



Original article

The relationship between personality traits and labor pain intensity and type of delivery among multiparous and nulliparous women

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A B S T R A C T

Aim: The Personality traits of pregnant women and their husbands is related to their attitudes towards labor and the type of delivery. Therefore, the present study aimed to investigate the relationship between Personality traits and labor characteristics (pain intensity, and type of delivery) among multiparous and nulliparous women.

Materials and methods: This cross-sectional study was conducted on 210 multiparous and nulliparous women, selected via convenience sampling, who were 37–42 weeks pregnant and have referred to Shiraz hospitals for delivery. Data collection tools were a personal and midwifery information questionnaire, Goldberg's big-five personality scale, and Visual Analogue Scale (VAS) of pain that were completed through interviews. Data were analyzed by SPSS software using descriptive tests to describe the data and Pearson correlation test to analyze them.

Results: Most women (190, 90.5%) had normal delivery and (129, 61.4%) experienced the highest pain level (VAS = 10). There was no significant relationship between Personality traits and pain intensity variable. There was a significant positive relationship between extraversion and type of delivery ($p = 0.036$). Other Personality traits had no significant relationship with the type of delivery.

Conclusion: Personality traits have not been studied in terms of pregnancy and birth outcomes compared to other health outcomes. Such research can help professionals and physicians design and target programs that best fit the demographic characteristics they may need, such as those with high extroversion.

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La relación entre los rasgos de personalidad y la intensidad del dolor de parto y el tipo de parto en mujeres múltiples y nulíparas

R E S U M E N

Objetivo: Los rasgos de personalidad de las mujeres embarazadas y sus maridos está relacionado con sus actitudes hacia el trabajo de parto y el tipo de parto. Por lo tanto, el presente estudio tuvo como objetivo investigar la relación entre los rasgos de personalidad y las características del parto (intensidad del dolor y tipo de parto) entre mujeres múltiples y nulíparas.

Materiales y Métodos: Este estudio transversal se realizó en 210 mujeres múltiples y nulíparas, seleccionadas mediante muestreo por conveniencia, que tenían entre 37 y 42 semanas de embarazo y fueron referidas a hospitales de Shiraz para el parto. Las herramientas de recopilación de datos fueron un cuestionario de información personal y de partería, la escala de personalidad de los cinco grandes de Goldberg y la escala analógica visual (VAS) de dolor que se completaron a través de entrevistas. Los datos fueron analizados por el software SPSS utilizando pruebas descriptivas para describir los datos y la prueba de correlación de Pearson para analizarlos.

Resultados: La mayoría de las mujeres (190, 90,5%) tuvieron parto normal y (129, 61,4%) experimentaron el mayor nivel de dolor (EVA = 10). No hubo relación significativa entre los rasgos de personalidad y la variable intensidad del dolor. Hubo una relación positiva significativa entre la extraversión y el tipo de parto ($p = 0,036$). Otros rasgos de personalidad no tuvieron relación significativa con el tipo de parto.

Palabras clave:

Rasgos de personalidad

Intensidad del dolor

Tipo de parto

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Conclusión: Los rasgos de personalidad no se han estudiado en términos de resultados del embarazo y el parto en comparación con otros resultados de salud. Dicha investigación puede ayudar a los profesionales y médicos a diseñar y orientar los programas que mejor se adapten a las características demográficas que puedan necesitar, como aquellos con una gran extroversión.

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Introduction

Internationally, women's health during pregnancy and childbirth is recognized as the cornerstone of population health¹. Pregnant women are one of the vulnerable groups in society whose mental health guarantees the health of families, children, and society². According to the WHO, the mental health problems of pregnant women are considered as a major public health challenge worldwide^{3–6}. Childbirth is also a very important experience as the termination of pregnancy. The results of previous studies show that fear of labor pain is one of the main reasons for women to choose cesarean section⁷. Cunningham et al. (2010) reported the reasons given by mothers for requesting cesarean delivery as preventing pelvic floor injury during normal delivery, reduce the risk of fetal injury, avoid labor pain, doubts about delivery, and personal well-being⁸. Also, Fisher (2006) divided the fear of delivery into two dimensions of social and personality. He categorized fear of the unknown like hearing horrible stories about delivery and concerns about neonatal health as social fear, and fear of pain like fear of lack of control during childbirth and disability as personality fear⁹.

Psychological and personality traits are effective in human decisions and researchers are trying to study the role of personality in people's choices, type of delivery being one of them. For instance, Corno et al. (2018) found that positive psychotic interventions led to adequate psychological support, increased mental health, and reduced depressive symptoms in pregnant women¹⁰. Also, Mosllanejad et al. (2013) found that logotherapy and spirituality can reduce the psychological symptoms and concerns of infertile women and help infertile couples during infertility treatments to overcome the problems and concerns caused by despair about effectiveness of the treatment¹¹. Noorbala et al. (2019) found that psychiatric interventions can increase the mental health of pregnant women¹².

In an attempt to investigate the role of personality in the variability of pain perception, several studies have used the Five-Factor Model (FFM) of personality. According to this theory, the types of behaviors and a set of traits can be attributed and generalized into 5 broad areas of personality, including neuroticism (having negative emotions such as fear, sadness, arousal, anger, guilt, feelings of constant and pervasive clumsiness); extraversion (being social, loving others, wanting to attend parties and gatherings, being assertive, active and talkative); openness to experience (active perceptions, sensitivity to beauty, attention to inner emotional experiences and independent judgment); agreeableness (altruism, empathy and eagerness to help others); and conscientiousness (impulse control, having a plan in behavior)^{13,14}.

Having a positive delivery experience is associated with predicting a range of important outcomes including mother-infant bonding, fertility rate, and delivery interventions. Conrad et al. (2018) showed that four of the big five personality traits are related to four different aspects of delivery and labor experience¹⁵. Studies suggest that the Personality traits of extraversion, openness to experience, conscientiousness, and emotional stability are more associated with multiparous women¹⁶. Unwanted pregnancy is associated with more neuroticism and less agreeableness and conscientiousness¹⁷. Neuroticism is associated with more physical symptoms in pregnancy, while agreeableness is associated with fewer symptoms¹⁸. In a study by Chatzi et al. (2012), neuroticism was associated with fetal growth retardation and smaller head circumference, and extraversion was not associated with birth

outcomes¹⁹. In a study by Ryding et al. (2007) entitled "Personality and Fear of Childbirth", which aimed to investigate the relationship between fixed personality traits and fear of childbirth during pregnancy, women who had a strong fear of childbirth differed in personality from other people²⁰. Although the presence of interpersonal differences is widely recognized, studies have found conflicting evidence about the contribution of personality traits and cognitive-emotional factors to these changes^{11,21,22}. Since the relationship between personality and aspects of pregnancy and childbirth is being studied, future research in this area may provide a new way for physicians, midwives, and doulas to provide support and intervention for women during labor based on individual personality trait differences to help more women have positive childbirth experiences¹⁵. At present in Iran, routine pregnancy care for pregnant women relies heavily on physical health care; and mental health care, especially mental health prevention programs, has been almost neglected by families and care centers. Therefore, this study aimed to evaluate the relationship between Personality traits and labor characteristics (pain intensity and type of delivery) among multiparous and nulliparous women.

Materials and Methods

Study design and setting

This study was one of cross-sectional epidemiological studies investigating the relationship between personality type and resilience in pregnant women. The research setting was the delivery ward of hospitals affiliated to Shiraz University of Medical Sciences (Hazrat Zeinab Hospital, Hafez Hospital and Shoushtari Hospital). The reason for choosing this setting was easy access to the research units and the availability of conditions to achieve the research objectives. The study population included all eligible pregnant women referred to the maternity wards of hospitals affiliated to Shiraz University of Medical Sciences. The inclusion criteria were 32–37 weeks of gestation, absence of high-risk pregnancies (hypertension during pregnancy, preeclampsia, eclampsia, hemorrhage, premature uterine contractions, fetal abnormalities, intra-uterine growth restriction, placental abruption, placenta previa), mothers with first to third pregnancy, no maternal or fetal internal disease or surgery (underlying diseases including diabetes, cardiovascular diseases, hypertension, epilepsy, migraine, thyroid disease, connective tissue disease, asthma, kidney disease, anemia), absence of current or previous mental illness, no use of psychotropic drugs, no occurrence of stressful life crises in the past six months (death of relatives, severe illness of family members, financial problems, car accident, dismissal or unemployment of husband, family disputes), being in the active phase of labor (at least 4 cm dilatation), planned pregnancy, no history of abortion and infertility, and not using assisted reproductive techniques. The exclusion criteria were occurrence of a crisis or stressful event during the study, unwillingness to continue the study, emergency cesarean delivery, and hard labor.

Study participants and sampling

According to the study objectives, a total number of 175 people was estimated as the sample size considering $r=0.27$, $\alpha=0.05$, and $\beta=0.05$ (95% power = $1-\beta$) using Med-Calc software, which was

increased to 210 people, taking into account 20% probability of sample loss.

$$c_r = \frac{1}{2} \ln \frac{1+r}{1-r}, \quad n = \frac{(Z_{1-\frac{\alpha}{2}} + Z_{1-\beta})^2}{d^2} + 3$$

This number was obtained based on the approximate statistics of mothers who gave birth in each hospital by random sampling method.

Data collection tool and technique

Data collection tools were A 21-item researcher-made demographic questionnaire and the Goldberg's 50-Item Big-Five personality scale, which is used to assess and evaluate 5 Personality traits in individuals. The questionnaire was scored based on a Likert scale with the options of mostly false = 1, somewhat false = 2, neither true nor false = 3, somewhat true = 4 and mostly true = 5. The 5 personality components of openness, conscientiousness, extraversion, agreeableness, and neuroticism are each assessed with 10 items in the questionnaire. In this way, a higher score in each component indicates the dominance of that personality in the individual. Some items are scored in reverse. Sharifzadeh has reported a favorable validity for the personality questionnaire. Qorbani reported the reliability of the questionnaire with Cronbach's alpha above 90%^{23,24}. The validity in Sharifzadeh's study and the reliability in Qorbani's study were the basis of the present study. The Visual Analogue Scale (VAS) of pain was another data collection tool. It is scored from zero (no pain) to ten (severe pain). Patients may mark a box depending on the severity of their pain.

Data analysis

The data were analyzed using SPSS version 23 statistical software and using descriptive and inferential statistics at a significance level of 0.5. For descriptive statistics, the number, percentage, mean and standard deviation are used. Pearson's correlation and Spearman's correlation tests were used for inferential statistics

Ethical consideration

This research project was approved by the local Ethics Committee of Shiraz University of Medical Sciences (research proposal no:1396-01-08-15341, ethic number; IR.SUMS.REC. 1396.S663). Besides, informed consent was taken from participants. The participants were assured of the confidentiality of all their personal information. Then, carried out after obtaining permission from the officials of the Research Deputy, approval of the Ethics Committee, coordination with the Treatment Deputy, obtaining a letter of introduction from the Security Department, presenting it to the educational/treatment centers, and making coordination for the time to distribute the questionnaires. After referring to the educational-medical centers and checking the inclusion and exclusion criteria, studying the files, and explaining the objectives of the study, the researcher asked pregnant mothers to complete informed consent to participate in the study and complete the questionnaire while they are in the delivery ward. Subjects were also assured that the data obtained from the questionnaires would not be reported as individual results, but as a general report, and that they did not need to write their names on the questionnaires. Scoring was performed after collecting the questionnaires.

Results

A total of 210 subjects completed the questionnaires, with the highest frequency of age distribution belonging to the age group of

Table 1

Frequency distribution of type of delivery in the research population.

Classification	Frequency	Frequency percentage
Normal	190	90.5
Cesarean section	20	9.5
Total	210	100

26-30 years (31.4%). Most subjects had a high school diploma (38.6%), were housewives (93.8%) and were in the middle class (63.8%) in terms of economic level. The results showed that 190 subjects (90.5%) had a normal delivery and 20 (9.5%) had a cesarean section (Table 1). indicates the frequency distribution of pain intensity during labor. Among the subjects, 129 (61.4%) have experienced the highest amount of pain with intensity 10, and 1 patient (0.5%) had pain with intensity 4. Also, the mean pain intensity was 9.14 with a standard deviation of 1.45 (Table 2). According to Pearson correlation test, there was no significant relationship between Personality traits and pain intensity variables (Table 3). The Spearman correlation test showed a significant positive relationship between the two variables of extraversion and the type of delivery. The correlation between extraversion and type of delivery was 0.145 at a significance level of 0.036. Other Personality traits had no significant relationship with the type of delivery (Table 4).

Discussion

Pregnancy is a period with physical, psychological, hormonal and social changes in woman's life, when they are at a higher risk of emotional suffering and mental illness²⁵. This study aimed to determine the relationship between Personality traits and labor characteristics in pregnant women that referred to hospitals in Shiraz. The analyses indicated no significant relationship between Personality traits and labor pain intensity. Also, women who were less emotionally stable, less agreeable, and less extroverted experienced higher fears of childbirth, which is consistent with previous research²⁶⁻²⁸. People with less emotional stability are more prone to anxiety²⁹, which may explain higher sensitivity to the fear of childbirth²⁶⁻²⁸. In addition, less agreeable and less extravert women may have fewer social supportive relationships and as a result receive lower levels of social support to cope with childbirth fears^{30,31}.

The present study found a positive relationship between the two variables of extraversion and the type of delivery, and the higher was the extraversion score, the higher was the rate of normal delivery. This is consistent with a study by Grouper et al. (2021) in which high scores of extraversion were the characteristic of high sensitivity in groups that have experienced more pain¹³. The findings on higher extraversion scores among the natural childbirth group are not surprising because extraversion is characterized with a focus on foreign objects, a tendency to be talkative and an extrovert, and high emotions expression. In addition, extroverts are characterized by greater attraction to positive stimuli. Conrad & Stricker (2017) stated that mothers who scored low on extraversion and emotional stability were more likely to have negative experiences, including increased cesarean section rates and childbirth complications¹⁵. Jokla (2014) reported

Table 2

Frequency distribution of pain intensity during labor in the research population.

Pain intensity	Frequency	Frequency percentage	Mean	Standard deviation
4	1	0.5	9.14	1.45
5	6	2.9		
6	7	3.3		
7	10	4.8		
8	24	11.4		
9	33	15.7		
10	129	61.4		
Total	210	100		

Table 3
Correlation values of Personality traits with pain intensity.

Personality type	Variable	Correlation coefficient	Number	Significance level
Extraversion	Pain intensity	0.072	210	0.301
Agreeableness		0.002		0.981
Conscientiousness		0.046		0.503
Neuroticism		0.045		0.515
Openness to experience		0.073		0.295

extraversion to be associated with a lower risk of some mental health issues and brain death³².

In the present study, the mean pain intensity score of more than half of the subjects was the highest pain level, which is high compared to standard scores in other human studies³³. This may be justified by the nature of the natural childbirth group in the present study where most women experienced natural childbirth.

Bhat et al. (2015) stated that religious coping methods appear to help to better understand the stressful process that pregnant women experience. They added that positive forms of religious coping techniques such as having a good feeling in pregnant women, generally have positive outcomes, and negative forms of religious coping methods, such as feeling of guilt and abandonment, often lead to negative outcomes³⁴. In a review study by Guardino & Schetter (2014), avoidant coping behaviors of pregnant women and generally poor coping skills were associated with low mental well-being, distress, depressed mood, anxiety, and high levels of stress during pregnancy³⁵.

Lack of identical research in the process of examining the relationships between some research variables and consequently the limitation in comparing research findings with other studies was a limitation of this study. As a result, further research using a prospective design to measure prenatal Personality traits is urgently needed to confirm our findings and to support prediction of future experiences based on personality type. The current results are the first step towards providing a better insight into how psychosocial factors play a role in fostering a positive or negative birth experience. Previous research has shown that high levels of stress, anxiety and fear, both before and during labor, increase the risk of fetal distress and the need for medical intervention, which predicts a more negative experience for women, which in turn affects vital health decisions such as delays in future pregnancies and asking for cesarean delivery. Therefore, women should work to reduce stress and fear and increase their sense of capacity and control for both their mental experience and the health of the fetus¹⁵. These results are especially important for physicians, nurses, partners, doulas, and midwives who have a role in supporting maternal decisions and experiences during labor and delivery. For instance, doulas shall communicate with mothers before birth and help them create and implement a labor plan. Understanding how a woman's personality relates to her outcomes can help build support in specific areas to increase the likelihood of experiencing a positive delivery. Further research with a prospective design to activate predictions may lead to the development of specific interventions that can help provide support and information in areas where women may have negative experiences. Further research, along with a more empathetic understanding of the need for appropriate

Table 4
Correlation values of Personality traits with types of delivery.

Personality type	Variable	Correlation coefficient	Number	Significance level
Extraversion	Type of delivery	0.145	210	0.036
Agreeableness		0.029		0.675
Conscientiousness		0.045		0.514
Neuroticism		0.052		0.453
Openness to experience		0.127		0.067

help, can aid midwives, doulas, physicians, and others shape maternal experience to become more positive in the future. The relationship between psychological factors and delivery experiences have been less studied. Despite the limitations of the predictive conclusions, this exploratory study suggests that there may be a relationship between personality and birth experiences, necessitating further research using a prospective design. To promote the mental health of pregnant women, it is suggested that health care providers, according to the results of the present study, place more emphasis on strong psychological structures such as mental empowerment of pregnant women, mindfulness and mental resilience in promoting the health of this vulnerable and important group in society, which has been somewhat neglected. Further research is recommended to examine the cause-and-effect relationship of these variables in the form of experimental designs. Since this study was performed on healthy pregnant women, it is recommended that future studies examine pregnant women with pregnancy complications or certain diseases or infertile women.

Conclusion

The results of this research showed that there is a relationship between personality types and the type of childbirth, and women who had less emotional stability, less agreeableness, and less extroversion experienced a higher fear of childbirth. Since every human being is a being with unique characteristics, therefore, identifying the individual differences of pregnant women and mothers using valid tools will help more effectively in how to interact with them during childbirth and after, and it has been shown. Personality is a strong predictor of many health outcomes. So, based on the personality characteristics of women and their individual differences, it is suggested to provide more support and interventions in the course of childbirth to help more women have positive childbirth experiences. Besides, Personality traits have not been studied in terms of pregnancy and birth outcomes compared to other health outcomes. Such research can help professionals and physicians design and target programs that best fit the demographic characteristics they may need, such as those with high extroversion.

Conflict of interest

There are no conflict interest between authors.

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References

1. Nieuwenhuijze M, Leahy-Warren P. Women's empowerment in pregnancy and childbirth: A concept analysis. *Midwifery*. 2019;78:1–7.
2. Goudarzi M, Gholamrezaei S, Amraei K. Developing a causal model of psychological empowering of pregnant women: the role of psychological distress and mediation of resilience, Mindfulness and Meta-emotion. *Iranian J Psychiatric Nurs*. 2021;9(1): 103–24.
3. Lucena L, Frange C, Pinto AC, Andersen ML, Tufik S, Hachul H. Mindfulness. Mindfulness interventions during pregnancy: A narrative review. *J Integr Med*. 2020;18(6):470–7.
4. Zhang H, Zhang Q, Gao T, et al. Relations between stress and quality of life among women in late pregnancy: the parallel mediating role of depressive symptoms and sleep quality. *Psychiatry Investig*. 2019;16(5):363–9.
5. Chinchilla-Ochoa D, Barriguete-Chavez Peon P, Farfan-Labonne BE, et al. Depressive symptoms in pregnant women with high trait and state anxiety during pregnancy and postpartum. *Int J Women's Health*. 2019;11:257–65.
6. Ma X, Wang Y, Hu H, et al. The impact of resilience on prenatal anxiety and depression among pregnant women in Shanghai. *J Affect Disord*. 2019;250:57–64.

7. Khodabakhshi Koolae A, Heidari S, Khoshkonesh A, et al. Relationship between spiritual intelligence and resilience to stress in preference of delivery method in pregnant women. *Iranian J Obstetr Gynecol Infertil*. 2013;16(58):8–15.
8. Sanavi FS, Rakhshani F, Ansari-Moghaddam A, et al. Reasons for elective cesarean section amongst pregnant women. A qualitative study. *J Reprod Infertil*. 2012;13(4):237–40.
9. Fisher C, Hauck Y, Fenwick J. How social context impacts on women's fears of child-birth: a Western Australian example. *Soc Sci Med*. 2006;63(1):64–75.
10. Corno G, Etchemendy E, Espinoza M, et al. Effect of a web-based positive psychology intervention on prenatal well-being: A case series study. *Women Birth*. 2018;31(1):e1–8.
11. Mosalanejad L, Khodabakhshi Koolae A. Looking at infertility treatment through the lens of the meaning of life: the effect of group logotherapy on psychological distress in infertile women. *Int J Fertil Steril*. 2013;6(4):224–31.
12. Noorbala AA, Afzali HM, Abedinia N, et al. Investigation of the effectiveness of psychiatric interventions on the mental health of pregnant women in Kashan City - Iran: a clinical trial study. *Asian J Psychiatr*. 2019;46:79–86.
13. Grouper H, Eisenberg E, Pud D. More insight on the role of personality traits and sensitivity to experimental pain. *J Pain Res*. 2021;14:1837–44.
14. McCrae RR, Costa PT, Busch CM. Evaluating comprehensiveness in personality systems: the California Q-Set and the five-factor model. *J Pers*. 1986;54(2):430–46.
15. Conrad M, Stricker S. Personality and labor: a retrospective study of the relationship between personality traits and birthing experiences. *J Reprod Infant Psychol*. 2018;36(1):67–80.
16. Jokela M, Alvergne A, Pollet TV, et al. Reproductive behavior and personality traits of the Five Factor Model 2011;25(6):487–500.
17. Berg V, Rotkirch A, Väisänen H, et al. Personality is differentially associated with planned and non-planned pregnancies 2013;47(4):296–305.
18. Puente CP, Monge FJC, Abellán IC, et al. Effects of personality on psychiatric and somatic symptoms in pregnant women. *Psychol Women Q*. 2011;35(2):293–302.
19. Chatzi L, Koutra K, Vassilaki M, et al. Maternal personality traits and risk of preterm birth and fetal growth restriction 2013;28(4):213–8.
20. Ryding EL, Wirfelt E, Wangborg IB, et al. Personality and fear of childbirth. *Acta Obstet Gynecol Scand*. 2007;86(7):814–20.
21. Hansen MS, Horjaes-Araujo E, Dahl JB. Associations between psychological variables and pain in experimental pain models. A systematic review. *Acta Anaesthesiol Scand*. 2015;59(9):1094–102.
22. Naylor B, Boag S, Gustin SM. New evidence for a pain personality? A critical review of the last 120 years of pain and personality. *Scand J Pain*. 2017;17:58–67.
23. Ghorbani N, Ghramaleki AF, Watson PJ. Philosophy, self-knowledge, and personality in Iranian teachers and students of philosophy. *Aust J Psychol*. 2005;139(1):81–95.
24. Ghorbani N, Watson PJ. Two facets of self-knowledge, the five-factor model, and promotions among Iranian managers. *Soc Behav Personal Int J*. 2004;32(8):769–76.
25. Dehestani H, Tayebi N, Moshfeghy Z, et al. The role of spiritual health experience with intensity and duration of labor pain while childbearing and postpartum. *Curr Women's Health Rev*. 2022;18(2).
26. Handelzalts JE, Becker G, Ahren MP, et al. Personality, fear of childbirth and birth outcomes in nulliparous women. *Arch Gynecol Obstet*. 2015;291(5):1055–62.
27. Gonenc IM, Aker MN, Guven H, et al. The effect of the personality traits of pregnant women on the fear of childbirth. *Perspect Psychiatr Care*. 2020;56(2):347–54.
28. Asselmann E, Garthus-Niegel S, Martini J. Personality impacts fear of childbirth and subjective birth experiences: a prospective-longitudinal study. *PLoS One*. 2021;16(11), e0258696.
29. Anglim J, Horwood S, Smillie LD, et al. Predicting psychological and subjective well-being from personality: a meta-analysis. *Psychol Bull*. 2020;146(4):279–323.
30. Asselmann E, Kunas SL, Wittchen HU, et al. Maternal personality, social support, and changes in depressive, anxiety, and stress symptoms during pregnancy and after delivery: a prospective-longitudinal study. *PLoS One*. 2020;15(8), e0237609.
31. Ayers S, Bond R, Bertullies S, et al. The aetiology of post-traumatic stress following childbirth: a meta-analysis and theoretical framework. *Psychol Med*. 2016;46(6):1121–34.
32. Jokela M, Pulkki-Raback L, Elovainio M, et al. Personality traits as risk factors for stroke and coronary heart disease mortality: pooled analysis of three cohort studies. *J Behav Med*. 2014;37(5):881–9.
33. Wheeler CHB, Williams ACC, Morley SJ. Meta-analysis of the psychometric properties of the Pain Catastrophizing Scale and associations with participant characteristics. *Pain*. 2019;160(9):1946–53.
34. Bhat NA, Hassan R, Shafiq M. Religious coping and adjustment among pregnant women. *Annals of Biol Res*. 2015;6(6):39–47.
35. Guardino CM, Schetter CD. Coping during pregnancy: a systematic review and recommendations. *Health Psychol Rev*. 2014;8(1):70–94.