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The Relationship between Resilience and Mental Health in Pregnant Women: A Cross-Sectional Study in Eastern Iran

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Abstract

Background: Pregnancy represents a particularly vulnerable phase in a woman's life. Evaluating resilience during this period is essential for understanding how expectant mothers adapt to potentially high-risk situations.

Objective: Examining the association between resilience and mental health among pregnant women.

Methods: In this cross-sectional analysis, 205 pregnant women visiting healthcare centers participated. Participants completed a demographic questionnaire, the Connor-Davidson Resilience Scale (CD-RISC), and the Mental Health Inventory, both of which are previously validated instruments. Data were analyzed using SPSS software (version 21) with descriptive statistics, independent t-tests, and Pearson's correlation coefficient, adopting a significance level of $p < 0.05$.

Results: The average scores (mean ± SD) were 92.75 ± 16.36 for resilience, 55.74 ± 8.51 for psychological well-being, and 34.68 ± 9.59 for psychological distress. Analysis revealed a significant positive correlation between resilience and psychological well-being ($r = 0.55$, $p < 0.001$) and a significant negative correlation between resilience and psychological distress ($r = -0.29$, $p < 0.001$).

Conclusion: Resilience acts as a protective psychological factor, significantly contributing to the mental health of pregnant women. Implementing educational programs to build resilience skills is therefore recommended for this population.

Keywords: Resilience, Mental Health, Women, Pregnancy.

1. Background

Mental health disorders rank among the most prevalent global health challenges and are a primary contributor to over one-third of disabilities and premature mortality (1, 2). These conditions adversely impact physical, social, and overall well-being, significantly diminishing individuals' quality of life (2-4). Research indicates a greater vulnerability among women compared to men, with pregnancy constituting a particularly critical and stressful life stage. During this period, external crises can exert a more profound effect on expectant mothers than on the general population,

potentially leading to severe and lasting consequences. The heightened sensitivity of this life phase means that traumatic experiences can precipitate numerous future physical and psychological difficulties. Consequently, safeguarding maternal health to identify potential dangers throughout gestation and the perinatal period is paramount, enhancing pregnant women's well-being, a key objective of public health initiatives (5).

Enhancing resilience offers a pathway to mitigate this vulnerability. Defined by Conner and Davidson as the capacity to preserve psychological equilibrium amidst threats (6), resilience represents the personal strength to endure hardship and recover from challenging events (7). It encompasses internal resources—including positive affect and cognitive-behavioral processes—that shield individuals from the detrimental impacts of stress (8) and bolster their ability to manage psychological distress (9). This adaptive capability allows individuals to adjust to their environment, with those exhibiting high resilience typically reporting more positive emotions, greater self-assurance, and superior psychological adjustment compared to their less resilient counterparts (10,11). Essentially, resilience functions as a supportive mechanism that modulates reactions to high-risk scenarios and fosters empowerment in coping with them (7,8).

Given that pregnancy constitutes an exceptionally vulnerable interval, evaluating resilience in expectant mothers—especially during widespread health crises like epidemics—is vital for forecasting their capacity to adapt to demanding circumstances. Such assessment is also crucial for informing the necessary responses from health Policymakers. This evaluation can equip healthcare providers with valuable insights to minimize pregnancy-related complications and enhance service quality. By doing so, it paves the way for more effective interventions aimed at fostering resilience and psychological well-being in this population. Although resilience is acknowledged as a significant factor in maternal mental health, a specific investigation into its relationship with mental health in pregnant women was lacking. Therefore, this study was designed.

2. Objective

Examining the association between resilience and mental health among pregnant women.

3. Methods

This research employed a cross-sectional design and was carried out in 2022 among pregnant women attending public healthcare facilities in Mashhad, Iran. Eligible participants were required to be Iranian citizens residing in Mashhad, literate, and have a low-risk pregnancy. Exclusion criteria encompassed the use of psychotropic medications or narcotics, a diagnosis of any underlying chronic illness, and the experience of a significant stressful life event (e.g., bereavement of an immediate family member or bankruptcy) within the preceding six months.

A stratified cluster sampling technique was utilized for participant recruitment. The city was divided into five geographical districts, each treated as a stratum. From each district, one health center was randomly chosen as a cluster from which participants were recruited.

The sample size was determined based on parameters from a prior study by Poursardar et al. (2012). With a Type I error (α) set at 0.05, a power (1-β) of 0.80, a standard deviation of 10.53, and an absolute error (d) of 1.5, the calculated minimum sample size was 189 individuals. To account for potential attrition, this number was increased by approximately

10%, resulting in a final target sample size of 200 participants.

$$n = \frac{z^2 s^2}{d^2} = \frac{1.96^2 * 10.53^2}{1.5^2} \approx 189$$

Data Collection Tools

Three instruments were used for data collection: a questionnaire on demographic and obstetric characteristics, the Connor-Davidson Resilience Scale (CD-RISC), and the Mental Health Inventory.

The Connor-Davidson Resilience Scale (CD-RISC) is a 25-item instrument rated on a 5-point Likert scale, from 1 ("Almost never") to 5 ("Almost always"), with higher total scores reflecting greater resilience. For the Persian version used in this study, internal consistency reliability was excellent (Cronbach's α = 0.89), and its validity was established through factor analysis (12).

The Mental Health Inventory is a 28-item scale comprising two subscales: psychological well-being and psychological distress. Items are rated on a 5-point Likert scale from 1 ("Completely disagree") to 5 ("Completely agree"). The questionnaire demonstrated high internal consistency, with Cronbach's alpha coefficients ranging from 0.89 to 0.94. Concurrent validity was confirmed via significant correlation coefficients between its subscales and the overall score of the General Health Questionnaire (-0.87 and 0.88) (13,14).

Eligibility for participation was assessed using a selection checklist based on the predefined inclusion criteria. All pregnant women visiting the selected health centers for routine antenatal care during the study period were screened. Those who met the criteria and provided written informed consent subsequently completed the study instruments, which included the demographic and midwifery questionnaire, the Connor-Davidson Resilience Scale (CD-RISC), and the Mental Health Inventory.

Data analysis was performed using SPSS software (Version 21). Descriptive statistics, including means, standard deviations, and frequency distributions, were calculated to summarize the characteristics of the participants. To examine the relationships between variables, Pearson's correlation coefficient was applied to normally distributed data, while Spearman's correlation coefficient was used for variables that did not meet the assumption of normality. A 95% confidence level was set, with a p-value of less than 0.05 considered statistically significant for all tests.

4. Results

The demographic profile of the participants is summarized in Table 1. The pregnant women had a mean age of 28.55 years (SD = 6.04), their husbands' mean age was 33.09 years (SD = 6.03), and the average duration of marriage was 7.20 years (SD = 4.84).

Analysis of the primary study variables revealed the following mean scores: resilience (92.75 ± 16.36), psychological well-being (55.74 ± 8.51), and psychological distress (34.68 ± 9.59). As shown in Table 2, a strong positive correlation was observed between resilience and psychological well-being ($r = 0.55$, $p < 0.001$). Conversely, a significant negative correlation was found between resilience and psychological distress ($r = -0.29$, $p < 0.001$), and a significant negative correlation was found between psychological well-being and psychological distress ($r = -0.50$, $p < 0.001$)

Examination of resilience scores across income levels indicated a statistically significant difference. Participants reporting inadequate income demonstrated a mean resilience score of 83.68 (SD = 22.31), while those with adequate or high income had a significantly higher mean score of 94.01 (SD = 14.99) ($p = 0.003$).

Furthermore, a significant difference emerged in psychological distress scores based on women's educational attainment. Pregnant women with an academic education reported a mean distress score of

32.83 (SD = 8.47), which was significantly lower than the mean score of 35.97 (SD = 10.18) reported by those with a non-academic education (p = 0.022). The mean psychological distress scores of husbands with academic and non-academic education were 33.17 (SD = 9.87) and 35.71 (SD = 9.31), respectively.

The mean scores of psychological well-being and psychological distress differed between housewives and employed women. The mean psychological well-being scores were 55.15 ± 8.68 for housewives and 67.75 (SD = 7.71) for employed women (p=0.049). Meanwhile, the mean psychological distress scores were 35.97 (SD = 9.57) for housewives and 30.46 (SD = 8.49) for employed women (p<0.001).

Also, psychological well-being and learned helplessness were correlated with the husband's job. So that the mean score of psychological well-being in workers/self-employed and employee men was 55.03 ± 8.63 and 57.58 ± 7.97, respectively (P=0.048). The mean score of psychological distress in workers/self-employed and employee men was 35.59 ± 9.52 and 32.30 ± 9.46, respectively (P=0.048).

Table 1. Demographic and Obstetric Characteristics of Pregnant Women

Variable		Number (percent)
Education level	Diploma and under diploma	121(59)
	Higher than a diploma	83(41)
Husband education	Diploma and under diploma	122(60)
	Higher than a diploma	83(1)
occupation	House holder	157(77)
	Employed	47(23)
Husband occupation	Manual/Worker	148(72)
	Employee	57(28)
Family income	Less than enough	25(12)
	Sufficient or more	180(88)
Housing situation	Rental	98(48)
	Personal	107(52)
Fetal sex	female	66(32)
	male	71(35)
	Female and male (twin)	4(2)
Pregnancy planning	wanted pregnancy	143(70)
	unplanned pregnancy	33(116)
	unwanted pregnancy	29(14)
Desire for fetal sex	Yes	80(46)
	No	12(1)
	No differences	81(53)
Variable	Mean ± SD	
Number of pregnancies	2.02±1.13	
Number of abortions	0.30±0.55	
Number of deliveries	0.77±0.94	
Number of NVD ((normal vaginal delivery)	0.42±0.77	
Number of CS (caesarean section)	0.35±0.72	
Number of children	0.77±0.94	
Gestational age (week)	22.77±10.63	

Table 2. Relationship between resilience, psychological distress, and psychological well-being

Variable	Resilience	Psychological well-being	Psychological distress
Resilience	1	-	-
Psychological well-being	0.55 (0.001*)	1	-
Psychological distress	-0.29 (0.001*)	-0.50 (<0.001*)	1

*significance level of 0.05

5. Discussion

Pregnancy constitutes a critical developmental phase, during which the psychological well-being of the expectant mother profoundly influences her own health as well as the development, health, and future welfare of her child (15). This study explored the connection between

resilience and mental health in a sample of pregnant women attending health centers. Our analysis established a significant correlation between resilience and both components of mental health: psychological well-being and psychological distress.

Resilience represents a vital adaptive capacity that allows individuals to endure and recover from hardship. Consequently, fostering and strengthening this trait can serve as a crucial objective in both therapeutic and preventive healthcare frameworks. Resilience is defined as the capacity to adapt successfully when confronted with adversity, trauma, tragedy, threats, or significant stressors. This construct demonstrates an inverse relationship with depression, anxiety, and negative affect, while being positively associated with life satisfaction and psychological well-being (16). As a prominent subject within health psychology, numerous investigations have examined factors associated with resilience (17). In a study of 2,813 pregnant women in Shanghai, Ma et al. reported that 11.1% exhibited anxiety symptoms and 10.3% had depressive symptoms, with stress levels peaking at 12-16 weeks of gestation. Their findings identified resilience as a protective factor for maternal mental health (18), which aligns with the results of the present study.

Further supporting this, Leon et al. conducted research in Granada, Spain, with 151 pregnant women and demonstrated the protective role of resilience against negative stressors. Their study highlighted that women with higher resilience exhibited lower levels of perceived stress, pregnancy-specific stress, psychopathological symptoms, and hair cortisol concentrations during the third trimester. In the postpartum period, these women also reported greater psychological well-being and fewer psychopathological symptoms, including lower rates of postpartum depression (19).
Employing a multiple regression model, Iska et al. concluded that both partner support (an external resource) and self-resilience (an internal personality trait) were significant predictors of psychological well-being in pregnant women. These factors contributed to greater satisfaction in areas such as positive relationships with others, self-acceptance, environmental mastery, and overall psychological adaptation to pregnancy and motherhood (20, 21).

The study results reported that psychological well-being scores were higher in employed women with higher education levels, who had employed husbands with higher education levels. The mean scores of psychological well-being and psychological distress were different between employed women and housewives, with employed women having higher mean psychological well-being scores and housewives having higher mean psychological distress scores. The results were consistent with the results of Alan et al., who studied the relationship between job and mental health and indicated a negative correlation between job and depression, but it had no significant relationship with anxiety and stress; job satisfaction could negatively predict depression and stress—people who found their job meaningful and satisfying reported less anxiety and stress (22,23).

Peek et al. in Croatia studied the effect of family income on students' resilience and found that the level of resilience of students in low-income families was lower than that in high-income families (24). Their study was consistent with our research: the mean resilience score in the group with inadequate income was lower than that in the groups with adequate and high incomes.

6. Conclusion

The findings underscore resilience as a significant protective psychological factor that positively influences the mental health of pregnant women. Given the heightened vulnerability to psychological challenges

during pregnancy and the critical impact of maternal well-being on both child development and public health, proactive measures are warranted. Integrating resilience-building strategies into routine prenatal education and care represents a vital step forward. Equipping expectant mothers with these adaptive skills can empower them to navigate difficulties more effectively, thereby enhancing their psychological health and contributing to the long-term well-being of future generations.

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Abdollahi M: Assisted in the interpretation of data, review, and editing.
Karimi FZ and Jesmani E: Literature search, Data acquisition, analysis, and interpretation of data.
Critical revision of the manuscript: All authors.

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