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The mediating role of psychological well-being in the relationship between psychosocial health and psychological resilience in expectant women

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Abstract

Background Although pregnancy is a part of the natural life cycle for every woman, the idea that pregnancy is a happy period and a state of emotional well-being has now been abandoned. This process causes intense changes to woman bodies, minds and society. The study aims to determine how psychological well-being mediates the relationship between psychosocial health and psychological resilience in expectant women.

Methods The study was conducted descriptively with 130 expectant women who attended the obstetrics outpatient clinic at a university hospital between 15.07.2021 and 30.12.2021.

Results A moderately significant association between psychosocial health and psychological well-being during pregnancy ($p < 0.01$), and a moderately strong association between psychological well-being and psychological resilience were found ($p < 0.01$).

Psychosocial health and psychological resilience during pregnancy were also significantly associated at a low-level ($p < 0.1$). The result of the Structural Equation Modeling Mediation analysis reveals that psychological well-being serves as a crucial mediating role in the relationship between psychosocial health and psychological resilience during pregnancy. ($\beta = 0.08$, $t = 0.61$). The model fit indices were determined as $X^2 = 237.12$.

Conclusions The study found that expectant women have an important role in strengthening the association between psychosocial health and psychological well-being through their mediating role of psychological well-being.

Keywords Pregnancy, Psychological resilience, Psychological well-being

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Background

Psychosocial health is a broad concept that encompasses both mental and social aspects [1]. Psychosocial health is defined as an individual's ability to adapt well to the social environment and the absence of negative situations that could harm the health of the person in the social environment in which she lives and it is also a very important concept during pregnancy, as in every period of individual life [2]. Although pregnancy is a part of the natural life cycle for every woman, the idea that pregnancy is a happy period and a state of emotional well-being has now been abandoned. This process causes intense changes to women's bodies and minds. If the expectant mother unable to cope effectively with the intense physical, psychological, social and personal stressors she experiences, events such as pregnancy, birth and parenthood can be a developmental and situational crisis for the mother [3].

The higher level of psychosocial health status of expectant women, the better health of baby. The presence of psychological resilience is important in protecting and improving psychosocial health [4]. Expectant women with high psychological resilience are better equipped to cope with challenges during this period and are more likely to be protected from emotional distress [5]. Furthermore, coping with problems in a healthy way can increase psychological well-being [6]. Psychological well-being positively affects psychosocial health along with psychological resilience [7]. Psychological well-being plays an important role in being able to the expectant women to cope with the emotional challenges during pregnancy [8].

It was thought that a process such as pregnancy, which may be accompanied by emotions such as stress, anxiety and fear, may have effects on mothers' psychological resilience, psychosocial health and psychological well-being. In this context, in the literature, there are different studies examining psychosocial health and psychological resilience in expectant women separately [1, 9–11]. However, there has been no studies which was examined the role of psychological well-being in the association between psychosocial health and psychological resilience. Since there is no study that deals with these three concepts together, this study looks at the mediating role of psychological well-being in the association between psychosocial health and psychological resilience in expectant women.

Methods

Study design and participants

This is as a correlational study. It was carried out in the outpatient obstetrics clinic of an university hospital from 15.07.2021 to 30.12.2021.

Due to the lack of clear references in the literature regarding the calculation of the required sample size for

the current mediation-based structural model, an a priori power analysis was conducted using GPower software. Based on the commonly recommended parameters in behavioral and health sciences research—a 95% confidence level, a significance level of $\alpha=0.05$, and 80% statistical power—the minimum required sample size was estimated as $n=138$. During the study period, a total of 130 pregnant women who presented to obstetrics and gynecology clinics and met the inclusion criteria were recruited and completed the study. Although this number was slightly below the initially estimated sample size, this deviation was primarily attributable to the shortened duration of outpatient visits during the COVID-19 pandemic, concerns about viral transmission through social contact, and incomplete or incorrectly completed questionnaires. Given the complexity of the analytical approach and the stability of the estimated model parameters, the final sample size was considered sufficient for the planned analyses. Inclusion criteria were being 18 years of age or older, being able to read and understand Turkish, having a healthy pregnancy, having no history of psychiatric disorders or psychotropic medication use, and providing informed consent to participate in the study. Exclusion criteria included failure to meet the inclusion criteria, withdrawal of consent, or incomplete participation. Sample consists of 130 expectant women of the current population who agreed to take part the study..

Data collection

The following forms were used to collect data.

Introductory information form

This form was developed for this study. The form which attached consists of personal information such as date of birth, educational status, employment status, and a total of 7 questions regarding pregnancy.

Pregnancy Psychosocial Health Assessment Scale (PPHAS)

The scale was development by Yıldız (2011) to identify the psychosocial needs of pregnant women and ensure appropriate care. The scale comprises 46 items and is divided into six subdimensions. The evaluation of the scale is obtained by dividing the total score by the number of items. The result is between 1 and 5. Factorial loading of the items varied between 0.37 and 0.83 in the factor analysis for construct validity of scale and items were collected in six factors (Pregnancy and Spouse Relationship, Anxiety and Stress, Domestic violence, Need for psychosocial support, Family characteristics, Physical and Psychosocial Changes Related to Pregnancy). Cronbach's alpha values of the items of these six factors were ranged from 0.92 to 0.76 and six factors were found to be 58.75% of total variance explanation. The Cronbach alpha

of the scale is 0.938 [12]. Cronbach's alpha was 0.891 in this study.

Connor-Davidson Resilience Scale (RS)

It was developed by Connor and Davidson (2003). Turkish adaptation form was made by Karairmak (2010). The scale consists of 3 sub-dimensions (Perseverance & Personal Competence, Negative Tolerance, and Spiritual Orientation) and 25 items on a 5-point Likert scale. The scale ranges from 0 to 100. High score indicates high psychological resilience of individual. The scale has five subdimensions. In Turkey sample, 52% of the total variance was accounted for by three factors and the obtained factor structure was verified through confirmatory factor analyses. The Cronbach alpha of the scale is 0.92 [13]. Cronbach's alpha was 0.945 in this study.

Psychological well-being scale

It was developed by Diener et al. [14]. The Turkish adaptation was made by Telef (2013). It consists of 8 items and 7-point Likert type. The scale consists of a single factor. The scale ranges from 8 to 56. A high score indicates that the individual has sufficient psychological resources and strength. The exploratory factor analysis in Turkey sample, it was found that the total explained variance was 42% and that the items were grouped under one factor. According to the test retest results, there was a high level of a positive and meaningful relation between the first and second applications of the scale ($r=0.86$, $p<0.01$). The Cronbach alpha was 0.85 [15]. Cronbach's alpha was 0.838 in this study.

Research questions

1. Is there a link between psychosocial health and psychological resilience in expectant women?
2. Is there a relationship between psychosocial health and psychological well-being in expectant women?
3. Is there a link between psychological well-being and psychological resilience in expectant women?
4. Is the psychological well-being important in the relationship between the psychosocial health and psychological resilience of expectant women?

Analysis of data

The IBM SPSS22.0 (New York) program was used for descriptive analysis. Kolmogorov-Smirnov test was used to test normality of data. Data on continuous variables are mean, standard deviation; Numbers and percentages were used in the data of categorical variables. Relationship between independent and dependent variables the Pearson Correlation coefficient was used. Additionally, path analysis was performed. The variable analysis of the mediators was performed in the Lisrell 8.8 package

program. Normality assumptions were evaluated using skewness and kurtosis values. All values fell within the acceptable range (± 2), supporting approximate normal distribution of the variables. Multicollinearity was assessed using variance inflation factors (VIF). All VIF values were below 3, indicating no multicollinearity concerns. To validate the measurement model, confirmatory factor analysis (CFA) was applied, followed by testing of the structural equation model. In mediator variable analysis, the relationship between variables was evaluated by examining β coefficient number, t value and model fit indices. Other fit indices of the model, such as χ^2/df , RMSEA, GFI, NFI, NNFI and CFI values, were used to analyse the data as a whole.

Ethics approval

The study was approved by the ethics committee of Hasan Kalyoncu University (Decision no: 2021/461). Participants were informed that they could withdraw at any time, without explanation and that all information and responses would be kept confidential and anonymous. The participants gave verbal and written consent after being informed about the study. Declaration of Helsinki was followed during the study. Permission for scales used in the research was received via email.

Results

The findings on regarding the introductory information of the participating individuals are included in Table 1. 35.4% of the expectant women are in the 19–26 age group, 33% have high school education degree. 77% of them do not working, 73% of pregnant are in the third trimester, 82.3% want pregnancy, 52.4% have received information about the birth process (Table 1).

As presented in Table 2, all constructs demonstrated acceptable composite reliability ($CR>0.70$). Although AVE values for some factors were below the recommended threshold, CR values indicated adequate convergent validity, which is considered acceptable in complex SEM models.

Confirmatory factor analysis (CFA) was conducted to evaluate the measurement properties of the study instruments prior to testing the structural model (Table 3). The CFA results indicated acceptable but suboptimal model fit indices. Such results are not uncommon in complex measurement models involving a large number of observed indicators and multiple latent constructs, particularly when sample size is relatively modest. Importantly, all standardized factor loadings were statistically significant and exceeded the recommended minimum threshold ($\lambda>0.50$), supporting the construct validity of the measurement model. Therefore, despite some fit indices falling outside the conventional cut-off values, the

Table 1 Introductory characteristics of pregnant women (n = 130)

Characteristics	n	%
Age		
19–26	46	35.4
27–33	45	34.6
34–46	39	30.0
Educational Background		
Literate	4	3.1
Primary school graduate	28	21.5
Middle school graduate	24	18.5
High school graduate	43	33.1
Associate degree graduate	12	9.2
University graduate	19	14.6
Working Status		
Yes	29	22.3
No	101	77.7
Week of pregnancy		
First Trimester	13	10.0
Second Trimester	22	16.9
Thirth Trimester	95	73.1
Total number of pregnancies		
1	46	35.4
2	39	30
3–6	45	34.6
Total number of births		
0	40	30.8
1	42	32.3
2–6	48	36.9
Number of Children		
0	44	33.8
1	43	33.1
2 and up	43	33.1
Status of Wanting Pregnancy		
Yes	107	82.3
No	23	17.7
Getting Information About the Birth Process		
Yes	67	51.5
No	63	48.5

measurement model was considered adequate for subsequent structural and mediation analyses.

According to Table 4, psychological well-being and psychological resilience are moderately associated ($p < 0.01$), and a moderately significant association between psychosocial health and psychological well-being during pregnancy ($p < 0.01$). Furthermore, psychosocial health and psychological resilience during pregnancy were poorly correlated ($p < 0.1$). Structural equation modeling results

Table 3 Confirmatory factor analysis (CFA) fit indices

Scale	Model	χ^2	df	χ^2/df	CFI	TLI	RMSEA	GFI	NFI
PWB)	1-factor (8 items)	81.19	20	4.06	0.83	0.77	0.15	0.79	0.79
PPHAS	6-factor (46 items)	5939.12	974	6.10	0.74	0.72	0.20	0.70	0.70
CD-RISC	3-factor (25 items)	793.27	272	2.92	0.74	0.71	0.12	0.65	0.65

Table 2 Confirmatory factor analysis results and standardized factor loadings

Scale	Factor	Item	Std. Loading (λ)	CR	AVE				
PWB	PIO	PWB 1	0.73	0.85	0.41				
		PWB 2	0.75						
		PWB 3	0.61						
		PWB 4	0.60						
		PWB 5	0.65						
		PWB 6	0.57						
		PWB 7	0.51						
		PWB 8	0.68						
PPHAS	PPHAS - Pregnancy and Spouse Relationship	Representative items	0.65–0.75	0.87	0.35				
		PPHAS - Anxiety and Stress	0.62–0.68			0.79	0.33		
		PPHAS - Domestic violence	0.49–0.59					0.53	0.13
		PPHAS - Need for psychosocial support	0.65–0.71						
PPHAS - Family characteristics	Representative items	0.63–0.67	0.73	0.40					
	PPHAS - Physical and Psychosocial Changes Related to Pregnancy	0.58–0.63			0.71	0.32			
CD-RISC	CD-RISC - Azim & Personal Competence	CD-RISC items	0.80–0.83	0.95			0.54		
		CD-RISC - Negative Tolerance	0.74–0.79		0.82	0.40			
		CD-RISC - Spiritual Orientation	0.78					0.51	0.26

PWB Psychological Well-Being Scale, PPHAS Pregnancy Psychosocial Health Assessment Scale, CD-RISC Connor–Davidson Resilience Scale, CR Composite reliability, AVE Average variance extracted

Table 4 Relationship between psychosocial health, psychological resilience and psychological well-being during pregnancy and descriptive analysis table

		PWB	PPHAS	CD-RISC	Min-Max
PWB	r	1.00			26–56
	p	.			
PPHAS	r	0.353	1		132–224
	p	0.00*	.		
CD-RISC	r	0.463	0.227	1	24–100
	p	0.00*	0.00*	.	

PWB Psychological Well-Being Scale, PPHAS Pregnancy Psychosocial Health Assessment Scale, CD-RISC Connor–Davidson Resilience Scale
r=pearson correlation coefficient, * $p < 0.01$

indicated that psychosocial health had a significant positive effect on psychological well-being ($\beta = 0.61$, $p < 0.01$, $t = 3.62$, 95% CI [0.34, 0.71]). Psychological well-being, in turn, significantly predicted psychological resilience ($\beta = 0.48$, $t = 4.87$, $p < 0.001$, 95% CI [0.21, 0.58]). However, the direct effect of psychosocial health on psychological resilience was not statistically significant when psychological well-being was included in the model ($\beta = 0.14$, $t = 1.27$, $p = 0.204$, 95% CI [-0.07, 0.31]).

The significance of the indirect effect was further examined using the Sobel test. As presented in Table Z, the Sobel test indicated that the indirect effect of psychosocial health on psychological resilience through psychological well-being was statistically significant ($z = 3.29$, $p = 0.001$ 95% CI [0.14, 0.57]). The non-significant direct path from psychosocial health to psychological resilience suggests that psychological well-being plays a substantial mediating role in this relationship (Table 5).

The structural equation model demonstrated an acceptable, fit to the data ($\chi^2 = 237.12$, $df = 115$, $\chi^2/df = 2.06$, RMSEA = 0.091, CFI = 0.93, TLI = 0.78, $p < 0.00$). Given the complexity of the model and the number of observed indicators, these values were considered adequate.

Discussion

Pregnancy, birth and parenthood bring about many physiological and psychosocial changes. These changes can alter women's psychological stress responses to the challenging situations they encounter. Studies examining the psychological well-being of expectant show that approximately 25% of women experience symptoms of depression in the postnatal period [16].

Literature review indicate pregnancy related depression rates of 4.8 and 40% [17]. Cloitre et al. noted that rates in ethnic and racial minority populations can be as high as 40–50% [18]. Looking at the studies on pregnancy in Turkey, depression symptoms are 35% [18], 27% [19], 36% [20], 28% [21] was observed in the ratios. Furthermore, studies show that a woman's mental health during the prenatal period influences the development of physical and psychological problems in the baby, as well as the woman's own mental health in the postnatal period [22–25].

Depressive symptoms experienced during pregnancy can serve as a precursor to postpartum depression. Furthermore, it is stated that babies born to mothers who experience depressive symptoms during pregnancy may be at risk of impaired development [22] and behavioral difficulties are more likely to occur [23]. Even anxiety disorders can be seen in these babies when they are 18 [24]. All these studies in the literature clearly demonstrate that psychological problems experienced during pregnancy negatively affect both the mother and the fetus. Therefore, it is important to have an in-dept look at the factors

Table 5 Sobel test results for the mediation effect

Path	Indirect Effect (a × b)	Sobel z	p-value
Psychosocial Health → Psychological Well-Being → Psychological Resilience	0.35	3.29	0.001

that influence the psychological well-being of expectant women by creating a model. This study reviewed the mediating role of psychological well-being in the relationship between psychosocial health and psychological resilience in pregnant women. A moderate association found between psychological well-being, psychological resilience and psychosocial health during pregnancy in this study. In the further analysis we conducted with the modeling we created after this relationship, it was found that psychological well-being fully mediated the association between psychosocial health and psychological resilience during pregnancy. Therefore, we can say that strengthening psychosocial health and psychological resilience in pregnant women will positively affect psychological well-being. By keeping the mental health of expectant women positive, we can both facilitate the birth of expectant women and improve the health of the fetus. Therefore, the results of this study are very important. Healthcare professionals who work with pregnant women can benefit from the results of this research and contribute to maternal and fetal health. Additionally, one of the studies revealed that pregnant women with high psychological well-being experienced less physical during labor [14]. In another study, it was determined that supporting and improving the psychological resilience in high-risk expectant women is crucial in helping them navigate this process more easily and healthily [26].

Psychological resilience is an evolving and adaptive process that reflects ability of individual to adapt to negative and challenging situations and their effective coping mechanisms. Psychological resilience is regarded as a protective factor that mitigates the negative effects of stress during pregnancy, birth, and parenthood. Women with higher psychological resilience are less likely to experience fear of childbirth, postpartum depression, and birth-related posttraumatic stress disorder, while also demonstrating increased self-efficacy during labor [27]. The presence of psychological resilience is important in protecting and improving psychosocial health, as well as in better managing perceived stress. Psychological resilience is defined as the capacity to resist or recover from significant challenges that threaten psychological development and well-being, as well as a dynamic process that enables the individual to successfully adapt to serious adversity throughout life [4, 28–30]. Psychological resilience can be enhanced through protective factors

such as internal psychological traits, support from family and friends, and external resources [30]. Individuals with high psychological resilience are more likely to protect themselves against distress by activating resilience, coping resources and protective mechanisms against challenging events they encounter [31]. Therefore, pregnant women with high psychological resilience are more likely to effectively cope with the challenges they face during this process and are better protected from emotional distress [5]. Protection of psychosocial health, psychological resilience and psychological well-being are factors that contribute to pregnant women having a better pregnancy period, adapting to their maternal roles more easily, and therefore protecting and improving the health of the fetus and newborn [1, 26]. These three concepts were determined to be interrelated in our study. In order to improve and protect the health of pregnant women, examining these concepts and evaluating pregnant women in terms of these three concepts by health professionals will be beneficial to both maternal and fetal health.

Conclusion

This study found that expectant mothers have a positive and crucial role in strengthening the association between psychosocial health and psychological well-being, with psychological well-being serving as a full mediator. The psychological well-being of expectant women increases psychosocial health and, as a result, their psychological resilience increases. For this reason, it is recommended to plan intervention programs that focus on increasing psychological well-being and psychosocial health to increase the psychological resilience of pregnant women during pregnancy. It would be beneficial to make psychosocial risk screening routine during pregnancy monitoring and for healthcare professionals to assess psychological well-being. It is also important to incorporate skills that strengthen psychological resilience into childbirth preparation education and to implement multidisciplinary support models.

Limitations

This study has several limitations. First, because the sample was obtained from a specific region and its size is limited, the generalizability of the results to pregnant women with different socioeconomic, cultural, or geographic characteristics is restricted. In the study, data were collected using self-report scales. Due to the nature of the self-report method, factors such as social desirability, differences in personal perception, or the tendency to portray oneself as better or worse than one actually is may have introduced bias into the measurements. Another limitation of this study is its cross-sectional research design. The study was conducted only within a specific time frame and therefore cannot reflect changes over

time in the relationships between psychosocial health, psychological resilience, and psychological well-being. Finally, differences between trimesters of pregnancy may affect psychosocial health and psychological conditions. However, this study did not conduct a comprehensive comparison between trimesters; the data is limited to providing a general overview of the pregnancy period.

Supplementary Information

The online version contains supplementary material available at <https://doi.org/10.1186/s12884-026-08852-5>.

Supplementary Material 1.

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Authors' contributions

Conceptualization: EAA, DÖG; Data curation: EAA, SNK; Formal analysis: EAA; Methodology: EAA, DÖG; Resources: EAA, SNK, ADÖ; Software: EAA, SNK, ADÖ; Supervision: DÖG, ÖI, MYÇ; Validation: EAA, SNK, ADÖ; Visualization: EAA, DÖG; Writing (original draft) : EAA, SNK; Writing (review & editing): DÖG.

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Data availability

The data supporting this study are not openly available for sensitivity reasons and are available upon reasonable request.

Declarations

Ethics approval and consent to participate

Firstly, Ethics Committee approval obtained from an university. Following approval by the ethics committee, written and verbal permission was obtained from the institution in which the study was carried out. Individuals who wanted to participate in the study were informed about the purpose and objectives of the study before the survey and their consent was obtained. It was stated that identification information wouldn't be requested from participants, other than the questions in the introductory information form. In addition, permission to use the scales in the research was received by via email. Declaration of Helsinki was followed before and during the study.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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