) had female fetus and 22 (25.6%) had male fetus, 26 (25.6%) were unaware of the sex of their fetus and 22 cases the sex of the fetus had not determined.
Family income for most pregnant women was 83.7% less than 10 million Rials, and only 4.7% were higher than one and a 5000000 Rials. Mean, SD and minimum and maximum scores of the participants in the variables of quality of life, HPBs and its components are shown in Table 1 below.

Table 1: Mean, minimum and maximum scores of the subjects in research variables

Variables	M+SD	Minimum score	Maximum score
Quality of life	77.14±14.62	35	105
Physical performance	13.04±3.72	4	19
Playing physical role	2.42±1.22	0	4
Body pain	4.73±1.31	0	6
General health	13.95±3.11	2	19
vitality	17.48±4.51	2	24
Social performance	6.55±1.61	3	9
Playing emotional role	5.26±1.92	1	8
Psychological health	12.18±+2.64	5	17
HPBs	134.00±17.83	70	168
Health responsibility	25.34±5.22	13	36
Physical activity	25.07±4.93	11	35
nutrition	25.53±4.45	12	33
Spiritual growth	19.82±3.89	12	39

The results shows that there is a positive relationship between quality of life of pregnant women and an overall score of health promoting behaviors ($r = 0.49$, $P>0.01$) and subscales of health responsibility ($r=0.44$, $P<0.01$), good nutrition ($r = 0.36$, $P<0.01$), spiritual growth ($r = 0.47$, $P<0.01$), interpersonal relationships ($r = 0.57$, $P<0.01$) and stress management ($r = 0.26$, $P<0.05$) Table(2).
The results of Table 3 indicate that 37% of the total variance of the quality of life of pregnant women is justified by the predictor variables. The results of the regression coefficients indicate that only interpersonal relationships can significantly predict the quality of life ($P<0.1$; $t=2.41$). Analysis of collinearity index of the model show that tolerance index in all variables is less than 0.2 and index of covariance inflation is not also bigger (usually bigger than 10 as a criterion), therefore, collinearity between predictor variables is not tolerable.

Table 2: Correlation coefficients of HPBs and quality of life

Variables	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Quality of life	0.60**	0.68**	0.77**	0.83**	0.94**	0.49**	0.74**	0.39**	0.51	0.46**	0.17**	0.38**	0.45**	0.54**	0.26**
Physical performance		0.62**	0.34**	0.40**	0.50**	0.17	0.32**	0.12	0.38**	0.43**	0.13	0.29**	0.41**	0.34**	0.19*
physical role function			0.58**	0.49**	0.65**	0.40**	0.51**	0.16	0.33**	0.34**	0.18	0.32**	0.41**	0.37**	0.33**
Body pain				0.65**	0.70**	0.50**	0.59**	0.22**	0.19*	0.33**	0.04	0.31**	0.21*	0.31**	0.10
General health					0.82**	0.37*8	0.69**	0.22*	0.38**	0.47**	0.14	0.35**	0.43**	0.59**	0.25**
Social performance						0.47**	0.72*	0.20**	0.47**	0.39**	0.13	0.33**	0.48**	0.58**	0.20*
emotional role function							0.41**	0.15	0.19*	0.02	0.07	0.16	0.21*	0.22*	0.22*
mental health								0.36**	0.42**	0.38**	0.11	0.38**	0.29**	0.42**	0.25**
HPBs									0.17	0.26**	0.06	0.17	0.09	0.00	0.10
Health responsibility										0.68**	0.48**	0.63**	0.73**	0.71**	0.58**
Physical activity											0.49**	0.65**	0.57**	0.61**	0.40**
nutrition												0.18	0.39**	0.25*	0.42**
Spiritual growth													0.42**	0.56**	0.26*
Interpersonal relationships														0.76**	0.62**
Stress management															0.39**

Table 3: Results of regression coefficients of the quality of life of pregnant women based on HPBs

Dependent variable	Predictor variables	R^2	F	Sig:F	B	SEB	Beta	t	sig	Collinearity index	
										VIF	Tolerance
Quality of life		0.37	5.97	0.001							
	Health responsibility				0.32	0.58	0.11	0.55	0.58	0.25	3.86
	Physical activity				- 0.11	0.64	-0.002	-0.018	0.96	0.66	1.49
	nutrition				0.036	0.49	0.012	0.073	0.94	0.39	2.56
	Spiritual growth				0.064	0.58	0.02	0.10	0.91	0.28	3.49
	Interpersonal relationships				1.68	0.70	0.48	2.41	0.01	0.35	3.97
	Stress management				0.10	0.58	0.20	0.17	0.86	0.55	1.81

Discussion:

Results of Pearson correlation coefficients showed that there is a positive correlation between the quality of life of pregnant women and an overall score of health promoting behaviors and subscales of health responsibility, good nutrition, spiritual growth, interpersonal relationships and stress management. These results are consistent with those of Deley et al. (2007), Tee, et al. (2006), Lin et al. (2009), Adams et al. (2000), Wulandari (2011), Vinikoor-Imler et al. (2011), Roberts et al (2001), Morovvati et al. (2004), Boheiraei et al. (2011) (18, 19, 20, 21, 22, 23, 24, 25, 26). According to the reports, the Organization of Health and Human Services of the United States, unhealthy behaviors and lifestyle are two important factors that cause 10 cases of mortality. These two factors can affect the quality of life of people in everyday life [29]. Based on studies, although women live more often than men, but their quality of health is less than men, there are some particularly important stages during the life of women that greatly affects their quality of life, the most important of them are pregnancy and childbirth [31]. During pregnancy, when psychological and physiological changes reduce the quality of life of pregnant women, healthy living styles and HPBs can be a suitable strategy for the prevention of diseases in pregnancy. It seems that the health responsibility with perception of the internal control of health lead people to be sensitive toward their maintaining and promoting their health. People who have high health-responsibility, usually frequently refer to medical and are cautious toward their health and promote it. Complying with a proper nutrition plan leads to health improvement and spiritual intelligence and includes guidance and internal knowledge, maintaining the spiritual internal and external peace, insight-based performance, gentleness and kindness trough helping the people to find meaning of life in hardships, interpersonal relationships, and stress management such as coping strategies that are also effective and can improve the quality of life of women in pregnancy. The results of this study are inconsistent with those of Oteng-Ntim et al. (27). These researchers in a meta-analysis study concluded that the interventions related to the effectiveness of life style on overweight and obesity of women during pregnancy had not reduced or modestly reduced harmful consequences. In explaining this contradiction can be said that women's health behaviors has more positively affected their quality of life rather than reducing the harmful consequences of infants.

The results of the regression analysis also showed that 37% of the total variance of the quality of life of pregnant women is explained by their HPBs. According to the results of the regression, interpersonal relationships among the health behaviors is only predictor of quality of life. These results are consistent with those of Lin et al (2009), Wulandari (2011), Roberts et al (2001), Morovvati et al. (2004), Bahiraie et al. (2011) (20, 22, 24, 26, 26). Pregnancy in women can increase their concerns about their health and the infants, the loss of freedom of action, the financial pressure, the responsibility for pregnancy and so on; moreover, during pregnancy and a few months after the baby's birth, less time is devoted to marital relationships. These factors, in turn, increase psychological pressure for women. Having proper interpersonal relationships as a promoting style of health that lead to receive emotional support from the family, friends or relatives can improve quality of life for pregnant women. This kind of support can prevent the negative effects of stress on the quality of life. Proper interpersonal relationships create a social network that is the source of positive and negative emotions and can have psychological consequences determining health. This result is also inconsistent with that of Oteng-Ntim et al (26) (27); these researchers showed that interventions based on life style had not affect or modestly affected or positive impact on the harmful consequences. It can be said that life styles can be developed over time and changing them in a short time such as pregnancy is difficult.

Conclusion

The results of this research shows that HPBs, especially health of interpersonal

relationships play a role in quality of life for pregnant women. The use of correlation research, small size of sample and the use of non-random sampling methods and lack of control of some effective intervening variables on the quality of life such as the number of pregnancy, social-economic status of family were the major limitations of this study. The results of this study show the importance of HPBs in training the pregnancy period for improving the quality of life of pregnant women.

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