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Structural Model of Postpartum Depression Based on Social Support and Marital Satisfaction by Mediating Resilience

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Abstract

Background & Objectives: This study aimed to present a structural model of postpartum depression based on social support and marital satisfaction with the mediation of resilience.
Materials & Methods: The current research method was descriptive and type of structural equation modeling. The statistical population of the research included all mothers who had given birth and were referred to Jahrom University of Medical Sciences hospitals, and 415 mothers who referred for natural delivery and caesarean section using the available sampling method and completed the Edinburgh Postnatal Depression scale (EPDS), the Sherbourne and Stewart Social Support Survey (MOS-SSS), the Enrich Marital Satisfaction Scale (EMS) and the Connor-Davidson Resilience Scale (CD-RISC) four to eight weeks after delivery. Data analysis was done using the (AMOS) software version 24, and the reliability of the tools was checked by Cronbach's alpha method and with the help of SPSS software version 23.
Results: The findings of the research showed that social support had a significant effect on postpartum depression only indirectly (β = -0.10, p = 0.02) through resilience. In addition, it was found that marital satisfaction can both directly (β = -0.36, p = 0.0001) and indirectly affect postpartum depression through resilience (β = -0.22, p = 0.009).
Conclusion: Resilience can be considered an anti-depressant factor in the postpartum period. Psychological interventions aimed at increasing resilience, social support and marital satisfaction, can play a significant role in preventing postpartum depression.

Keywords: Depression, Postpartum, social support, Satisfaction, resilience

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Introduction

Postpartum depression is one of the most common psychological disorders after childbirth and leaves serious consequences for the mother, child and family. This type of depression is the most common and the second debilitating disease in women of reproductive age (1). The symptoms of postpartum depression are the same as those of major depression (low mood, anorexia or overeating, sleep disturbance, feeling sad, suicidal thoughts, irritability, lack of enjoying favorite activities, and decreased self-confidence). Considering the high rate of postpartum depression, more research should be done to know related factors, in order to prevent it. Identifying psychosocial factors that intervene in the creation of postpartum depression can lead to reducing

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the incidence of this disorder, improving health and effective adaptation of the mother with the child and the family after a stressful period (2).

The most important risk factors are a history of major depression with previous pregnancy, life-threatening events, stress during pregnancy, family history and lack of social support (3). Social support is described as a network of communication that facilitates health promotion behaviors. Support resources include emotional-informational support, tangible support, positive social interaction and kindness (4). The results of previous studies showed that women who reported higher levels of social support had less depressive symptoms during the postpartum period compared to women who had less support networks (5-7).

Another risk factor that makes the mother susceptible to postpartum depression is low marital satisfaction. Marital satisfaction is the match between the current situation and the expected situation between the couple (8). Studies show that couples who have effective marital communication and understanding have a better health status (9). Past studies indicate that there is a significant and inverse correlation between marital satisfaction and postpartum depression (10-12). Marital satisfaction can be evaluated based on intrapersonal and interpersonal factors, contextual factors and their interaction relationships. Individual characteristics, cognitions and emotional patterns of each subject can affect the evaluation of the relationship and marital satisfaction after childbirth (13).

The findings show that some individual characteristics increase vulnerability to depression. Many studies have been searching for factors that can help humans in harmful situations and prevent the damage caused by problems (14). Resilience is one of the most important abilities of human beings that can effectively adapt to risk factors. Resilience is a person's ability to establish biological-psychological balance in high-risk situations. Resilient people believe that life is more meaningful than surrendering to problems (15). Increasing resilience improves the quality of life, and reduces pain and stress, and a number of studies have indicated an increase in mental health, a reduction in postpartum depression symptoms, and life satisfaction (16-18). According to previous studies, resilience seems to mediate the relationship between social support and marital satisfaction with postpartum depression.

Research shows that mothers are at increasing risk of postpartum depression (19), a condition considered a medical emergency because of its life-threatening consequences for both mother and baby and the lack of timely diagnosis and preventive intervention. Identifying the causes of this disorder and the set of factors that can prevent it and identifying the effect of these factors on each other is not only effective on the quality of mothers' health, but it can also help improve the health of family relationships and the healthy growth of children. Although social support and marital dissatisfaction which have been identified as risk factors for depression have been studied separately, very few studies have investigated the simultaneous effects of social support and marital satisfaction on depression, and the simultaneous effects of these two variables on resilience. Also, the interaction between these factors in predicting depression has not been investigated. Therefore, the present study was conducted to present a structural model of postpartum depression based on social support and marital satisfaction with the mediation of resilience.

Materials and Methods

The present research was a descriptive study. The statistical population of this research included women who had just given birth and were referred to Jahrom Medical Sciences Hospitals from April to October 2022. According to Homan, it is necessary to have 5 to 15 subjects for each measured variable (20), the sample size was estimated to be 370 (37 × 10) according to 37 measured variables. Using the available sampling method, 415 women

formed the sample group after removing 18 women who had distorted questionnaires.

They were selected voluntarily from among the women who were referred to the hospital for natural delivery and caesarean section. The participants completed the questionnaires 4 to 8 weeks after giving birth. In order to control intervening variables, mothers who gave birth after 37 weeks, without a history of using drugs and psychotropic substances, without maternal and neonatal complications during pregnancy and childbirth, who are literate and have access to the Internet. Hospitalization of the mother due to complications after childbirth, death or hospitalization of the baby in the intensive care unit (NICU), the occurrence of unfortunate events such as the death of a family member or divorce during the last three months, and the unwillingness of the mother to continue participating in the study are among the exclusion criteria. By gaining their trust that their information would remain confidential, the participants individually answered the questions of the electronic questionnaires online and the information about these people was analyzed without names and only with identifiers.

Data Collection Tools

In this research, four scales were used to collect data, which include:

Edinburgh Postnatal Depression Scale (EPDS)

The postpartum depression scale was designed by Edinburgh to measure postpartum depression. This questionnaire has 10 questions and measures postpartum depression based on the Likert scale. The score on the Edinburgh scale is between zero and 30. In this study, the cut-off point is 13 and a score of 13 and above is considered as postpartum depression. In the present study, the confirmatory factor analysis method was used to check the validity of the questionnaire. Most of the coefficients of the items were significant with the total score. The reliability of this scale was obtained through Cronbach's alpha for the entire scale of 0.87.

Sherbourne and Stewart Social Support Survey (MOS-SSS)

This scale, which measures the amount of social support received by the subject, has 19 statements and 4 subscales including tangible support, emotional-informational support, kindness and positive social interaction. This scale is a self-report tool, and the person indicates the degree of disagreement or agreement with each of the statements on a 5-point Likert scale (never = 1 score, rarely = 2 scores, sometimes = 3 scores, often = 4 scores and always = 5 scores). A score between 19 and 38 indicates low social support, a score between 38 and 57 indicates moderate social support, and a score above 57 indicates high social support. The lowest score in this test is 19 and the highest score is 95. In the present study, most of the coefficients of the subscales were significant with the total score. The reliability of this scale was obtained through Cronbach's alpha 0.96 for the emotional-informational support dimension, 0.88 for tangible support dimension, 0.90 for the positive social interaction dimension, 0.92 for kindness and 0.97 for the whole scale.

Enrich Marital Satisfaction Scale (EMS)

The marital satisfaction questionnaire was designed by Enrich to measure marital satisfaction. This questionnaire has been validated (2013) in Iran by Arab Dosti, et al. (21). This questionnaire has 10 questions and measures marital satisfaction based on a five-point Likert scale. In the present study, most of the coefficients of the items were significant with the total score. The reliability of this scale was obtained through Cronbach's alpha of 0.92 for the entire scale.

Connor-Davidson Resilience Scale (CD-RISC)

The shortened form of the Connor and Davidson scale has 10 items that are scored on a Likert scale between zero (never) and five (almost always). This scale is designed to measure resilience.

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In the data analysis method, the reliability of the tools was checked by Cronbach's alpha method using SPSS software and the moment structure analysis software (AMOS). The factor structure of each tool was checked by confirmatory factor analysis method, then the fit of the model was tested.

Results

The highest frequency for participants was 26-30 years old. The minimum age was 16 years and the maximum age was 40 years. The highest frequency for participants with a bachelor's degree (46.7 percent) was wanted pregnancy (77.6 percent) and the highest frequency, regarding type of delivery, was natural delivery (54.7 percent). The number of babies born was more girls (51.8 percent) and the highest frequency of birth order was the first child (46 percent). Among the 415 participants in this study, 206 people (49.64%) showed postpartum depression, which indicates the high rate of postpartum depression in the present research sample. Table 1 shows the demographic status of the participants.

Table 1. The Demographic Status of Participants

Mother's age	Abundance	Percentage
Under 20	22	5.3
21-25	72	17.34
26-30	110	26.50
31-35	105	25.30
36-40	106	25.54
Type of pregnancy	Abundance	Percentage
wanted	322	77.6
Unwanted	93	22.4
Economic Situation	Abundance	Percentage

Weak	58	13.97
Medium	258	62.17
Good	99	85.23
Baby's Sex	Abundance	Percentage
Boy	200	48.19
Girl	215	51.8
Birth order	Abundance	Percentage
First	191	46
Second	124	29.9
Third	75	18.1
Fourth	20	4.8
Fifth and more.	5	1.2
Educational status	Abundance	Percentage
Primary	47	11.3
Diploma	93	22.4
Associate	45	10.8

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Bachelor	194	46.7
Master	36	8.7
Type of birth	Abundance	Percentage
Natural	227	54.7
Cesarean Section	188	45.3
Depression	Abundance	Percentage
No depressive¬	209	50.36
Depression	206	49.64

Table2. Average, standard deviation and minimum and maximum scores of research variables

Variable role	Variable	Average	Standard Deviation	Lowest	Most	Skew	Elongation
Exogenous Variable	Emotional-Information Support	23.82	7.37	8	32	-0.56	-0.86
	Tangible support	12.35	3.56	4	16	-0.59	-0.86
	Positive social interaction	9.34	2.89	3	12	-0.74	-0.70
	Kindness	9.22	2.98	3	12	-0.74	-0.75
	Social support	54.73	15.42	18	72	0.61	-0.83
	Marital satisfaction	33.55	9.84	10	50	-0.35	-0.68

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mediating Variable	Resilience	31.03	9.32	10	50	-0.22	-0.51
Endogenous Variable	Postpartum Depression	17.06	7.45	0	29	-0.49	-0.91

Simple and primary relationships between variables were investigated by calculating Pearson's correlation coefficient. Table 3 shows the correlation matrix (order zero) between research variables.

Table 3. Zero-order correlation matrix of research variables

Variables	1	2	3	4	5	6	7	8
1. Information-emotional Support	1							
2. Tangible Support	**0.76	1						
3. Positive Social Interaction	**0.75	**0.79	1					
4. Kindness	**0.76	**0.77	**0.88	1				
5. Social Support	**0.94	**0.89	**0.90	**0.90	1			
6. Marital Satisfaction	**0.69	**0.70	**0.76	**0.81	**0.79	1		
7. Resilience	**0.63	**0.63	**0.65	**0.69	**0.70	**0.74	1	
8. Postpartum Depression	** -0.62	**-0.66	** -0.61	**-0.67	**-0.69	**-0.72	**-0.72	1

0.01 **

The results indicated that the relationships of many exogenous, mediating and endogenous variables are significant. The range of correlation coefficients between all the studied variables is from 0.61 to 0.94, and the relationships between research variables are at the 0.01 level of significance. In checking the hypotheses, using SPSS-23 software and through the rectangular chart and Mahalanobis statistic, the outlier data were checked and excluded from the data set. The values of skewness and skewness of the data were not more than ±1. Data independence was checked and confirmed with Watson's statistics. Pearson's correlation between pairs of variables was used to check multiple collinearities and to check the multiple collinearities more accurately, the tolerance and variance inflation (VIF) indices were calculated, and the values of the tolerance index were not smaller than the permissible limit of 0.1 and the values of the VIF index were not greater than the permissible limit of 10. Mardia's coefficient was 2.29 out of 2.58, which indicates the normality of several variables. After checking the assumptions and ensuring their implementation, the structural equation model was used to evaluate the investigated model. Based on theoretical foundations and research background, a model was designed in which social support and marital satisfaction were considered as exogenous variables, postpartum depression as an endogenous variable, and resilience as a mediating variable. The fit indices of the final model of the research by the indices are shown in Table 4.

Table 4. Model fitting indices

Model	X^2/df	P	CFI	NFI	IFI	RFI	TLI	AGFI	RMSEA	PCLOSE
Before Correction	2.92	0.0001	0.92	0.91	0.90	0.91	0.92	0.66	0.06	0.0001
After the correction	2.01	0.0001	0.97	0.93	0.97	0.93	0.96	0.87	0.05	0.39
Acceptance criteria	3>	0.05< α	0.90≤	0.90/0≤	0.90/0≤	0.90/0≤	0.90/0≤	0.90/0≤	0.08≥	0.05<

These indicators show that the model did not have a good fit before modifying the model. After removing non-significant paths, the fit of the model became favorable.

In order to investigate the significance of the mediation role, bootstrap command was used in AMOS software. Table 5 shows the direct and indirect effects of research variables.

Table 5. Direct and indirect effects coefficients in the model using bootstrap

Path	Direct effect	P	Indirect effect	P	Total effect
Social support → Resilience → postpartum depression	-0.13	0.12	-0.08	0.04	0.21
Marital Satisfaction → Resilience → Postpartum Depression	-0.36	0.0001	-0.22	0.009	0.58
Resilience → postpartum depression	-0.35	0.0001	---	---	-0.35

Table 5 shows that social support directly (p = 0.12, β = -0.13) could not affect postpartum depression. However, indirectly (p=0.04, β=0.08) it has a significant effect on postpartum depression through resilience. Marital satisfaction both directly (β = -0.36, p = 0.0001) and through resilience (β = -0.22, p = 0.009) can affect postpartum depression. The results of the findings are shown in Figure 1.

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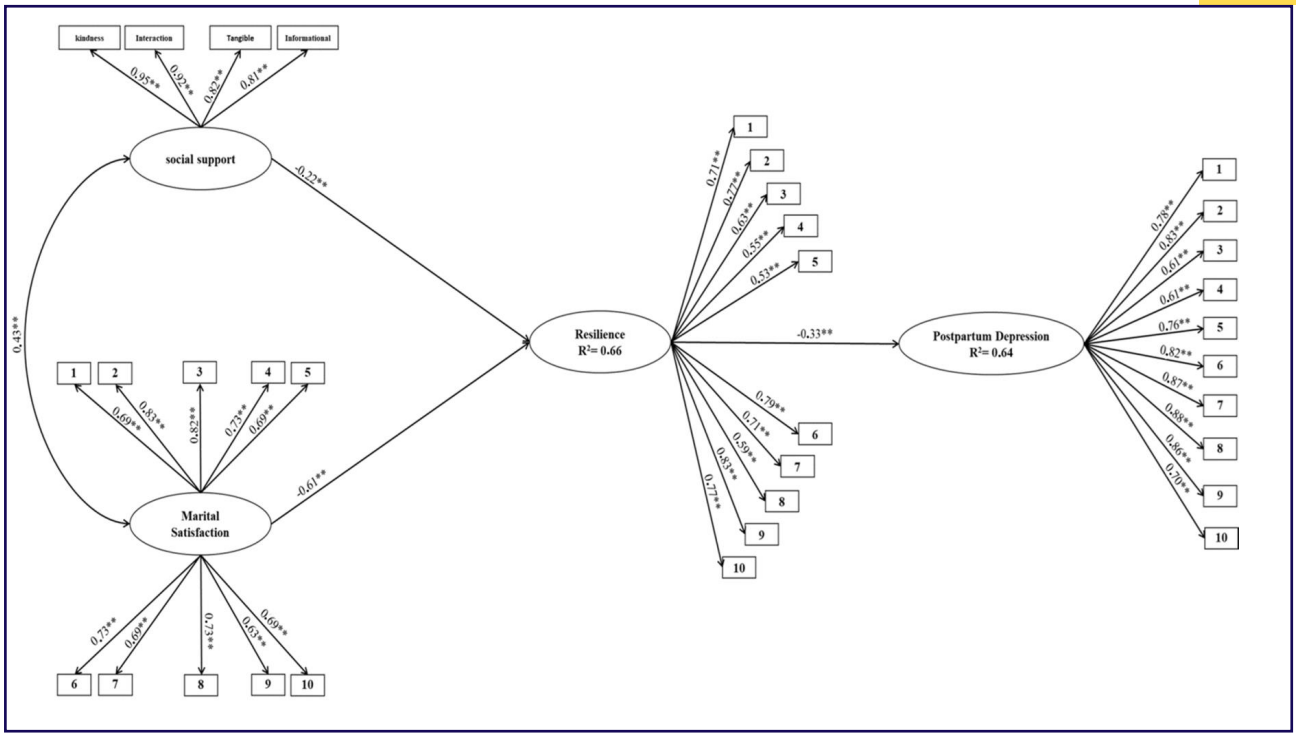

Figure 1. The final research model

As seen in Figure 1, marital satisfaction predicts 0.66 of the variance of resilience, and marital satisfaction and resilience predicts 0.64 of the variance of postpartum depression.

Discussion

The purpose of this research was to present a structural model of postpartum depression based on social support and marital satisfaction by mediation of resilience. The first finding of the current research was that social support does not directly have a significant relationship with postpartum depression and has a significant effect on postpartum depression indirectly through resilience. This means that social support does not have a direct effect on postpartum depression, and its effect is only indirect, by increasing resilience. Previous studies have shown that the lack of social support is an important risk factor for postpartum depression and there is a negative correlation between postpartum depression and the level of social support for women (5, 22-24). Some studies also indicated that low social support from mothers all over the world had a direct relationship with postpartum depression (7, 25) which was not consistent with the findings of the present study. Table 3 shows that there is a significant negative correlation between social support and postpartum depression. Social support is concrete and objective responses that a person receives from others. These answers can be the recognition of valuable activities by the individual and confirmation of the individuals' views by others (26). People with more relationships usually have more social support and higher social perceptions. The main function of social support is that the mental evaluation and expectations of support help the individual to believe that she is respected and considered and is a member of a network of mutual duties. Social support refers to the function and quality of social relationships, such as the perception of stress, helpful and supportive relationships, or the experience of social support. Therefore, it seems that if mothers do not perceive social support subjectively after childbirth,

the support is invalid and it is necessary to measure the subjective feelings of mothers after childbirth about the relationship between them and their husbands. In the present model, despite the significant correlation between social support and postpartum depression, social support does not have a direct effect on postpartum depression, and it seems that with the inclusion of the mediating variable of resilience, the relationship between social support and postpartum depression is reduced. Its radiation is not significant.

In explaining the relationship between social support and resilience with postpartum depression, it can be said that the mother's resilience, along with the social support she perceives and receives from others, affects her perception of the stress of motherhood and coping with parenting stress and it affects the mother's suffering from postpartum depression. In this regard, the findings showed that resilience is considered a protective factor and weakens the effect of ineffective performance on postpartum depression (27). According to Werner and Smith's theory, resilient people are not invincible but flexible. According to this theory, resilience is a human capacity for change that exists in all people and can be developed. On the other hand, individual characteristics and social environment influence resilience. Therefore, it can be said that creating and strengthening resilience in humans has a significant effect on their adaptation to difficult life conditions and mental health. Inactivity is one of the main characteristics of resilience. Resilience reduces passivity and empowers a person for effective activity (28). People with low resilience are not balanced in expressing their impulses. They may restrain their impulses all the time or lose their control in inappropriate situations and express impulses impulsively. On the other hand, instead of acting impulsively, a resilient mother uses effective coping strategies against problems and unpleasant events. Moreover, she can find more compatibility with the conditions and have a better performance and despite stressful events in her life, she does not get involved in psychiatric disorders such as postpartum depression.

According to Table 5, the findings indicate that the path of marital satisfaction to postpartum depression is significant both directly and indirectly. This means that marital satisfaction affects postpartum depression both directly and indirectly through resilience, which was consistent with the results of the studies of Keles (10), Razaq (11), Qi (22). In the study by Odinka, et al. (2018), there was a high prevalence of marital dissatisfaction and postpartum depression among mothers with infant children (29). The results of Jafarpour Alavi's research (2005) indicated that among stressful events, increased talkativeness with the spouse, problems with the spouse's family, separation of couples are mostly related to postpartum depression (30). These studies show that the quality of marital relationships also is one of the variables affected by postpartum depression. Marital satisfaction is not only a desire or wish, but a basic and real need and has a very broad concept that includes emotional closeness, self-disclosure, mental beliefs, physical and emotional closeness and pleasurable experiences. Considering that marital satisfaction is a key construct in the evaluation of a couple's relationship and includes aspects such as feelings of affection, trust and companionship, it is one of the effective protective factors considered against future stressful factors in life such as pregnancy, childbirth and parenting problems. For example, marital satisfaction can be achieved by the husband's affection, helpful attitude and attention during pregnancy and after childbirth. Because women pay more attention to intimate relationships than men, this issue can be supportive and positive, but it exposes them to a relatively large risk factor. Failure in such a relationship, coupled with the inability to cope with this failure, is more devastating for women than for men. Marital satisfaction has different dimensions, including sexual satisfaction, receiving support from the partner, health of the partner, communication,

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personality traits, relationships with others, participation in decision-making and communication with the husband's family, leisure time, shared religion and religious beliefs. Social support is that each of these dimensions can be effective in preventing the onset of depression symptoms. In explaining the relationship between marital satisfaction and postpartum depression through resilience, it can be said that the conflicts regarding the details of caring for the baby, the difference in lifestyle between a man and a woman, and the excessive involvement of others in this period of life, with the reason that the new mother does not have enough experience and sometimes misplaced and inappropriate interactions cause a negative mood in women after giving birth. Then, the creation of interpersonal problems and the feeling of failure in marital relations involve the mother in cognitive biases. According to the theory of Kampfer (1999), who considers one of the factors of resilience to be the dimension of cognitive abilities, it seems that these cognitive biases affect cognitive abilities that include practical skills and moral reasoning. It affects insight, interpersonal awareness, self-esteem, and creativity, and inappropriate performance, change in interpersonal insight and awareness, and a decrease in self-esteem affect mother's resilience. Decreased resilience and incompatibility with new conditions and facing stressful experiences are predictors of postpartum depression. On the other hand, high marital satisfaction, which can be caused by the positive interaction and kindness and availability of the spouse and all-round companionship in life affairs, have an impact on another factor of resilience, which is behavioral skills, and by improving social skills, problem-solving skills, empathy, emotional stability and emotional management, happiness, recognition of emotions, emotional management skills increase resilience in the mother. A resilient mother reacts in different conditions according to those specific conditions and tries to have the most logical reaction and action in any situation. Such a person will react constructively according to the environment. As a result, positive thoughts and emotions are strengthened in the person and she stays away from disappointment and ineffective reactions, and it seems that personality traits such as resilience, flexibility and stubbornness affect the person's attitude in the field of marital satisfaction and participation in solving the conflicts and challenges of this stressful period is effective, and through resilience, postpartum depression can be predicted. In other words, people who have inherent resilience or capacities to adapt, mainly have characteristics such as flexibility, empathy, problem-solving skills, self-efficacy, self-awareness, mastery of tasks, sense of purpose and belief. They have a bright and optimistic future .The coordinated results of this research also confirm the positive effects of constructive marital satisfaction and protective resilience in successful coping and developed adaptation to dangerous and stressful situations such as problems during pregnancy, stress during childbirth, and parenting stress.

Strengths and limitations

Among the strengths of the present study, we can point out the simultaneous effect of several variables on the dependent variable, which has played the role of various psycho-social factors and variables affecting postpartum depression simultaneously in a causal model. Due to the sensitive questions about marital satisfaction, especially in conservative societies where cultural constraints may prevent couples from revealing their relationship's reality, the results may be prone to social desirability bias. However, in this research, the possibility of bias was reduced by answering the research questionnaires through the internet entry link without mentioning names. The limitation of the current research was that this research was done using the available sampling method and it was done on women who have just given birth in Jahrom, due to cultural differences, the generalization of its results to other societies should be done with caution. Intervening variables

such as type of delivery, type of pregnancy (wanted or unwanted), groups at risk of abortion, and economic status were not controlled in this study.

Conclusions

The results of this study indicate the mediating role of resilience in the relationship between social support and marital satisfaction in predicting postpartum depression symptoms. According to the research conducted, we can understand the importance of the role of marital satisfaction and resilience in reducing postpartum depression symptoms. It is suggested that this research be carried out on other statistical communities about different cultural and demographic backgrounds and compared with the results of this research. In future studies, other data collection methods such as interviews should be used and the role of intervening variables such as economic status, education, age, type of delivery and unwanted pregnancy should be controlled. In future studies, groups at risk (such as mothers with a history of infertility and previous abortion and having a premature baby or low socio-economic classes, mothers with a young age or more than 40 years old) will be selected as comparison groups and be checked.

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Ethical Considerations

Participants were recruited voluntarily and completed an informed consent form. All ethical considerations were observed during the research and the information related to these people was analyzed anonymously and only with the identifier code.

Code of Ethics

This research project was approved by the Ethics Committee of Azad University of Morvdasht with ethics code 1402.022 IR.IAU.M.REC.

Conflict of Interest

The authors declare that they have no conflict of interest.

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