Original Article

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The Role of Social Support in Prediction of Stress During Pregnancy

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ABSTRACT

BACKGROUND AND OBJECTIVE: Stress and lack of social support during pregnancy are associated with adverse consequences such as miscarriage, nausea, vomiting, preeclampsia, preterm delivery, low birth weight and different types of mental illnesses. This study, therefore, aimed to determine the role of social support in prediction of stress during pregnancy.

METHODS: This cross-sectional study was performed on 210 pregnant women aging 18-40 years, who referred to two teaching hospitals of Babol in 2013. The subjects filled out demographic profile checklist, Pregnancy Experience Scale (PES) and Social Support Questionnaire (SSQ) in the first, second and third trimesters of pregnancy. The data were analyzed.

FINDINGS: The mean score of social support in the pregnant women was 12.87±4.18 (range: 0-25). The highest level of social support in the three trimesters of pregnancy was received from family. The mean overall support in the first trimester was significantly higher than the second and third trimesters (4.50±13.48 vs. 3.83±12.25 and 4.06±12.87, respectively) ($p<0.05$). Approximately a third of women had experienced stress during pregnancy. Most of the unpleasant experiences occurred in the third trimester of pregnancy. The obtained results demonstrated that social support had a significant positive relationship with pleasant experiences and a significant negative relationship with unpleasant experiences and stress during pregnancy. Social support predicted 50% of the variance in stress scores during pregnancy. The strongest negative predictor of stress during pregnancy was family support ($\beta= -0.470$) followed by support from friends and neighbors, and subjects' perception of support ($p<0.05$).

CONCLUSION: Considering the negative relationship between stress during pregnancy and support from family, friends, and neighbors, women's health care professionals should implement effective strategies to promote the level of social support during pregnancy.

KEY WORDS: Pregnancy, Social Support, Stress.

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Introduction

Pregnancy is an enjoyable and evolutionary event in women's life, which is often associated with stress and anxiety (1, 2). During pregnancy, women undergo a series of unwanted changes transforming their physical and psychological needs (3). In fact, this period is the result of physiological and psychological adaptations, which requires special attention (4). Pregnancy is associated with distress and a wide range of other feelings (5), and is considered as a special event causing numerous physical and psychological changes for both women and their families (6). Studies have shown that stress is an integral part of human life. A small amount of stress can improve performance under certain circumstances, but too much of it can endanger personal health (5-7). Stress is a necessary and constructive factor, which can lead to change, growth, and success (8). During pregnancy, which is a critical period in women's life, stress can have debilitating effects such as miscarriage, nausea, vomiting, preeclampsia, preterm delivery, low birth weight, and different types of psychological disorders (9, 10, 12). A study showed that the prevalence rates of depression and anxiety during pregnancy were 25.3% and 43.3%, respectively (13).Despite the scientific advances regarding physical complications during pregnancy, mental health problems remain unresolved (14). Studies have shown that social support plays an important role in reducing stress, and receiving physical psychological health, which is consistent with the transactional model of stress(6, 15, 16). Social support is the bilateral, spontaneous, and informal exchanges among members of social networks (17).

Some experts regard social support as a social reality, which is driven from individual's perceptions and thoughts, while some others consider it as a multidimensional concept encompassing both real and imaginary aspects (18). Social support can defined as the feeling of belonging and being valued (19). A study showed that social support is the result of tactful solutions to perplexing situations, which causes effective defense mechanisms against adverse effects of stress (20). Social support is generally regarded as "an aid received from others in times of trouble" (21). Social support is a helpful coping skill when dealing with stressful situations, which alleviates stress and improves life quality through strengthening individual's perceptions (22, 23). Studies have demonstrated that social support during pregnancy can reduce depression (24). Moreover, those with high levels of social support, despite experiencing high levels of stress, are less vulnerable to illnesses. In addition, maladaptive ways of thinking and behavior are more common among people receiving low family support (25).Family support during pregnancy and after delivery is of great importance (26). In fact, husbands and relatives' attention can have beneficial effects on pregnant women (25). Studies show the moderating role of social support on stress (27). Given the psychological changes in pregnant women and the absence of studies evaluating stress using a specific questionnaire, in the present study we aimed to examine the role of social support and its components in predicting stress during pregnancy.

Methods

This cross-sectional study was conducted on 210 low-risk pregnant women aging 18-40 years, who had referred to prenatal care clinics of Ayatollah Rouhani and Shahid Yahyanejad of Babol in 2013. Since gestational age can affect stress during pregnancy, the samples were selected from all the three trimesters of pregnancy (n=70). Those who showed signs of high-risk pregnancy such as spotting, vaginal discharge, diabetes, hypertension, and multiple gestations were not included in the study. The samples were matched in three groups according to age, educational level, and gravidity. All the samples filled out demographic questionnaire, Pregnancy Experience Scale (PES) and Social Support Questionnaire (SSQ). PES: This questionnaire, which contains 41 items covering both positive and negative emotions, was used for assessing stress during pregnancy. This scale consists of five domains including physical and mental preparedness for pregnancy, changes in couples' lifestyle, relationships with family and friends, pregnancy problems and body image. The samples rated the items on specific experiences using 0-3 scores as positive (pleasant) or negative (unpleasant) feeling. Pregnancy experience was evaluated regarding the number and severity of pleasant and unpleasant experiences,

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and unpleasant/pleasant ratio was indicated as stress. If the ratio was greater than one, pregnancy was considered as a stressful experience. In the previous studies, the PES had acceptable reliability and validity, Cronbach's alpha was high throughout the trimesters of pregnancy (28). Cronbach's alpha internal consistency reliabilities for the pleasant and unpleasant experiences were 93% and 92%, respectively. Test-retest correlation coefficient for unpleasant and pleasant experiences was reported to be 0.61 and 0.54, respectively (29). SSQ: This scale was developed by Fleming and colleagues, and is consisted of 25 items, and 5 subscales measuring perceived public support, perceived support from friends, family, and peers and general opinion on the importance of social support. The scores can range from 0 to 25, with higher scores indicating higher support (30). Hooman and colleagues validated the SSQ in Iran, and calculated its Cronbach's alpha reliability to be 0.82 (31). To compare the mean scores of the components of social support in the first, second, and third trimesters of pregnancy (due to the stress), multivariate analysis of variance (MANOVA) was used.

The significance level of Kolmogorov-Smirnov test for stress distribution in the trimesters of pregnancy was greater than 0.05. The presumption of M Box test for covariance ($p>0.06$) confirmed the assumption of homogeneity of variance matrices. From the four multivariate test statistics (Pillai's, Wilk's Lambda, Hotelling and Ray) to calculate the F test, Wilk's Lambda was chosen. In addition, for determining the predicting effect of social support on stress during pregnancy, linear regression analysis and beta coefficients were used. $p<0.05$ was considered statistically significant.

Results

The mean age, education, and gravidity of the participants were 24.39±51 years, 11.39±3.35 years, and 1.69±0.90, respectively.The highest percentage of pregnant women were housewives (87%). The mean age, education, and gravidity in the three groups of women in the first, second, and third trimesters were not significantly different. The obtained results demonstrated that the majority of the samples (87%) were housewives (table 1). The mean total score of social support was 12.87±4.18, this value for the first, second, and third trimesters was 13.48±4.50, 12.25±3.83, and 12.87±4.06, respectively. Considering the possible range of scores (0-25), the samples had moderate levels of social support. The highest mean social support score in all the trimesters of pregnancy belonged to family (table 2). MANOVA results showed that social support scores regarding the pregnancy trimesters in the subcomponents of family and general support were significantly different. Family and general support were higher in the first trimester as compared to the second and third ones ($p<0.05$). In addition, the mean scores of social support based on pregnancy stress showed that the mean scores in all the sub-components of social support in samples experiencing pregnancy stress were significantly less than those not experiencing stress during pregnancy ($p<0.05$) (table 3). Social support had a significant positive correlation with pleasant experiences during pregnancy and had a significant negative correlation with unpleasant experiences.

Thus, by increasing social support, a more pleasant pregnancy is experienced, while low social support leads to an unpleasant experience. Moreover, social support had a significant negative correlation with pregnancy stress, so that by increasing social support, pregnancy stress is lowered (table 4).

In all the trimesters of pregnancy, the mean social support for the samples who had experienced a stressful pregnancy was significantly less than those who did not (table 3).

Table 1. Characteristics of the pregnant women in the three trimesters of pregnancy

Group / Variable	1st trimester Mean±SD	2nd trimester Mean±SD	3rd trimester Mean±SD	p-value
Age(year)	24.97±0.89	25.20±4.97	23.00±5.05	0.19
Education (year)	11.23±2.08	11.03±3.02	11.45±2.05	0.37
Gravidity	1.82±1.08	1.80±0.79	1.45±0.75	0.25

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Table 2. Mean of the sub-components of social support according to pregnancy trimester and stress

Pregnancy trimester	The first trimester Mean±SD		The second trimester Mean±SD		The third trimester Mean±SD	
	with stress (n=18)	without stress (n=52)	with stress (n=47)	without stress (n=23)	with stress (n=57)	without stress (n=13)
Friends	1.96±0.83	2.16±1.04	0.56±0.50	1.48±1.24	1.07±0.49	2.01±1.01
Neighbors	2.01±1.05	2.07±1.01	0.44±0.26	1.68±1.46	0.30±0.75	1.61±1.29
Family	4.36±2.34	5.83±2.34	1.65±0.88	6.27±0.99	1.38±0.50	6.33±0.89
Total support	2.42±1.19	2.55±0.70	2.61±0.89	2.61±0.48	1.84±0.37	2.50±0.88
Perception of social support	1.96±1.11	2.38±1.30	2.73±0.68	2.44±0.54	1.15±0.37	2.01±1.20
Total score	12.73±4.64	15.66±3.74	7.65±1.77	14.51±2.17	5.76±1.09	14.49±2.38

Linear regression analysis was used to determine the predicting effect of social support on pregnancy stress. The results showed that social support could predict 50% of the variance in stress scores during pregnancy. Moreover, it was found that social support had a significant negative predictive effect ($F=47.093$; $p<0.05$). Beta coefficient is an indicator of direction and severity of the effect of each independent variable on stress during pregnancy.

Accordingly, family support with the highest beta coefficient ($\beta=-0.470$) was the strongest negative predictor of pregnancy stress, followed by friends ($\beta=-0.128$), neighbors ($\beta=-0.199$), and perception of support ($\beta=-0.079$), respectively (table 5).

Table 3. The results of one-way multivariate analysis of variance (MANOVA) for sub-components of social support with pregnancy trimesters, and pregnancy stress

Source	Components	Degree of freedom	Total squares	F	p-value
Pregnancy trimester	Friends	2	2.225	2.380	0.095
	Neighbors	2	1.943	1.428	0.242
	Family	2	47.677	21.569	0.000
	Total support	2	1.051	1.41	0.246
	Perception of social support	2	41.410	4.770	0.09
	Total support score	2	106.064	11.041	0.000
Pregnancy Stress	Friends	1	18	19.251	0.000
	Neighbors	1	50.256	36.942	0.000
	Family	1	520.946	235.679	0.000
	Total support	1	4.230	5.684	0.018
	Perception of social support	1	4.262	4.603	0.033
	Total support score	1	1465.144	152.514	0.000

Table 4. The correlation coefficients of social support and pregnancy stress

Variables	1	2	3
Social support			
Pleasant pregnancy experiences	0.280**		
Unpleasant pregnancy experiences	-0.708**	-0.081**	
Pregnancy stress	-0.404**	-0.300**	0.352**

*(p<0.05), **(p<0.01)

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Table 5. Coefficients of multiple regression analysis results, predicting pregnancy stress according to social support scores

Components	β coefficient		Standard β coefficient	t ratio	Significance level
	β	Standard error			
Constant value	19.842	0.887	-	22.361	0.000
Friends	-0.564	0.248	-0.128	-2.276	0.024
Neighbor	-0.700	0.190	-0.199	-3.691	0.000
Family	-0.967	0.122	-0.470	-7.902	0.000
Perception of social support	-0.425	0.282	-0.079	-1.505	0.134
Total support score	-0.969	0.229	-0.210	-4.231	0.000

Discussion

Our results reflected that the negative predictive effect of social support on stress during pregnancy was significant. Family support was the strongest negative predictor of stress during pregnancy, followed by support from friends and neighbors, and perception of support. Abdolahzade reported that support from family, friends, and acquaintances could significantly explain 16% of variance in depression scores during the third trimester of pregnancy (32).

Since pregnancy is a stressful experience in women's life (33) and family plays an important role in passing this traumatic period, social, particularly family support is required to reduce stress. The results showed that the mean social support in samples with stressful pregnancy was significantly less than those who did not experience pregnancy as stressful.Social support had a significant negative correlation with pregnancy stress, so that stress scores would reduce by increasing social support. Mean scores of all the subcomponents of social support and the total support score in stressful pregnant women were lower than women not experiencing stress. In general, the relationship between perceived social support and stress was confirmed. Studies have underscored that social support can improve mental health and reduce stress (6, 27, 34-38).

On the other hand, Shishehgar and colleagues did not observe any significant relationships between social support and stress during pregnancy (39). High social support is associated with reduced cortisol levels, and thus reduced anxiety (40). Studies have also shown that social support can alleviate stress, increase survival rate and improve the quality of life and comprehension through an intermediary role between stressors and physical and mental problems (41,42). The result of present study showed that Social support correlated positively with pleasant pregnancy experiences and negatively with unpleasant pregnancy experiences. Studies have also shown that social support serves as a moderator for the negative effects of tension (43). The data demonstrated that family and overall support were significantly different in the trimesters of pregnancy, as family and overall support in the first trimester were higher than the second and third ones. Social support is defined as resources provided by others, especially family and friends (44,45). It should be notified that this difference might be due to the greater need for social support at the onset of pregnancy, which leads to more intimacy (45). On the other hand, severe physical changes in the third trimester of pregnancy can lead to the loss of relationships with friends and acquaintances. The results showed that almost a third of women had experienced a stressful pregnancy. Most stressful experiences occurred during the third trimester of pregnancy. In studies carried out in Sweden and England, the prevalence of prenatal stress has been reported to be 33-37% and 5.7%, respectively (46).

The highest levels of anxiety in pregnant women were observed during the third trimester, and anxiety in the second trimester was more than the first one (47). Results have shown that pregnant women had a moderate level of social support and there was no difference in the level of received support regarding pregnancy trimester. A similar study indicated that mean scores of social support during pregnancy were at an acceptable level. Hence, there was no statistically significant difference between the mean scores of social support in different trimesters of pregnancy (39).

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The results showed that pregnant women had all the components of social support such as family, friends, and neighbors. The highest mean score of social support in all the pregnancy trimesters belonged to the family.

In this regard, Bahrami considered family and friend support as factors contributing to stress resistance, that is to say, those with close family ties are more resilient towards stress and the associated tensions (48). To improve social support scores and the quality of life and to prevent stress and complications during pregnancy some strategies should be implemented. In addition, the use of multiple methods of communication, including individual or group counseling, and providing the necessary training for pregnant women and individuals associated with them, especially their husbands maybe quite helpful in prenatal care.In the present study, we were used pregnancy stress proprietary tool and social protection tool that including only the support of friends, acquaintances and family for measuring stress ,While pregnant women may have concerns about the hospital environment and issues of medical and midwifery staff that could have influential effects on the total scores of stress and support of friends , acquaintances, and family could not help to reduce these concerns. For future studies, it recommended to account for social support from structural and functional aspects instead of overall social support. An advantage of the current study was the use of a stress scale specific to pregnancy, while the previous studies had utilized general scales for measuring stress

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