Perceived Stress and its Relationship With Social Support in Pregnant Women Referring to Health Centers of Ardabil, Iran

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Abstract
Objectives: Pregnancy is considered as one of the most enjoyable events although it is one of the most stressful periods of women's lives. The pregnant women's stress is harmful to maternal and fetal health and thus can lead to various complications including preterm labor. In this regard, social support is the most important and known force to deal with such stressful situations. Accordingly, this research aimed to assess the relationship between perceived stress and perceived social support in pregnant women.
Materials and Methods: The present descriptive-analytical cross-sectional study was performed on 200 pregnant women who visited the health centers of Ardebil during February-August 2018. Cluster sampling method was used for sampling and perceived Stress Scale and perceived social support questionnaire were utilized for data collection. Finally, Pearson correlation, independent t test, one-way ANOVA test, and general linear model (GLM) were applied to analyze the data.
Results: The mean (SD) total scores of the perceived stress and the social support were obtained 24.22 (7.33)/56 and 134.67 (18.47)/175, respectively. Based on the GLM (after adjusting the socio-demographic variables), a significant inverse association was observed between perceived social support and perceived stress ($P < 0.001$).
Conclusions: Regarding the relationship between perceived social support and perceived stress, it seems necessary for pregnant women to receive support from their husbands, family members, and society.
Keywords: Perceived stress, Social support, Pregnancy

Introduction

About 90% of women experience pregnancy at least once (1). Pregnancy is an enjoyable event (2), which is valuable for women (3). Pregnancy period is associated with many tensions (4). For example, mental and physical adaptations occur in this period (5), which result in physical, mental, (6), social, and emotional (7) changes in women. In other words, pregnancy is one of the most sensitive (8) and one of the most stressful periods in women's lives (9).

Stress means one's disability to cope with the surrounding environment (10). Maternal physical and mental health affects fetal health (3), and stress is harmful to both maternal and fetal health (11). The response of the body to stress is manifested as palpitation, vasoconstriction, hypertension, and reduced digestion (12). In addition, prenatal stress leads to preterm labor and low birth weight and. It can further cause several complications as follows.

- Preterm labor and low birth weight (11,13,14);
- Intrauterine growth restriction, asphyxia, the increased rate of cesarean section, high-risk pregnancies, and increased nausea and vomiting (15,16);
- The increased risk of abortion, preeclampsia, and some degrees of mental disorders (17,18).

Social support is believed to be the most significant and known force for dealing with stressful situations (19). It is defined as the accessible support for a person through social relationships with other people, groups, and the larger community (20). In addition, this type of support refers to the feeling by which persons can receive attention and are valued by others and in fact, it is regarded as the assistance which is received from others in difficult situations of life (21). According to the National Cancer Institute, social support can be provided by family members, friends, relatives, and neighbors and can give financial, psychological and physical help in times of need (22).

Focusing on promoting women's health can improve

birth consequences, as well as the health of the children, their families, and finally, the community (14,23). Stress in pregnancy is associated with poor outcomes of pregnancy and adverse consequences such as abortion and preterm labor (17) and thus social support is known as a barrier against stress (24,25). Thus, the aim of this research was to evaluate the status of perceived stress and its association with social support in pregnant women.

Materials and Methods
Study Design and Participants
This descriptive-analytical cross-sectional study was conducted on 200 pregnant women who attended various health centers of Ardebil, includes 605 992 people, Iran from February to August 2018. Ardabil and the number of pregnant women who are covered in this city is 33 638 individuals. Ardabil was selected for this study since no study has so far focused on stress and social support in pregnancy in this city.

The only inclusion criterion was having no history of disastrous event over the past three months and the exclusion criteria included the history or current affliction with mental disorders, taking psychiatric or psychotropic drugs, a history of or current affliction with depression, obstetric problems (e.g., the possibility of preterm delivery, diabetes, hypertension, and the like), and unwanted pregnancy.

Furthermore, the sample size was calculated as 90 based on the results of Behroozy et al (26) and given the standard deviation of perceived stress (SD = 6.13), an alpha coefficient of 0.05, and a precision (d) of 0.05 around the mean value of 25.46. Accordingly, the final sample size was 200 individual considering the nature of the cluster sampling method, a design effect of 2, and possible attrition.

Sampling
Sampling was started through the cluster sampling method and after the approval of the research by the Ethics Committee of Tabriz University of Medical Sciences (No. IR.TBZMED.REC.1396.24). Ardebil encompasses 17 health centers and 45 health bases and thus the sampling was performed in a quarter of health centers and bases. The researcher visited the health centers and extracted a list of all pregnant women in the second trimester and their phone numbers. Through telephone calls with pregnant women, the inclusion and exclusion were checked and women were personally invited to visit the health centers. During the face-to-face visits, pregnant women were briefed on the research objectives and procedure and were assured of their information confidentiality. After obtaining informed written consent from those who showed their willingness for participation, socio-demographics, perceived stress, and social support questionnaires were completed by the researcher in an interview with each participant.

Data Collection Tool
The socio-demographic questionnaire contained items on age, education, job, husband's job, gestational age, maternal weight, maternal height, and the like.

The Perceieved Stress Scale (PSS), which was first designed by Cohen et al in 1985, has three versions including 4, 10, and 14 items and measures perceived stress within the past month. The 14-item version of this scale was used in this study. Each item had 5 answers that were scored based on the Likert-type scale including never (score 0), low (score 1), moderate (score 2), high (score 3), and very high (score 4). The total score ranged between 0 and 56 and items 4, 5, 6, 7, 9, 10, and 13 were inversely scored since they had a positive concept. In a study conducted in Iran, the Cronbach alpha and intra-class correlation coefficient of this scale were obtained 0.73 and 0.74, respectively (26).

In the current study, social support was also evaluated by the second part of the Personal Resource Questionnaire (PRQ85-Part 2). This questionnaire included 25 items and each item had 7 answers and all items were scored according to the Likert-type scale ranging from completely agree (score 7) to completely disagree (score 1). The total score ranged between 25 and 175 as well. Moreover, items 4, 7, 10, 16, and 24 were scored inversely. Based on the findings of a study performed in Iran, Cronbach alpha and internal consistency coefficient of this questionnaire were reported as 0.84 and 0.90, respectively (27).

The validity of the socio-demographic questionnaire was determined through content validity and the reliability of PSS and PRQ-85-Part-2 questionnaires was confirmed by Cronbach alpha (r=0.83 and 0.87, respectively).

Statistical Analysis
The obtained data were statistically analyzed by SPSS software, version 24. All data had normal distribution based on kurtosis and skewness values. Additionally, the data related to socio-demographics, perceived stress, and social support were described using frequency (percent) or mean (standard deviation). Eventually, the Pearson correlation test and the general linear model (GLM) in univariate and multivariate analyses, respectively, were used to determine the association between perceived stress and social support after adjusting the socio-demographic variables. $P < 0.05$ was considered statistically significant.

Results
The average age of women and their husbands was equal to 27 and 32 years, respectively. Almost one-third of women (31.5%) and their husbands (32.5%) had a university degree. In addition, more than 90% of pregnant women were housewives and about half of their husbands (43.5) were a driver, carpenter, painter, architect, or farmer. More than two-thirds of the participants (69%) reported that their monthly household income could somewhat afford their living expenses. Based on the results, no significant

relationship was observed between socio-demographics and perceived stress (Table 1).

The mean (SD) of perceived stress score was equal to 24.22 (7.33)/56 and that of perceived social support score was obtained 134.67 (18.47)/ 175. According to the results of the Pearson correlation test (Table 2), a significant inverse correlation was found between perceived social support and perceived stress (r= -0.34, P<0.001).

Based on the results of the GLM, social support was a predictor of perceived stress in pregnant women (B= -0.14, P<0.001) after adjusting the socio-demographic variables. However, there was no significant relationship (P>0.05) between the socio-demographic variables and perceived stress (Table 3).

Discussion

The findings of the present study showed that perceived stress and social support were at moderate and acceptable levels in pregnant women, respectively, and there was a significant inverse correlation between these parameters.

Similarly, Faramarzi and Pasha indicated a significant

Table 1. Relationship of Socio-demographic Characteristics With Perceived Stress Score in Pregnant Women

Variable	Number	Mean (SD)	P Value
Age			0.266[a]
<25	65	22.9 (7.7)	
25 to 30	76	24.8 (6.7)	
30 and higher	59	24.9 (7.6)	
Education			0.527[a]
Illiterate and elementary	12	26.0 (5.5)	
Secondary	28	25.6 (8.0)	
High school	18	22.3 (7.3)	
Diploma	75	23.5 (7.8)	
University	63	24.5 (6.8)	
Job			0.451[b]
Housekeeper	186	24.3 (7.4)	
Employed	14	22.7 (6.1)	
Income			0.088[a]
Completely	42	22.8 (7.6)	
Almost	138	24.22 (7.0)	
Never	20	27.20 (8.7)	
Husband's age			0.876[a]
< 30	60	23.8 (8.4)	
30-35	79	24.3 (7.0)	
35 and higher	61	24.3 (6.7)	
Husband's education			0.160[a]
Illiterate and elementary	17	27.7 (5.8)	
Secondary	27	22.7 (8.5)	
High school	19	25.4 (7.2)	
Diploma	73	24.6 (7.3)	
University	65	23.2 (7.1)	
Husband's job			0.855[a]
Jobless and worker	53	24.1 (7.3)	
Employed	30	23.6 (5.9)	
Shopkeeper	30	23.7 (7.0)	
Other[c]	87	24.3 (8.0)	

[a] One-way ANOVA; [b] Independent t-test; [c] "Other" includes jobs like driver, carpenter, painter, farmer, rug seller, baker, architect.

negative relationship between social support and perceived stress, indicating that pregnancy stress reduces by an increase in social support and pregnancy stress increases with a decrease in social support (28). Salari et al. also found a significant relationship between stress and social support during pregnancy (29). Based on the results of another study, social support was a moderator of stressful situations in everyday life, including pregnancy and childbirth (30). Further, Glynn et al showed the importance of social support in decreasing pregnancy stress and promoted three main approaches for stress reduction during pregnancy, including (i) evaluation and education, (ii) counselling, physical relaxation, and meditation, and (iii) social support (14). The results of several studies suggest that social support has a major role in reducing stress and achieving physical and mental health (31-33), especially during pregnancy. Other studies also indicated that the risk of adverse stress-induced outcomes in pregnancy (11,13,34) can be decreased by the continuous support of women during pregnancy (35,36). The results of these studies are in line with the findings of the current research.

Likewise, the findings of another study revealed that the incidence of postpartum depression reduces by an increase in social support (37). Furthermore, Masoudnia demonstrated an inverse relationship between perceived social support by mothers and the occurrence of postpartum depression, representing that mothers with a higher overall score on perceived social support exhibited fewer symptoms of depression compared to the other mothers (38). The findings of the above-mentioned studies are also consistent with the findings of the present research in terms of the positive impact of social support on maternal health, especially perceived stress. Moreover, Kaldi and Salahshouri found that social support positively influences psychological, economic, physical, and overall empowerment (39), which corroborates with the findings of the present study because high social support can empower women regarding coping with stress.

Contrarily, Shishehgar et al. failed to find any significant relationship between social support and stress during pregnancy (40). This difference could be attributed to the use of a special stress questionnaire for pregnancy in the above-mentioned study whereas the current study used a general stress scale. Previous evidence confirmed the impact of stress on pregnancy and postpartum consequences and the positive role of social support in this regard. The results of a systematic review showed that maternal stress is related to poor consequences including intrauterine growth retardation, preterm labor, caesarian section, low birth weight, and stillbirth (41). Based on the findings of Feinberg et al, maternal stress and anxiety directly affect the childbirth outcomes such as the infant's weight and height while family support for the mother can decrease her stress and anxiety and thus prevent undesirable outcomes (42). The results of

Table 2. The Mean (SD) of the Perceived Stress Score and Perceived Social Support and Their Relationship

Variable	Mean (SD)*	Obtainable Score Range	Obtained Score Range	Relationship With Social Support r (P value)
Perceived social support	134.67 (18.47)	0 to 175	63 to 169	-0.34 (<0.001)
Perceived stress	24.22 (7.33)	0 to 56	6 to 47	

SD, standard deviation.

Table 3. The Relationship of Social Support With Perceived Stress Based on a General Linear Model

Variable	B (CI 95%)	P Value
Social support	-0.14 (-0.19 to -0.08)	<0.001
Age (Reference: 30 and higher)		
<25	-2.94 (-6.23 to 0.34)	0.079
25-30	-0.44 (-3.33 to 2.44)	0.762
Husband's age (Reference: 35 and higher)		
<30	1.64 (-1.63 to 4.92)	0.324
30-35	1.50 (-1.28 to 4.24)	0.291
Job (Reference: Employed)		
Housekeeper	-2.58 (-7.11 to 1.94)	0.261
Education (Reference: University)		
Illiterate and elementary	-0.60 (-5.99 to 4.78)	0.825
Secondary	0.40 (-3.57 to 4.38)	0.841
High school	-2.39 (-6.57 to 4.38)	0.280
Diploma	-1.28 (-4.14 to 1.96)	0.374
Husband's education (Reference: University)		
Illiterate and elementary	3.67 (-1.35 to 8.71)	0.115
Secondary	0.21 (-3.90 to 4.32)	0.920
High school	3.78 (-0.59 to 8.17)	0.090
Diploma	1.79 (-1.20 to 4.78)	0.239
Husband job (Reference: Other)		
Jobless and worker	-1.22 (-3.96 to 1.50)	0.376
Employed	0.71 (-2.59 to 4.01)	0.672
Shopkeeper	0.59 (-3.66 to 2.47)	0.702
Income (Reference: Never)		
Completely	-2.22 (-6.36 to 1.92)	0.291
Almost	-2.68 (-6.17 to 0.81)	0.132

a systematic study also demonstrated that pregnancy distress causes preterm labor, and therefore, providing adequate support for pregnant women is effective in reducing their undesirable stress during pregnancy (43). Similarly, Crnic et al concluded that mothers who enjoy higher levels of support represent better attitudes and behaviors compared to those who experience higher stress levels. On the other hand, the reported that social support moderated the adverse effects of tension (44). The results of these studies all corroborate the positive effect of social support in decreasing stress while improving postpartum outcomes. Additionally, the findings of another study indicated that implementing interventions to control the stress before childbirth affects the salivary cortisol level in the mother and fetus, therefore, these interventions could reduce the risk of future mental health problems in

mothers and infants (45). Hence, it seems necessary for healthcare providers, authorities, and families to provide social instrumental, informational, and emotional support for pregnant women.

The cross-sectional nature of this study was a limitation since the relationship between the perceived stress and social support was not of cause and effect type. The other limitation was the use of a general stress scale which could not accurately reflect the stress of pregnancy. In addition, the second part of personal resource questionnaire was used to investigate the social support which only included the support from friends, acquaintances, and family members for measuring the stress in this study whereas pregnant women may have concerns about the hospital environment and personnel, along with their medical and midwifery issues, which can affect their total stress score as well. Further, the support from family members, friends, and relatives may be insufficient to diminish such concerns. Therefore, using a special scale for maternal stress and a more comprehensive social support questionnaire including structural and functional dimensions instead of the overall support seems necessary in future studies.

Conclusions
In general, the findings of this research confirmed that social support has a remarkable effect on stress reduction. Hence, the health authorities should provide strategies to increase social support during pregnancy so that to reduce maternal stress and prevent stress-induced complications of pregnancy and newborns. Finally, pregnant women and their husbands can be trained during pregnancy by using various communication methods such as written materials and individual or group counseling.

Conflict of Interests
Authors have no conflict of interests.

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