Original article

Investigating the relationship between personality types and resilience in pregnant women. A cross-sectional study

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ARTICLE INFO

ABSTRACT

Background: Childbirth is considered a critical experience in a woman's life when she needs mental adaptation and reorganization of relationships. Factors such as personality and self-perception can help facing and solving crises. This study aimed to investigate the relationship between personality types and stress resilience among pregnant women.

Methods: This was a cross-sectional study on 210 multiparous and nulliparous pregnant women who were 32–37 weeks pregnant and referred to Shiraz medical hospitals for delivery selected via convenience sampling. Data collection tools were personal and midwifery information questionnaires and the Goldberg personality and visual pain assessment scale that were completed through interviews. Data analysis was performed by SPSS software using descriptive tests to describe the data and the Pearson correlation test to analyze the data.

Results: The highest personality type was conscientiousness (48.1%) and the lowest was extraversion (2.4%). Maternal resilience had a significant positive relationship with extraversion ($p = .001$) and conscientiousness ($p = .001$). There was no significant relationship between the 2 variables of neuroticism and maternal resilience ($p = .12$). There was a significant positive relationship between the 2 variables of openness to experience and maternal resilience ($p = .005$).

Conclusion: Women's healthcare providers can help to mitigate the negative effects of psychological distress, and psychologically empower this vulnerable group by considering the resilience and personality type of pregnant women during prenatal care.

Investigando la relación entre los tipos de personalidad y la resiliencia en mujeres embarazadas, un estudio transversal

RESUMEN

Antecedentes: El parto se considera una experiencia crítica en la vida de una mujer cuando necesita adaptación mental y reorganización de las relaciones. Factores como la personalidad y la autopercepción pueden ayudar a afrontar y resolver las crisis. Este estudio tuvo como objetivo investigar la relación entre los tipos de personalidad y la resiliencia al estrés entre mujeres embarazadas.

Materiales y métodos: Este fue un estudio transversal en 210 mujeres embarazadas multíparas y nulíparas que tenían entre 32 y 37 semanas de embarazo y remitidas a hospitales médicos de Shiraz para el parto, seleccionadas mediante muestreo por conveniencia. Las herramientas de recolección de datos fueron cuestionarios de información personal y de partería y la escala de evaluación visual del dolor y la personalidad de Goldberg que se completaron mediante entrevistas. El análisis de los datos se realizó mediante el software SPSS utilizando pruebas descriptivas para describir los datos y la prueba de correlación de Pearson para analizar los datos.

Resultados: El tipo de personalidad más alto fue la escrupulosidad (48,1%) y el más bajo la extraversión (2,4%). La resiliencia materna tuvo una relación positiva significativa con la extraversión ($p = 0,001$) y la escrupulosidad ($p = 0,001$). No hubo relación significativa entre las dos variables de neuroticismo y resiliencia materna

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(p = 0,12). Hubo una relación positiva significativa entre las dos variables de apertura a la experiencia y resiliencia materna (p = 0,005).

Conclusión: Los proveedores de atención médica para mujeres pueden ayudar a mitigar los efectos negativos de la angustia psicológica y empoderar psicológicamente a este grupo vulnerable al considerar la resiliencia y el tipo de personalidad de las mujeres embarazadas durante la atención prenatal.

Introduction

Childbirth is one of the most important and perhaps one of the most painful and anxious events that mothers experience in their lives. The pain that women experience during childbirth is influenced by various physiological and psychosocial factors and its severity can be very different.[1]

Also, the mental state of women during pregnancy and the stresses of this period can directly or indirectly affect the health of the mother and the fetus in the same period and in the years after birth. Studies show that stress during pregnancy is associated with premature birth and low birth weight, high blood pressure, gestational toxicity, gestational depression, and childhood allergic diseases.[2,3]

The results of studies show several adverse outcomes in women with high levels of fear of labor pain, including postpartum depression, mother–infant relationship disorder,[4] elective cesarean delivery,[5,6] dystocia (Jochumsen et al., 2023), and emergency cesarean delivery.[7]

One of the important components in the field of women's health is their fertility. Fertility is of paramount importance in human life and an effective factor in determining the identity and development of female personality.[8] Pregnancy, childbirth, and postpartum periods, along with the new role of mother and responsibilities, lead to major changes in their quality of life due to physical, psychological, and social consequences.[9–11]

Childbirth has a great impact on the mother; and her quality of life is affected by medical, psychological, social, and obstetric factors.[12] One of the variables that might affect the process of pregnancy and childbirth is resilience.[13] Resilience to stress means a positive psychological capacity of people to cope with stress and disaster. Researchers point out that resilience to stress may mean the ability to withstand fear or the tendency to extinguish fear quickly and efficiently after a traumatic event is revealed.[13,14]

Resilience does not mean the absence of risk factors in life, but means the presence of supportive psychological factors, which can lead to favorable outcomes in human life. People who are resilient to stress generally have a source of inner control, meaning they can take responsibility for their own circumstances and problems, have a positive self-awareness, and are optimistic about life. These people have strong personalities and have better mental and physical health compared to people who are impatient and intolerant of life stresses.[13]

In general, the term resilience refers to factors and processes that interrupt the progression of risk into problematic behaviors and psychological damage, and lead to adaptive consequences despite adverse conditions.[15]

In other words, resilience is the capacity to face, overcome, and even become stronger by experiencing problems or injuries.[16]

For example, Ma et al. (2019) found that resilience is a protective factor for maternal mental health. Besides, resilience is both a mediator and a modulator of the relationship between stress and anxiety during pregnancy.[17] The way a person experiences and the positive psychological capacity of people to adapt to a stressful and unfavorable situation is called resilience. This individual reaction is dynamic and contextual and can affect maternal and fetal outcomes. Low resilience is associated with poorer pregnancy outcomes.[18] On the other hand, personality differences appear to be an important factor that lead to different reactions to stress.[19] The 5-factor model divides personality into 5 broad traits, including neuroticism, extraversion, openness, agreeableness, and conscientiousness. Greater emotional stability are correlated with women with more children.[20]

Unplanned pregnancy is associated with more neuroticism and less agreeableness and conscientiousness.[21] Neuroticism is associated with more physical symptoms in pregnancy, while agreeableness is associated with fewer symptoms.[22]

In a study by Chatzi et al. (2012), neuroticism was associated with intrauterine growth restriction (IUGR) and smaller head, and extraversion was not associated with birth outcomes.[23] According to a study in 2014, mothers who have higher conscientiousness and extraversion scores and lower neuroticism scores are more likely to breastfeed.[24]

Although motherhood is considered a kind of crisis, pregnancy is considered the best possible time to prepare and face the problems of childbirth. Preparing a pregnant woman to accept the role of a mother is one of the important responsibilities of a midwife.

However, the most important services during pregnancy in most countries are still limited to the mother's physical care and less attention is paid to the psychological needs of the pregnant woman. Therefore, awareness about resilience to stress and the experience of the moment of natural childbirth and the need to recognize the personality type of mothers prepare them for the difficult task of motherhood. Based on the theoretical foundations that have been addressed, the question arises whether there is a relationship between these variables. Due to the lack of background on personality types and resilience in pregnant women, this study was conducted to investigate the relationship of personality types and resilience with stress among pregnant women.

Methods

This was a cross-sectional epidemiological study in 2019 that investigated the relationship between personality type and resilience in pregnant women. The research setting was the maternity ward of Hazrat Zeinab, Hafez, and Shooshtari Hospitals in Shiraz. The reason for choosing this environment was easy access to the subjects and the availability of conditions to obtain research objectives. The study population included all eligible pregnant women referred to the maternity ward of hospitals affiliated to Shiraz University of Medical Sciences. The inclusion criteria were gestational age of 37–42 weeks, no pregnancy risks (e.g., hypertension in pregnancy and preeclampsia, eclampsia, hemorrhage, premature uterine contractions, fetal abnormalities, IUGR, placental abruption, placenta previa), mothers with first to third pregnancies, no internal diseases and surgery in mother and fetus (e.g., underlying diseases including diabetes, cardiovascular disease, hypertension, epilepsy, migraine, thyroid disease, connective tissue disease, asthma, kidney disease, anemia), no current and previous mental illness, no use of psychotropic drugs, no stressful life events in the last 6 months (e.g., death of relatives, severe illness of family members, financial problems, accident, dismissal or unemployment of spouse, family disputes), being in the active phase of labor (at least 4 cm of dilatation), planned pregnancy, no history of miscarriage and infertility, and no use of assisted reproductive techniques. The exclusion criteria were a crisis or stressful event during the study, unwillingness to

continue the study, emergency cesarean delivery, and difficult delivery. According to the objectives of the present study and with respect to $r = 0.27$, $\alpha = 0.05$ and $\beta = 0.05$ (95% power $= \beta - 1$) using Med-Calc software, sample size was estimated at 175, which increased to 210 people, taking into account the 20% probability of sample loss.

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

This number was obtained based on the approximate statistics of mothers who gave birth in each hospital by random sampling method. Data collection tools were as follows. (i) A 21-item researcher-made demographic questionnaire. (ii) The 50-item IPIP Big Five Factor Questionnaire of Goldberg was used to examine and evaluate 5 personality types 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 conscientiousness, agreeableness, neuroticism, openness to experience, and extraversion are each assessed with 10 items in the questionnaire. Thus, a higher score in each component indicates that the personality is dominant in the individual. Some items are scored in reverse. Sharifzadeh reported a favorable validity for the questionnaire.[25] Ghorbani reported the reliability of the questionnaire with Cronbach's alpha above 90%.[26] Its validity in Sharifzadeh's study and the reliability in Ghorbani's study is the basis of the present study. (iii) Connor-Davidson Resilience Scale (CD-RISC): It has 25 items and measures the degree of resilience in different people. It is answered based on a Likert scale with the options of completely wrong = 0, somewhat wrong = 1, no opinion = 2, somewhat true = 3, and completely true = 4. The total score of the questionnaire is the sum of the scores of all items. This score ranges from 0 to 100. The higher is the score, the more resilient the respondent will be, and vice versa. The cut-off point of this questionnaire is 50 points. In other words, a score higher than 50 will indicate resilience, and the higher is the score, the higher is the resilience of the person and vice versa. Besharat et al. (2007), approved the validity and reliability of CD-RISC.[27] Hagh Ranjbar et al. (2011), reported reliability of 0.84 using Cronbach's alpha coefficient test for this questionnaire.[28] Therefore, this tool has good reliability. After referring to the educational–medical centers and reviewing the inclusion and exclusion criteria, reviewing patients' files, and explaining the objectives of the study, the researcher asked pregnant mothers to sign the informed consent to participate in the study and complete the questionnaire while they are in the maternity ward. Data were analyzed using SPSS-23 software and descriptive and inferential statistics at a significance level of 0.5. The present study was conducted 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 officials educational-treatment centers and coordination for the time to distribute the questionnaires. Subjects were also assured that the data obtained from the questionnaires would not be reported as individual results, but as a general result, and that there is no need to write their names on the questionnaire. Scoring was performed after collecting the questionnaires.

Ethical consideration

This research project was approved by the local Ethics Committee of Shiraz University of Medical Sciences (ethic number: IR.SUMS.REC.1396.S663).

Besides, informed consent was obtained from participants. The participants were assured of the confidentiality of all their personal information. The researchers tried to observe all the participants rights in accordance to the Helsinki ethic convention. The research proposal No. was 1396-01-08–15,341.

Table 1

Frequency of variable levels of maternal resilience in the research community.

Variable	Frequency	Percentage frequency	Mean	Standard deviation
<50	26	12.4	66.50	14.43
>50	184	87.6		
Total	210	100		

Results

Table 1 shows the mean and standard deviation of the resilience variable. Its frequency of percentage was 66.5 among 210 people with SD = 14.43; 26 (12.4%) people scored above 50, and 184 (87.6%) scored below 50. Table 2 shows that the highest and lowest frequency of the 5 big personality factors were that of conscientiousness (48.1%) and extraversion (2.4%), respectively. Table 3 shows the relationship between the variables of personality types and maternal resilience using the Pearson correlation test. The correlation between the 2 variables of extraversion and maternal resilience was 0.204 at a significance level of 0.003. There was a significant positive relationship between extraversion and maternal resilience. The correlation between the 2 variables of agreeableness and maternal resilience was 0.228 at a significance level of 0.001. There was a significant positive relationship between agreeableness and maternal resilience. The correlation between the 2 variables of conscientiousness and maternal resilience was 0.334 at a significance level of 0.001. There was a significant positive relationship between conscientiousness and maternal resilience. The correlation between the 2 variables of neuroticism and maternal resilience was 0.106 at a significance level of 0.12. There was no significant relationship between neuroticism and maternal resilience. The correlation between the 2 variables of openness and maternal resilience was 0.194 at a significance level of 0.005. There was a significant positive relationship between openness and maternal resilience.

Discussion

In the present study, the mean resilience score of mothers was 66.5, which was similar to that of studies by Peng et al. (2012) = 61.69, Khodabakhshi-koolaee et al. (2019) = 61.71 ± 13.89, and Alizadeh et al. (2016) = 64.8.[29–31] Although the standard cut-off point and classification for resilience scores are not suggested and the results should be interpreted in comparison to other values, Connor reported resilience scores of less than 60 for people with mental disorders.[18] The cut-off point in the questionnaire used in this study was 50, denoting that the mean resilience scores of mothers in this study are in the normal range.

The results of the present study showed a significant positive relationship between resilience and the variables of extraversion, agreeableness, conscientiousness, and openness to experience. Therefore, the higher is the mother's resilience, the greater will be the extraversion, agreeableness, conscientiousness and openness to experience. However, there was no significant relationship between the 2 variables of neuroticism and maternal resilience. Although we have not been able to find a similar study in this field, this finding is to some extent in line with the results of research by Ilska et al. (2020), Ma et al. (2019), Garcia

Table 2

Frequency distribution of 5 major personality factors in the research community.

Variable	Frequency	Percentage frequency
Extraversion	5	2.4
Agreeableness	56	27.1
Conscientiousness	101	48.1
Neuroticism	11	5.2
Openness to experience	13	6.2
Openness to experience, agreeableness	6	2.9
Agreeableness, conscientiousness	15	7.1
Agreeableness, neuroticism	1	0.5

Table 3
Table of values of correlation of personality types with resilience.

Personality types	Correlation coefficient	Number	Significance level
Extraversion	0.204	210	0.003
Agreeableness	0.228		0.001
Conscientiousness	0.334		0.0001
Neuroticism	0.106		0.127
Openness to experience	0.194		0.005

et al. (2019), Zhang et al. (2020), and Goodarzi et al. (2021).[17,32–35] Their findings confirmed the positive effect of resilience on increasing mental health and reducing negative emotions in pregnant women and were consistent with the present study. To explain this, we can say since extraversion involves a desire for positive emotions, maintaining close interpersonal relationships, and high social skills and activities, it is expected to be associated with resilience. It can be concluded that positive emotions play a significant role in empowering people to cope with stressful life experiences.[19] Extraverts pay more attention to the outside world, adapting to those around them without difficulty.[25] Since people with positive emotions have a variety of thoughts and practical tools at their disposal, even in stressful situations, these experiences may increase their resilience.[20] Having the ability to think flexibly and have a wide range of options means that extraverts have more personal resources to face challenges and difficulties. In addition, thanks to social skills and close personal relationships, extraverts have the benefit of access to the social support needed in the face of adversity.[21] They can receive more support from their family and peers to better cope with stress, weakness, and trauma, and to reduce negative emotions.[22] Therefore, their desire to have strong social networks makes it easier to achieve strong support factors in the face of stress.[23]

It is also possible to explain why empiricists are more resilient than others, given the ability of some empiricists to take a critical stance, face life challenges, dare to try different things, be willing to offer their own solutions, and be creative.[21] It should be noted that the personality traits of agreeable people are being kind, helpful, cooperative, and humble. Such characteristics play an important role in enabling them to have fewer conflicts in interpersonal relationships, to accept people more enthusiastically in their social environment, and thus to receive more emotional support. People who receive more support are expected to be more resilient.[21] Regarding the relationship between resilience and conscientiousness, it should be noted that conscientiousness is characterized by organization, planning, patience, hard work, perseverance, and being steadfast. Conscientious people are purposeful and successful and are meticulous in their goals and actions. Conscientiousness enables people to act and focus on specific goals. While the desire for integrated success and perseverance represents a progressive aspect of conscientiousness, conservatism, and great care depend on focus. So, these people have a lot of potentials that help them succeed. Such people are equipped with important traits that may help them to overcome adverse conditions when facing life challenges. From this perspective, conscientiousness can be considered as a quality that contributes to their level of resilience.[36,37]

In other words, resilience is the ability to cope with problems. Resilience is not about escaping problems, but about giving people the ability to get through problems, enjoy life, and cope better with stress. Resilience is the ability to move with problems, that is, although a person is facing problems, stress, and anxiety, he can continue his work activity and perform his personal, social, competitive, and environmental tasks. It also helps people protect themselves against psychological problems such as depression, anxiety, and anger.[38]

Pregnant women with higher resilience can act more effectively in dealing with the challenges of pregnancy and difficult situations. Indeed, resilience can increase an individual's self-efficacy in stress

coping, self-esteem, emotional stability, coping skills, and social support.[39] Therefore, the direct relationship between resilience and psychological ability can be justified. It is clear that in recent years, the desire of women to choose the method of cesarean delivery has increased compared to the past. While women show less tolerance for natural childbirth, awareness of stress resilience, and the experience of the moment of natural childbirth make women more prepared for the difficult task of motherhood. In medicine and psychology, it is emphasized daily that resilience reflects physical resilience, spontaneous improvement of the phenomenon, and the ability to rebalance emotionally under stressful situations.[13,40]

It is suggested that since each human has unique characteristics, identifying the individual differences of prenatal pregnant women using valid tools will help to interact with them more effectively during labor. Providing these results and a valid questionnaire to midwives and reproductive health professionals allows for providing adequate prenatal education, counseling, and strengthening personality traits that are resistant to labor pain and stress, and resilience-supporting personality traits prevent many adverse physical and psychological consequences of labor, and ultimately, providing mothers with pleasant experiences via offering new and innovative ways to manage labor pain. The value of the psychological component of resilience to stress in mothers is not only focused on the time of delivery, but also after the birth of children and their development. As the children grow older, mothers face problems and challenges in parenting that need a lot of patience and endurance.[13]

Given that pregnancy is a stressful period, with physiological and psychological changes, the mother's peace of mind and high resilience during this period is important.[41,42]

This study had some limitations, including the fact that the results of this study are limited to the city of Shiraz and further studies in other parts of the country are necessary.

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. Another limitation of this study is its cross-sectional nature, which may require prospective studies to measure the correlation of some variables.

Conclusion

Healthcare providers such as physicians, nurses, psychologists, and midwives have a special role in providing evidence-based care and interventions to pregnant women. Therefore, by screening for having psychological distress and determining the level of mindfulness, personality type, resilience, and psychological ability of pregnant women during early pregnancy screening, and teaching resilience and mindfulness skills to them during prenatal care can mitigate the negative effects of anxiety, empower them physically and psychologically, and as a result help achieve the positive outcomes of it at the individual and family level.

Funding

There is no funding to be declared.

Ethical considerations

This research project was approved by the local Ethics Committee of Shiraz University of Medical Sciences (ethic number: IR.SUMS. REC.1396.S663). Written informed consent was obtained fro participants.

Declaration of competing interest

There are no conflicts of interest to be declared.

Acknowledgments

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