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The Relationship between Psychological Status and Perceived Social Support among Men during Their Wives' Pregnancy

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ABSTRACT

Background & aim: Like becoming a mother, becoming a father is a new and important role that entails several responsibilities and expectations for men. This study aimed to investigate the relationship between psychological status and perceived social support in men during their wives' pregnancy.

Methods: This cross-sectional study investigated 372 Iranian men in the third trimester of their wives' pregnancy using multistage cluster sampling from May 2014 to February 2015 in Tabriz, Iran. The self-administered questionnaires used included demographic questionnaire, Personal Resource Questionnaire (PRQ-85-part2), and short form of depression, anxiety, and stress (DASS-21). The statistical tests including Spearman correlation, Mann-Whitney, Kruskal Wallis and linear regression model were used for data through SPSS v. 21.

Results: Perceived social support was negatively correlated with anxiety (r=-0.390, P<0.001), depression (r= -0.277, P<0.001), and stress in men (r= -0.290, P<0.001). Based on the results of multiple linear regression, the father's education, mother's occupation, income, and fetus gender by ultrasound were significantly related to the anxiety of fathers. Moreover, mother's age was significantly correlated with men's depression.

Conclusion: Based on the results, social support affects the psychological status of men in the third trimester of pregnancy of their wives and the levels of anxiety, depression and stress decrease in men with increasing of social support. Healthcare providers should pay more attention to the increasing public awareness, stress management and communication skills training, and support of men during their wife's pregnancy.

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Introduction

Becoming a father is like becoming a mother, a new and important role that comes with several responsibilities and expectations for men. Fathers need health to meet these expectations and handle these new responsibilities. Transition to fatherhood can also affect the quality of marital life (1). Since fathers spend less time with their children than mothers, it is believed that men's health problems have less effect on the consequences of pregnancy and infancy (2). However, observations have shown that fathers' psychological problems can negatively affect the relationship between father and baby after childbirth (3-5). Studies have also reported that

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fathers, like mothers, may get depressed during pregnancy and after childbirth (6-7). In a meta-analysis study (2016), the prevalence of paternal depression in pregnancy and postpartum was reported to be 8% (8). Fathers' depression can affect their wives' mental health during pregnancy, indirectly affecting the fetus's development and the neonatal outcomes (9). Men's depression and anxiety during pregnancy can lead to violence against their wives (10). In some studies, the anxiety and depression of fathers increased the risk of affective and mental disorders in fathers and families as well. They also caused marital discord and negative feelings, higher levels of complaint, increased levels of distress and mood disorder, antisocial behaviors, convulsions, hyperactivity, and behavioral problems in children, especially boys, thereby, imposing major problems and more costs on society (11). Social support is the most important factor in successful and easy coping with stressful situations such as pregnancy and facilitating the toleration of problems (12).

Social support is a social resource from friends or family members during the transition to a new role that can lead to a sense of competence and satisfaction (13). Social support is also effective in creating parental self-efficiency (14). Social support can effectively influence mental and physical health and bring about more optimal pregnancy outcomes (15).

Fathers are deprived of direct medical care in connection with their wives' pregnancy and delivery, and most studies neglect fathers' mental health during their wives pregnancies. Due to the inadequate and merely primitive studies conducted on fathers' mental health and its predictive factors during pregnancy, researchers have recommended further studies on pregnancy in families from different ethnic, moral, cultural, social, and economic backgrounds (16). As such, we conducted this study to investigate the relationship between psychological status and perceived social support among men during their wives' pregnancy

Methods

This cross-sectional study was conducted on 372 men whose wives were in the third trimester of pregnancy from May 2014 to February 2015. This study was approved by the Ethics Committee of Research and Technology Deputy of Tabriz University of Medical Sciences, Tabriz, Iran under the code of 1012/55/5.

Inclusion criteria included the husbands of primiparous women, women who were in the third trimester of their pregnancies and whose pregnancies were not complicated, and those men with no history of depression. Exclusion criteria included having histories of infertility, stillbirth, drug dependence, and experiencing unpleasant incidences in the past three months leading to the outset of the study (e.g., death or serious illness of family members and close relatives).

The sample size was determined to be 186 subjects based on the research of Hashemi et al. (2013), (17) on the depression variable and using d (precision)=0.05, the standard deviation (SD= 8.01) around the mean (M=23.33), a= 0.07, and power = 80%; then, it was calculated again to be 33 subjects according to the study of Roth et al. (2004), (18). On the perceived social support variable (SD= 15.1), d=0.05 around the mean (M=152.6), a= 0.05, and power = 80%. The former sample size, which was based on the depression variable and was higher, was selected as the main sample size. Then, using the multistage cluster sampling method and considering the design effect of 2, 372 subjects were selected for this study.

At first, a list of all Tabriz health centers was prepared. 25 centers were randomly selected from all the centers . Then, in each public health center list, the pregnant women were prepared during the third trimester of pregnancy based on their medical records and inclusion and exclusion criteria. In these centers, the total number of pregnant women in the third trimester was 550. In each center, 7 to 18 persons were selected in proportion to the sample size of 372. Then, their husbands were contacted by pregnant women and invited to participate in the study.

As a short form of the DASS-42 scale, this questionnaire was developed by Lovibond and Lovibond (1995). Each subscale of DASS-21 contains 7 items of this 21-item questionnaire, and its scoring is based on a Likert scale ranging from not at all to very high. Each subscale has its

own separate score and there is no total score for the whole scale. Each subscale is scored from 0 to 21 (19). Examining the psychometrics of the questionnaire in Iran, α=0.78, α=0.77, and α=0.79 were reported in the study of Sahebi et al. (2005) for the subscales of stress, depression, and anxiety respectively (20). The data on perceived social support were collected by using a self-administered Personal Resource Questionnaire (PRQ-85), which had been previously developed by Weinert and Brandt (1987). PRQ-85 is written in positive and negative statements, where each item is scored based on a 7-point Likert scale ranging from strongly disagree to strongly agree. The range of scores is between 25 and 175, and the higher the scores, the more will be perceived support (21). The validity of the questionnaire was confirmed by Mirghafourvand et al.(2015), in Iran. The Cronbach's alpha was calculated to be a= 0.84, ICC =0.9 in this study (22). The questionnaires were completed self-administrated by men and the approximate time to complete the questionnaires was 30 min.

The participants were included in the study after providing signed and written informed consent.

The participants could freely withdraw from the study at any stage of it.

Data were analyzed using SPSS 21. We evaluated the normal distribution of data by using the Kolmogorov-Smirnov test, and depression, anxiety, and stress variables had a non-normal distribution. The demographic characteristics, perceived social support score, and the various scales of psychological status (stress, depression, and anxiety) were described using descriptive analysis, including frequency, percentage, mean and standard deviation, and median and percentile 25-75. The Spearman test, Mann-Whitney, Kruskal Wallis test, and multiple linear regression model were used for data analysis. The statistical significance was accepted as $p<0.05$.

Results

The average age of men was 30.5 years. Most of the men's spouses (82%) were housewives. More than one-third of the men (39.1%) were occupations. The education level was a diploma for 40.2% of men and 35.8% of their spouses. Nearly half of the men (42.2%) believed that their income was relatively sufficient. Most people reported pregnancy as planned (86.5%), and the gender of the fetus (84.6%) was the same as their desires. With regard to housing, half of the participants (51.9%) lived in their own personal homes (Table 1).

Table1. Socio-demographic characteristics of the study participants (n =372)

Characteristics	Number (%)
Mother's age (year)	26.1 ± 4.4
<25	194 (52.2%)
26-29	89 (23.9%)
≥30	89 (23.9%)
Father's age (year)	30.5 ± 4.5
<25	54 (14.5%)
26-30	151 (40.6%)
≥30	167 (44.9%)
Mother's education	
Elementary	27 (7.3%)
Secondary school	39 (10.5%)
High school	57 (15.4%)
Diploma	133 (35.8%)
University	115 (31.0%)
Father's education	
Elementary	12 (3.2%)
Secondary school	26 (7.0%)
High school	27 (7.3%)
Diploma	149 (40.2%)
University	157 (42.3%)
Mother's occupation	
Housewife	305 (82.0%)
Working at home or outside the home	67 (18.0%)
Father's occupation	
Unemployed	5 (1.3%)
Clerk	145 (39.1%)
Worker	129 (34.8%)
Salesperson	55 (14.8%)
Others	37 (10.0%)
Income	
Enough	148 (40.0%)
Somewhat enough	156 (42.2%)
Not enough	66 (17.8%)
Pregnancy type	
Planned	325 (86.5%)
Unplanned	48 (12.9%)
Mother's interest in fetal gender	
Yes	314 (84.6%)
No	57 (15.4%)
Father's interest in fetal gender	
Yes	328 (88.4%)
No	43 (11.6%)
Fetus gender by ultrasound	

Characteristics	Number (%)
Boy	187 (50.3%)
Girl	183 (49.2%)
Unaware	2 (0.5%)
House condition	
Rent	126 (34.1%)
Mortgage	51 (13.8%)
Personal	193 (51.9%)

The mean ± SD (standard deviation) of the perceived social support score was 132.9 ± 17.4 in the reachable range of 25-175 (Table 2).

Depression

The median (25-75 percentile) depression score of men during the pregnancy of their wives was 1.0 (0.0-3.0).

The relationship between the men's depression and their perceived social support was significantly negative (P<0.001, r=-0.277) (Table 2). Among the demographic variables, the age of mother, the education level of both father and mother, their occupation, fetal gender detected by ultrasound, and perceived social support stayed in the model and predicted 19.7% of the variance in the depression score of the men (Table 3).

Stress

The median (25-75 percentile) stress score of men during the pregnancy of their wives was 8.0 (4.0-10.0). The relationship between the men's stress and their perceived social support was significantly negative (P<0.001, r=-0.290) (Table 2).

Among the demographic variables, the education level of the father, the occupation of the father and mother, income, the fetal gender detected by ultrasound, and the perceived social support stayed in the model. They could predict 22.2% of the variance in the stress score of the men (Table 3).

Anxiety

The median (25-75 percentile) stress score of men during the pregnancy of their wives was 2.0 (1.0-3.0). The relationship between the men's anxiety and their perceived social support was significantly negative (P<0.001, r=-0.390) (Table 2).

Among the demographic variables, the occupation of the father, income, and perceived social support stayed in the model and could predict 41.9% of the variance in the anxiety score of the men (Table 3).

Table 2. The relationship between psychological status (depression, anxiety, and stress) of men with their perceived social support (n=372)

Variables	Mean ± SD	MD (P25%-P75%)	Achievable score	Scores gained	Correlation with social support r (P)*
Anxiety	2.8 ± 2.6	2.0 (1.0-3.0)	0-21	0-12	-0.390 (<0.001)
Depression	1.9 ± 2.7	1.0 (0.0-3.0)	0-21	0-16	-0.277 (<0.001)
Stress	7.4 ± 4.0	8.0 (4.0-10.0)	0-21	0-17	-0.290 (<0.001)
Social support	132.9 ± 17.4	140.0 (126.0-142.0)	25-175	85-168	-

* Spearman

Table 3. Multivariable linear regression analysis for factors associated with depression, anxiety, and stress in men in the third trimester of pregnancy (n = 372)

Variables	Depression		Anxiety		Stress	
	β (CI 95%)*	P-Value	β (CI 95%)*	P-value	β (CI 95%)*	P-Value
Mother's age (25≥)						
26-29	1.0 (0.4 to 1.7)	0.002			-	-
≥30	0.5 (-0.1 to 1.1)	0.113			-	-
Mother's education (Diploma)			-	-		
Elementary	-0.0 (-0.9 to 0.8)	0.921	-	-	-	-
Secondary school	-0.0 (-0.7 to 0.6)	0.902	-	-	-	-
High school	-0.0 (-0.4 to 0.4)	0.942	-	-	-	-
University	-0.0 (-0.3 to 0.3)	0.974	-	-	-	-

Variables	Depression		Anxiety		Stress	
	β (CI 95%)*	P-Value	β (CI 95%)*	P-value	β (CI 95%)*	P-Value
Father's education (University)			-	-	-	-
Elementary	-0.3 (-1.7 to 0.9)	0.616	1.8 (-0.0 to 3.6)	0.057	-	-
Secondary school	0.0 (-0.9 to 1.0)	0.899	-1.1 (-2.6 to 0.3)	0.126	-	-
High school	0.2 (-0.4 to 0.8)	0.500	-1.0 (-1.9 to -0.2)	0.016	-	-
Diploma	0.2 (-0.3 to 0.7)	0.353	-1.0 (-1.8 to 0.4)	0.001	-	-
Father's occupation (Clerk)		-				
Unemployed	0.1 (-1.7 to 2.0)	0.898	-0.6 (-3.4 to 2.2)	0.681	-0.9 (-2.5 to 0.5)	0.196
Worker	0.0 (-1.3 to 1.4)	0.906	0.8 (-1.1 to 2.8)	0.410	0.8 (-0.2 to 1.9)	0.121
Salesperson	-0.2 (-0.9 to 0.5)	0.561	-0.0 (-1.0 to 1.0)	0.990	0.0 (-0.4 to 0.6)	0.734
others	0.0 (-0.5 to 0.5)	0.983	0.3 (-0.4 to 1.0)	0.378	0.1 (-0.2 to 0.6)	0.311
Mother's occupation (Housewife)						
Working at home or outside the home	-0.4 (-1.1 to 0.3)	0.237	1.0 (0.0 to 2.0)	0.037	-	-
Income (Somewhat enough)						
Enough	-	-	-0.1 (-1.3 to 0.1)	0.809	-0.0 (-0.6 to 0.6)	0.954
Not enough	-	-	-1.9 (0.5 to 3.4)	0.008	0.6 (-0.2 to 1.4)	0.155
Fetus's gender by ultrasound (Boy)			-	-	-	-
Girl	0.0 (-0.6 to 0.4)	0.770	0.9 (0.1 to 1.6)	0.021	-	-
Unaware	2.1 (-1.3 to 5.6)	0.229	0.7 (-4.3 to 5.9)	0.771	-	-
Perceived social support	-0.4 (-0.08 to -0.05)	<0.001	-0.6 (-0.1 to -0.08)	<0.001	-0.4 (-0.1 to -0.07)	<0.001
	Adjusted R^2=19.7%		Adjusted R^2=41.9%		Adjusted R^2=22.2%	

Adjusted Confidence Interval 95% Bold indicates P<0.05

Discussion

This study aimed to investigate the relationship between psychological status and perceived social support among men during their wives' pregnancy. The results showed that social support affects men's mental health (depression, stress, and anxiety) during their wives' pregnancies; in other words, men with higher perceived social support showed less depression, stress, and anxiety. But, based on the interpretation of the correlation coefficient (23), the relationship between social support and anxiety is medium, and the relationship between depression and stress is weak.

Given the relationship between depression and perceived social support, our results revealed an inverse correlation between perceived social support and paternal depression during pregnancy. A study by Mangialavori et al. (2021), to examine depression, social support, and perceived stress in men and women in the postpartum period reported an inverse correlation between the social support received from the spouse and depression in both men and women after childbirth. These results are in line with the present findings (24). These results are not in line with the results obtained by Escriba-Aguir et al. (2011), in Spain on the factors affecting depression in men and women during pregnancy up to one year after childbirth because the cited study showed no correlation between paternal depression and perceived social support in men during their wives' pregnancy (25). The differences in the instruments used to measure depression and the cultural differences among the participants may be one of the reasons for this disparity in findings.

In addition, the present findings showed that men's age is associated with their rate of depression. This finding is consistent with the results obtained by Leiferman et al. (2021), on the level of anxiety and depression in men during their wives' pregnancies, as they showed that the variable of age is associated with anxiety and depression in men (26). Meanwhile, the results of Howarth et al. contradict these findings, as they reported no relationship between age and depression in men (6). The cultural differences between the participants and the time of data collection (i.e., the

postpartum period in the cited study) might explain part of this disparity in findings.

In this study, a relationship was observed between stress and perceived social support in men so men with higher social support had less stress during their wives' pregnancies. The new responsibilities, the needs of the newborn and the other children, concerns about the wife's health during her pregnancy and postpartum, and financial matters can lead to stress in men. Lodebo et al. (2020), studied the stress level of expecting men during their wives' pregnancies and reported a correlation between stress and dissatisfaction with marital life and supportive networks (27). This result is consistent with the present findings. In China, Shao et al. (2020), showed that a higher level of social support is associated with a reduction in the level of stress in men and women (28). The present findings are inconsistent with the results obtained by Aftyka et al. (2017), They reported no correlation between paternal stress and perceived social support in men during their wife's pregnancies (29). The differences in the instruments used to measure depression and the cultural differences among the participants may be one of the reasons for this disparity in findings.

This study showed a correlation between anxiety during the wives' pregnancies and social support in men, as men with high perceived social support showed less anxiety. Gao et al. (2020), examined stress and social support as predictors of anxiety and depression in both men and women and reported a correlation between social support and anxiety (30). While this result is in line with our results, it is inconsistent with the results obtained by Hughes et al. (2020), who reported no correlation between paternal anxiety and perceived social support in men during their wife's pregnancy (31).

The present research also showed that variables including fetus gender by ultrasound, the father's education, the wife's occupation, and the monthly income correlate with men's anxiety during their wives' pregnancies. Men with an insufficient monthly income, compared to those with a sufficient income, and men with a high school diploma or less, compared to those with a university education, had higher anxiety levels. Differences in people's economic status mean they have different levels of access to sources of social support. Moreover, economic problems can create stress and anxiety about living expenses. Also, men with employed wives and female fetuses, as per the ultrasound results, tend to have a higher level of anxiety. A study by Umuziga et al. (2021), on the predictors of anxiety and stress in the second and third trimesters of pregnancy in Rwanda showed that the variables of the man's occupation, economic status, and gender preference have a statistically significant correlation with the amount of anxiety during pregnancy (32). These results are in line with the present findings. A systematic study on fathers' anxiety during pregnancy showed that variables of the man's education, income, and social support correlate with anxiety during pregnancy (26). These results are also in line with the present findings.

Due to the lack of definite access to men, pregnant women covered by health centers were used to collect samples, which was a possible reason for non-participation. In addition, the evaluation of perceived social support is a subjective one in this study, as it might depend on the men's ever-changing perceptions, moods, and attitudes. Also, another limitation of this study related to the use of self-reported instruments to assess depression, stress, and anxiety. Therefore, it is recommended that future researchers conduct more longitudinal studies to ensure the temporal order of events and address the issue of reverse causation. Finally, it is suggested that future researchers explore the effect of social support on the prevention of mental health problems in men during the pregnancy of their wives by conducting interventional studies.

Conclusion

According to the results of our study, social support can positively influence men's psychological status during the third trimester of their wives' pregnancies, and lower their anxiety, depression, and stress by increasing their level of social support. These findings suggest that mental health counseling, support, and assessment are required for men, too,

during their wives' pregnancies. Designing and activating support networks for men during their wives' pregnancies by health care providers, and more especially by family members, might be effective. Healthcare professionals and policymakers have to pay attention to the feelings and concerns of fathers and provide couples with family-centered care during the antenatal and intrapartum periods.

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Conflicts of interest

The authors declared no conflicts of interest.

References

1. Torche F, Rauf T. The transition to fatherhood and the health of men. Journal of Marriage and Family. 2021;83(2):446-65.
2. Bruno A, Celebre L, Mento C, Rizzo A, Silvestri MC, De Stefano R, et al. When fathers begin to falter: a comprehensive review on paternal perinatal depression. International Journal of Environmental Research and Public Health. 2020; 17(4): 1139.
3. Trombetta T, Giordano M, Santoniccolo F, Vismara L, Della Vedova AM, Rollè L. Pre-natal Attachment and Parent-To-Infant Attachment: A Systematic Review. Frontiers in Psychology. 2021; 17(12): 620942.
4. Shourab NJ, Irani M, Mirzaei K, Sadeghi T, Mazloum SR, Jamali J. Comparing Prenatal and Postnatal Social Support of Women with Wanted and Unwanted Pregnancies Referring to the Health Centers of Mashhad, Iran. Journal of Midwifery and Reproductive Health. 2022;10(1):1-7.
5. Faleschini S, Aubuchon O, Champeau L, Matte-Gagné C. History of perinatal loss: A study of psychological outcomes in mothers and fathers after subsequent healthy birth. Journal of Affective Disorders. 2021; 1(280): 338-344.
6. Howarth AM, Swain NR. Predictors of postpartum depression in first-time fathers. Australasian Psychiatry. 2020; 28(5): 552-554.
7. Madsen KB, Mægbæk ML, Thomsen NS, Liu X, Eberhard-Gran M, Skalkidou A, et al. Pregnancy and postpartum psychiatric episodes in fathers: A population-based study on treatment incidence and prevalence. Journal of Affective Disorders. 2022; 1(296): 130-135.
8. Abdollahpour S, Keramat A. The impact of perceived social support from family and empowerment on maternal wellbeing in the postpartum period. Journal of Midwifery and Reproductive Health. 2016;4(4):779-87.
9. Duan Z, Wang Y, Jiang P, Wilson A, Guo Y, Lv Y, et al. Postpartum depression in mothers and fathers: a structural equation model. BMC Pregnancy and Childbirth. 2020; 20(1): 1-6.
10. Celebi E, Pirincci E, Durmus AB. Partner violence during pregnancy and its affecting factors a province in eastern Turkey. Nigerian Journal of Clinical Practice. 2020; 23(12): 1673.
11. Chavis AT. Paternal perinatal depression in modern-day fatherhood. Pediatrics in Review. 2022; 43(10): 539-548.
12. Atif N, Rahman A, Huma Z-e, Hamdani SU. Preparing for parenthood: developing a life-skills and socioemotional health program for young married couples in rural Pakistan. Global Health Action. 2021; 14(1): 1982485.
13. Jolly P, Kong DT, Kim KY. Social support at work: An integrative review. Journal of Organizational Behavior. 2020; 42(2): 229-251.
14. Salwani A, Cahyawulan W. The Relationship between Family Social Support and Self-Efficacy in Career Decision-Making of Final Year University Students. Jurnal Bimbingan Konseling Islam. 2022; 5(1): 25-36.
15. Racine N, Madigan S, Plamondon A, Hetherington E, McDonald S, Tough S. Maternal adverse childhood experiences and antepartum risks: the moderating role of social support. Archives of Women's Mental Health. 2018; 21(6): 663-670.
16. Swami V, Barron D, Smith L, Furnham A. Mental health literacy of maternal and paternal postnatal (postpartum) depression in British adults. Journal of Mental Health. 2020; 29(2): 217-224.
17. Hashemi H, Jabari Z, Haghayegh S. Survey on Effectiveness of Cognitive Behavioral Stress Management on the Stress, Anxiety, and Depression of Pregnant Women. Journal of Research in Health System. 2013; 8(7): 1341-1347.
18. Roth CA. Asurvey of perceived social support among pregnant women in the intermountain region. Presented for the PhD, Montana. Montana State University Bozeman, 2004.
19. Lovibond SH, Lovibond PF. Manual for the depression anxiety stress scales. 2 ed. Sydney: The psychology foundation of Australia Inc; 1995. 42 p.
20. Sahebi A, Asghari MJ, Salari RS. Validation of depression, anxiety and stress (DASS-21) scales for the Iranian population. Journal of Developmental Psychology Iranian Psychologists. 2005; 4(1): 299-313.

21. Weinert C, Brandt P. Measuring social support with the PRQ. Western Journal of Nursing Mohammadi E, Charandabi SM, Majdzadeh R. A population-based study of health-promoting behaviors and their predictors in Iranian women of reproductive age. Health Promotion International. 2015; 30(3): 586-594.
23. Schober P, Boer C, Schwarte LA. Correlation coefficients: appropriate use and interpretation. Anesthesia & Analgesia. 2018; 126(5): 1763-1768.
24. Mangialavori S, Cacioppo M, Terrone G, O'Hara MW. A dyadic approach to stress and prenatal depression in first-time parents: The mediating role of marital satisfaction. Stress and Health. 2021; 37(4): 755-765.
25. Escriba-Aguir V, Artazcoz L. Gender differences in postpartum depression: a longitudinal cohort study. Journal of Epidemiology and Community Health. 2011; 65(4): 320-326.
26. Leiferman JA, Farewell CV, Jewell J, Lacy R, Walls J, Harnke B, et al. Anxiety among fathers during the prenatal and postpartum period: a meta-analysis. Journal of Psychosomatic Obstetrics & Gynecology. 2021; 42(2): 152-161.
27. Lodebo M, Birhanu D, Abdu S, Yohannes T. Magnitude of antenatal depression and associated factors among pregnant women in West Badewacho Woreda, Hadiyya Zone, South Ethiopia: community based cross sectional study. Depression Research and Treatment. 2020; Research. 1987;36(5): 589-602.
22. Mirghafourvand M, Baheiraei A, Nedjat S, 2020(1q q): 11.
28. Shao R, He P, Ling B, Tan L, Xu L, Hou Y, et al. Prevalence of depression and anxiety and correlations between depression, anxiety, family functioning, social support and coping styles among Chinese medical students. BMC Psychology. 2020; 8(1): 1-19.
29. Aftyka A, Rybojad B, Rosa W, Wróbel A, Karakuła-Juchnowicz H. Risk factors for the development of post-traumatic stress disorder and coping strategies in mothers and fathers following infant hospitalisation in the neonatal intensive care unit. Journal of Clinical Nursing. 2017; 26(23-24): 4436-4445.
30. Gao L, Qu J, Wang AY. Anxiety, depression and social support in pregnant women with a history of recurrent miscarriage: a cross-sectional study. Journal of Reproductive and Infant Psychology. 2020; 38(5): 497-508.
31. Hughes C, Devine RT, Foley S, Ribner AD, Mesman J, Blair C. Couples becoming parents: Trajectories for psychological distress and buffering effects of social support. Journal of Affective Disorders. 2020; 15(265): 372-380.
32. Umuziga MP, Adejumo O, Hynie M. A cross-sectional study of the prevalence and factors associated with symptoms of perinatal depression and anxiety in Rwanda. BMC Pregnancy and Childbirth. 2020; 20(1): 1-10.