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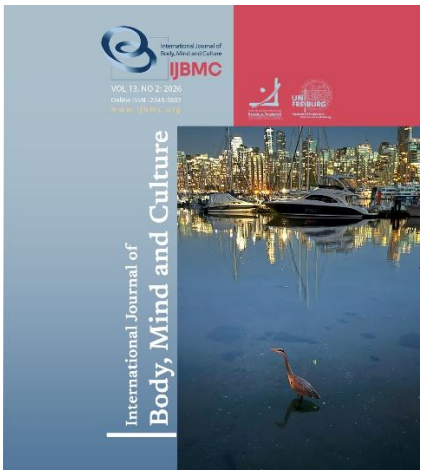
Postpartum Depression and Appearance Anxiety: The Moderating Role of Psychological Security and Environmental Mastery

Maryam. Hosseini Kupaei[1], Yagoob. Shayeste [2], Mahbubeh Al-Sadat. Rouhani[3], Fatemeh. Zarei Talebi[4], Sona. Sadeghi[5*]

1 Department of Psychology, Roudehen Branch, Islamic Azad University, Tehran, Iran.
2 Department of Psychology, Science And Research Branch, Islamic Azad University, Tehran, Iran.
3 Department of Psychology, Naein Branch, Islamic Azad University, Naein, Iran.
4 Department of Psychology, Islamic Azad University of Yazd.
5 Department of Psychology, Tabriz Branch, University, Tabriz, Iran.

Corresponding author email address:
sonasadeghi999@gmail.com



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ABSTRACT

Objective: Postpartum physical changes and body image concerns can heighten negative emotions and anxiety in women. This study examines the relationship between postpartum depression and appearance anxiety, considering the moderating influence of psychological security and mental health.

Methods and Materials: This descriptive-correlational, cross-sectional study used structural equation modeling to examine a moderating effect. The study population comprised all women who gave birth in Tehran hospitals in 2023. A purposive sample of 196 women was selected. Data were collected using the Ryff Scale of Psychological Wellbeing (RSPWB), the Edinburgh Postnatal Depression Scale (EPDS), the Appearance Anxiety Inventory (AAI), and the Psychological Security Inventory (PSI). Descriptive statistics were calculated using SPSS 27. SmartPLS 4 and jamovi 2.4.14 were used for moderation analysis and path analysis, respectively. The significance level was set at $p < 0.05$.

Findings: Postnatal depression (β= 0.415, P< 0.001) positively predicted appearance anxiety, while psychological security (β= -0.394, P< 0.001) negatively predicted it. Furthermore, mastering the environment significantly moderated the relationship between postnatal depression and appearance anxiety (β= -0.213, P= 0.044).

Conclusion: This study demonstrates that reducing overt anxiety in mothers with postpartum depression requires addressing not only depression severity but also psychological security and environmental mastery. Effective interventions should therefore integrate these protective factors alongside depression treatment to improve maternal mental health.

Keywords: Postpartum depression, Overt anxiety, Psychological security, Mental health.

Introduction

Appearance anxiety, stemming from negative body image and fear of judgment, can significantly impair social interaction, leading to feelings of worthlessness and isolation (Altınel et al., 2024). This anxiety encompasses concerns about specific physical features (e.g., skin color, facial features) and overall body image (e.g., height, weight, muscle tone) (Wu et al., 2024). Research suggests that self-objectification and social comparison contribute to heightened appearance anxiety (Zhang et al., 2025). Tanvir et al. (2025) found that negative comments about body weight and shape significantly increased appearance anxiety, particularly in women (Tanvir et al., 2025). Appearance anxiety is linked to difficulties in social relationships and increased susceptibility to mental disorders like eating disorders, social anxiety, and depression (Behera & Khuntia, 2025).

The postpartum period, characterized by significant physical, emotional, and identity changes, can exacerbate this vulnerability, often due to body image concerns (Christian et al., 2024). Women are particularly vulnerable to postpartum depression (PPD) during this time—a condition affecting 10–20% of women across cultures—characterized by apathy, anxiety, slowed thinking, and hormonal changes. Symptoms such as sleep disturbances, irritability, fatigue, guilt, reluctance to breastfeed, and even suicidal thoughts may disrupt mother–infant bonding (S. Li et al., 2024; Wen et al., 2024). According to Self-Discrepancy Theory, perceived incongruence between one's actual body (especially post-childbirth) and the societal or personal ideal leads to negative emotions such as shame, anxiety, and depression (Smith et al. 2024). Similarly, Objectification Theory posits that societal pressures drive women to self-objectify, increasing body surveillance, appearance anxiety, and susceptibility to mental disorders (Kahalon et al., 2024). Maladaptive perfectionism, appearance anxiety, and low self-compassion during pregnancy are significant predictors of PPD (Christian et al., 2024). Pregnancy planning, education level, economic status, and family structure also influence appearance anxiety during pregnancy (Altıparmak & Bozal, 2025).

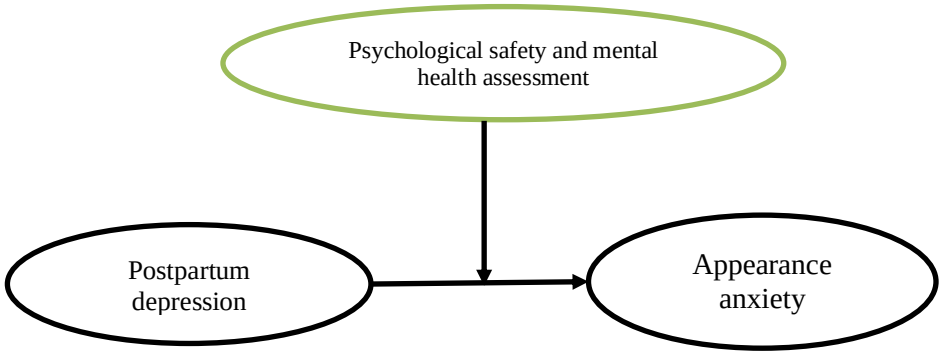
Overt anxiety, involving fear of negative evaluation and social withdrawal, can contribute to the development or persistence of postpartum depression by increasing stress and undermining psychological security (Maloney et al., 2022). Psychological security, the feeling of safety in expressing thoughts and feelings without fear of judgment (Dias et al., 2024), is crucial for mental health and social functioning. Research has shown that mothers with higher education levels, middle to high income, planned pregnancies, adequate prenatal care, and family support experience greater psychological security, which plays an important role in preventing postpartum depression (Yazar & Ege, 2024). Reducing emotional reactivity enhances emotional security and, consequently, happiness (Ercengiz et al., 2023). Maloney et al. (2022) also highlighted the significant role of mental health and emotional security in psychological adjustment (Maloney et al., 2022).

Postpartum depression is influenced by several factors that negatively impact a mother's mental and physical health (S. Li et al., 2024). Mental health, characterized by emotional well-being, adaptive behavior, reduced anxiety, and the ability to form positive relationships and manage daily stressors (Gautam et al., 2024), is affected by factors such as age, income, maternity leave, infant feeding practices, and postpartum care (Zhao & Zhang, 2024). Conversely, improved well-being, reduced health concerns, increased energy, positive mood, calmness, and reduced stress are associated with lower rates of postpartum depression (Du et al., 2024).

Postpartum depression, a prevalent postpartum mental disorder, impacts maternal and infant health, as well as family well-being. While extensively studied, its connection to appearance anxiety and the moderating influence of psychological security and mental health on this relationship require further investigation. This study aims to clarify the relationship between postpartum depression and appearance anxiety, exploring the moderating roles of psychological security and mental health to inform preventative and therapeutic interventions. The research's conceptual model is illustrated in Figure 1.

Figure 1

Conceptual framework of the research



Methods and Materials

Study Design

This cross-sectional, descriptive-correlational study used structural equation modeling to investigate the moderating effects of psychological security and mental health on the relationship between postpartum depression (independent variable) and apparent anxiety (dependent variable). Participants were 196 women diagnosed with postpartum depression by a psychologist, recruited via purposive sampling from Tehran hospitals in 2023. The presence of postpartum depression in these women was confirmed based on the diagnosis of a psychologist at the clinics where the study was conducted.

Sample size adequacy was determined using Cohen's (2013) formula and Westland's (2010) guidelines for SEM, considering model complexity, anticipated effect size, and desired statistical power (Cohen, 2013; Westland, 2010). Based on a power analysis with an anticipated effect size of 0.3, a desired power of 0.8, 9 latent variables, 56 observed variables (questionnaire items), and a probability level of 0.01, the calculated sample size was 184 participants. This sample size was deemed appropriate for structural equation modeling using the PLS method. Inclusion criteria were: official clinical records from Tehran clinics, a minimum of a diploma, informed consent, age between 20 and 35, and a singleton pregnancy. Exclusion criteria were: divorce before or after childbirth, more than nine unanswered questionnaire items, known prenatal pregnancy complications, and a history of depression before childbirth, resulting in withdrawal.

Research permits were secured from the researcher's institution. The researcher was then introduced to four Tehran psychology clinics (names withheld for confidentiality) to compile a list of women with a history of clinic visits for postpartum depression, including their clinical information. Participants were purposefully selected based on inclusion/exclusion criteria. After initial phone contact and invitation to participate, a lengthy five-month recruitment period was needed due to limited cooperation. Consenting participants received complete information about the study's objectives, permissions, ethical safeguards, and the right to withdraw. Anonymity was assured. Data collection, conducted via online questionnaires sent through social media and email after an initial phone interview, took seven months due to low participation rates and the participants' childcare responsibilities. Of 196 completed questionnaires, 128 were used for analysis; 68 were excluded due to incompleteness or apparent intentional errors. All participants self-reported postpartum depression, anxiety, psychological security, and mental health.

Instruments

Ryff Scale of Psychological Wellbeing (RSPWB): Developed by Ryff, (1989), this 18-item questionnaire assesses psychological well-being across six dimensions: Independence (items 9, 12, 18), Mastery of the Environment (items 1, 4, 6), Personal Growth (items 7, 15, 17), Positive Relationships with Others (items 3, 11,

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13), Purpose in Life (items 5, 14, 16), and Self-Acceptance (items 2, 8, 10). Items are rated on a six-point Likert scale, with higher scores reflecting better mental health (total score range: 18-108). The questionnaire's reliability was previously established, with Cronbach's alpha ranging from 0.77 to 0.82 (Molaei Yasavali et al., 2015). The validity and reliability of the Ryff Psychological Well-Being Scale in Iran have been investigated. In a 2010 study in Iran, the Persian version of this questionnaire was administered to a sample of the Iranian population (376 students from different undergraduate majors and admissions pathways). The construct validity of the above instrument was examined through confirmatory factor analysis, and the authors' six-factor model was found to be more suitable than the one- and three-factor models and was confirmed in this sample. Also, Cronbach's alpha for the different dimensions was reported to range from 0.77 to 0.82, indicating desirable reliability of this instrument in Iranian society (Michaeli, 2010). In the current study, Cronbach's alpha was 0.802 for Self-Acceptance, 0.709 for Purpose in Life, 0.692 for Positive Relationships with Others, 0.811 for Personal Growth, 0.785 for Mastery of the Environment, and 0.727 for Independence.

Edinburgh Postnatal Depression Scale (EPDS): The Edinburgh Postnatal Depression Scale (EPDS), a 10-item questionnaire developed and validated by Cox et al. (1987), assesses postpartum depression. Each item uses a four-point scale (e.g., "yes, most of the time" to "not at all"). Designed to diagnose depression starting 6 weeks postpartum, the EPDS yields scores ranging from 0 to 30, with a score of ≥12 indicating probable depression. Example items include statements about laughter, enjoyment of life, and feelings of self-blame. The scale has demonstrated reliability, with a Cronbach's alpha of 0.70 reported in an Iranian study (Ahmadi Kani Golzar & GoliZadeh, 2015) and 0.766 in the present study.

Appearance Anxiety Inventory (AAI): The Appearance Anxiety Questionnaire (AAQ) is a 10-item, validated instrument used to assess appearance anxiety in individuals with body dysmorphic disorder. Items scored from 1 to 5 examine cognitive processes and behaviors related to distorted imagery and associated shame, such as self-focused attention, rumination, and appearance checking. Scores range from 10 to 50. Clinically, the AAQ is used to evaluate the severity of body dysmorphic disorder and treatment response in adolescents and adults. It offers a comprehensive assessment of symptoms with multiple response options to capture symptom severity. In a study of 139 individuals diagnosed with body dysmorphic disorder, exploratory factor analysis revealed a two-factor structure: Avoidance (37.5% of the variance) and Threat Monitoring (22.8% of the variance), accounting for 60.3% of the total variance (Veale et al., 2014). However, a study in Iran supported a single-factor structure. The questionnaire demonstrated desirable content validity (content validity index = 0.88; content validity ratio = 0.80) and high internal consistency (Cronbach's alpha = 0.86) in the Iranian study (Ebrahimi et al., 2024). In the present study, the Cronbach's alpha coefficient was 0.723.

Psychological Security Inventory (PSI): Developed by Maslow et al. (1945), the Psychological Security Inventory measures dimensions of psychological security (Maslow et al., 1945). This 18-item questionnaire uses a 5-point Likert scale (1 = very low security, 5 = very high security), resulting in a total score range of 18-90. Wang et al. (2019) reported a Cronbach's alpha of 0.77 and content validity above 0.70 (Wang et al., 2019). The Iranian version demonstrated validity (expert opinion, >0.70) and reliability (Cronbach's alpha = 0.74). Another Iranian study found a Cronbach's alpha of 0.86 (Behrouzi et al., 2023), while the current study yielded a coefficient of 0.942.

Analysis

SPSS 27 was used for descriptive statistics. SmartPLS 4 and jamovi 2.4.14 were used to analyze path relationships and the effect of the moderating variable. The Shapiro-Wilk test indicated a non-normal distribution of research variables ($p < 0.05$); therefore, SmartPLS using partial least squares was utilized. This method is suitable for non-normal data and smaller sample sizes, ensuring accurate path interpretation. The significance level was set at 0.05. The researcher also used Mardia's test to check the multivariate normality in the structural model. Python was used for this study. The results of Mardia's test showed that Mardia's skewness was 13.419, the Chi-square statistic (120) was 286.275, and the p-value was 0.0001. Similarly, Mardia's kurtosis was 75.188, the z-value was -2.152, and the p-value was 0.0314. According to these results, a p-value < 0.05 indicates that multivariate skewness is significantly away from normality. That is, the assumption of

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normality in the skewness section is rejected. Similarly, the assumption of normality in the multivariate kurtosis is also rejected.

Findings and Results

The researcher began by analyzing descriptive statistics. Participants were primarily primiparous (75.8%) compared to multiparous (24.2%). Educational attainment was distributed as follows: Diploma (54.7%), Bachelor's degree (32.0%), and Master's degree (13.3%). Age groups were 20-25 years (42.2%), 25-30 years (32.0%), and 30-35 years (25.8%).

Table 1

Description of the demographic variables

variables	Groups	Frequency	Percent	Sample size	Mode
Number of births	Once	97	75.8	128	1
	More than once	31	24.2		
Education level	Diploma	70	54.7	128	1
	Bachelor's degree	41	32.0		
	Master's degree	17	13.3		
Age	20-25	54	42.2	128	1
	25-30	41	32.0		
	30-35	33	25.8		

Table 2 shows the mean and standard deviation of the research variables.

Table 2

Description of the main research variables

Variables	Mean	SD	Min	Max	Shapiro-Wilk	P-value	Skewness	Kurtosis
Purposefulness in life	11.531	2.344	7	15	0.881	< .001	-0.683	-0.617
Positive communication with others	12.016	2.516	7	16	0.899	< .001	-0.618	-0.486
Personal growth	12.500	2.020	6	16	0.915	< .001	-0.807	0.583
Mastering the environment	10.625	2.859	6	15	0.877	< .001	-0.111	-1.491
Independence	10.563	2.915	6	15	0.892	< .001	-0.285	-1.321
Self-acceptance	11.578	2.400	6	14	0.810	< .001	-1.248	0.688
Psychological Security	60.930	8.259	46	78	0.951	< .001	0.128	-0.223
Postnatal Depression	17.258	4.577	7	24	0.950	< .001	-0.360	-0.793
Appearance Anxiety	29.328	6.047	19	38	0.918	< .001	0.103	-1.314

Table 3 presents the correlations among research variables using Pearson's correlation coefficient.

Table 3

Correlation between variables

Variable	1	2	3	4	5	6	7	8	9
1. Appearance Anxiety	—								
2. Postnatal Depression	0.763 ***	—							
3. Purposefulness in life	-0.558 ***	-0.540***	—						
4. Positive communication with others	-0.597 ***	-0.582***	0.711***	—					
5. Personal growth	-0.355 ***	-0.297***	0.354***	0.598***	—				
6. Mastering the environment	-0.267 **	-0.310***	0.454***	0.424***	0.134	—			
7. Independence	-0.415 ***	-0.355***	0.463***	0.397***	0.219 *	0.141	—		
8. Self-acceptance	-0.656 ***	-0.583***	0.712***	0.739***	0.448 ***	0.398 ***	0.536 ***	—	
9. Psychological Security	-0.747 ***	-0.757***	0.577***	0.636***	0.399 ***	0.396 ***	0.391 ***	0.680***	—

Table 3 indicates a significant positive correlation between Appearance Anxiety and Postnatal Depression ($r = 0.763$, $p < 0.001$). Conversely, Appearance Anxiety showed significant negative correlations with Purposefulness in life ($r = -0.558$, $p < 0.001$), Positive communication with others ($r = -0.597$, $p < 0.001$), Personal growth ($r = -0.355$, $p < 0.001$), Mastering the environment ($r = -0.267$, $p < 0.001$), Independence ($r = -0.415$, $p < 0.001$), Self-acceptance ($r = -0.656$, $p < 0.001$), and Psychological Security ($r = -0.747$, $p < 0.001$). Given the non-normal distribution of research variables as determined by the significant Shapiro-Wilk test, Partial Least Squares Structural Equation Modeling (PLS-SEM) with 5000 bootstraps was employed to analyze path coefficients and significance levels (Table 4).

Table 4

Standard research coefficients in general

Result of the hypothesis	Path	STDEV*	P-value	T-value	95% Confidence Interval	VIF**
				2.5%	97.5%	
Independence -> Appearance Anxiety	0.002	0.071	0.975	0.031	-0.148	0.134	1.881
Mastering the environment -> Appearance Anxiety	0.051	0.071	0.467	0.728	-0.088	0.193	1.549
Personal growth -> Appearance Anxiety	-0.003	0.059	0.956	0.055	-0.117	0.113	1.857
Positive communication with others -> Appearance Anxiety	0.001	0.120	0.991	0.012	-0.236	0.235	4.536
Postnatal Depression -> Appearance Anxiety	0.415	0.095	0.000	4.375	0.221	0.603	3.208
Psychological Security -> Appearance Anxiety	-0.394	0.103	0.000	3.808	-0.604	-0.203	4.080
Purposefulness in life -> Appearance Anxiety	-0.081	0.112	0.471	0.722	-0.291	0.151	3.408
Self-acceptance -> Appearance Anxiety	-0.163	0.108	0.134	1.500	-0.378	0.051	4.498
Purposefulness in life x Postnatal Depression -> Appearance Anxiety	0.018	0.125	0.883	0.147	-0.201	0.285	-
Positive communication with others x Postnatal Depression -> Appearance Anxiety	-0.024	0.099	0.806	0.246	-0.228	0.166	-
Mastering the environment x Postnatal Depression -> Appearance Anxiety	-0.213	0.106	0.044	2.017	-0.418	-0.006	-
Personal growth x Postnatal Depression -> Appearance Anxiety	0.035	0.046	0.441	0.770	-0.059	0.124	-
Independence x Postnatal Depression -> Appearance Anxiety	0.107	0.099	0.279	1.083	-0.093	0.299	-
Self-acceptance x Postnatal Depression -> Appearance Anxiety	0.112	0.127	0.375	0.887	-0.123	0.379	-
Psychological Security x Postnatal Depression -> Appearance Anxiety	-0.054	0.121	0.657	0.445	-0.304	0.174	-

**Standard Deviation*

***Variance Inflation Factor*

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Figure 2

Path coefficients between variables and significance level

Based on the results shown in Table 4 and Figure 2, the Independence component (β= 0.002, P= 0.975), the Mastering the environment component (β= 0.051, P= 0.467), the Personal growth component (β= -0.003, P= 0.956), the Positive communication with others component (β= 0.001, P= 0.991), the Purposefulness in life component (β= -0.081, P= 0.471), and the Self-acceptance component (β= -0.163, P= 0.134) did not have a significant effect on Appearance Anxiety. However, the variable Postnatal Depression (β = 0.415, P < 0.001) had a positive and significant effect on Appearance Anxiety, and the variable Psychological Security (β = -0.394, P < 0.001) had a negative and significant effect on Appearance Anxiety.

At the same time, mastering the environment moderated the relationship between Postnatal Depression and Appearance Anxiety, and a significant effect was found (β= -0.213, P= 0.044). Given that the path coefficient between Postnatal Depression and Appearance Anxiety increased from 0.415 to -0.213 and its coefficient is negative, it can be confirmed that mastering the environment can negatively affect this relationship and make the effect of Postnatal Depression negative. This value indicates that for every one-standard-deviation increase in the independent variable, the dependent variable decreases by an average of 0.213 standard deviations. A coefficient of -0.213 indicates a weak-to-moderate relationship. The researcher examined the predictive effects of Postnatal Depression on the dependent variable, Appearance Anxiety, at different levels of the moderating variable, Mastering the environment.

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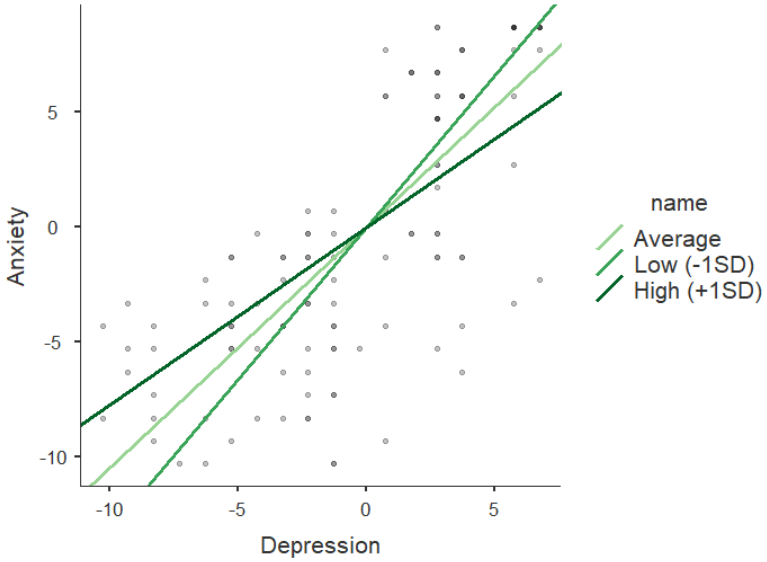
Table 5

Simple Slope Estimates

		Estimate	SE	Z	p
Mastering the environment x Postnatal Depression -> Appearance Anxiety	Average	1.048	0.0766	13.69	< .001
	Low (-1SD)	1.324	0.1150	11.52	< .001
	High (+1SD)	0.772	0.0970	7.96	< .001

figure 3

Simple Slope Estimates



The researcher checked the reliability and validity of the research variables in Table ٦.

Table 6

Reliability and validity of the model

Variables	Cronbach's Alpha	Composite Reliability	AVE
Purposefulness in life	0.802	0.843	0.51
Positive communication with others	0.709	0.821	**0.54**
Personal growth	0.692	0.829	0.84
Mastering the environment	0.811	0.862	0.78
Independence	0.785	0.844	0.86
Self-acceptance	0.727	0.815	0.87
Psychological Security	0.942	0.947	0.78
Postnatal Depression	0.766	0.836	0.88
Appearance Anxiety	0.723	0.828	0.78

As shown in Table 6, the model's reliability and validity have been confirmed. Cronbach's alpha reliability is higher than 0.7. The combined reliability of these variables is also above 0.7. Similarly, the model's validity was also evaluated using the Ave index. Since its value for the research variables is above 0.5, the model's validity is confirmed. The coefficient of determination for the endogenous variable was also examined.

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Table 7

Coefficient of determination of the model and Predictive communication Q^2

Variable	R-square		R-square adjusted
Appearance Anxiety	0.707		0.668
Predictive communication Q^2			
Variable	SSO	SSE	Q^2 (=1-SSE/SSO)
Appearance Anxiety	128	46.406	0.637

Table 7 shows the model's ability to explain and predict the variance of the dependent variable. The model explained 66.8% of the variance in the Appearance Anxiety variable. The blindfolding method was used to assess the model's fit. Q^2 values above zero indicate a close fit of the data and a reliable prediction. The researcher also checked the model's fit. All the model fit indices were satisfactory. If the SRMR index is less than 0.8, it indicates a good model fit. The SRMR value for the model was 0.0۵۴. Similarly, the NFI was 0.551.

Discussion and Conclusion

The purpose of this study was to investigate postpartum depression and its relationship with appearance anxiety, with a focus on the moderating roles of mental security and psychological well-being. According to the results, postpartum depression was associated with higher levels of appearance anxiety, while greater mental security was linked to lower levels of such anxiety. Interestingly, components of psychological well-being—including independence, environmental mastery, personal growth, positive relationships with others, purpose in life, and self-acceptance—did not have a direct effect on appearance anxiety. However, environmental mastery moderated the relationship between postpartum depression and appearance anxiety, potentially buffering its negative impact.

In connection with the findings of the present study, which showed that postpartum depression may be associated with elevated appearance anxiety. At the same time, mental security plays a protective role in reducing this anxiety; it is important to note that although previous studies have examined related variables separately, no direct research has simultaneously explored these relationships in this specific context. Therefore, this study contributes by addressing this gap and confirming these associations within an integrated framework. For example, Tanvir et al. (2025) also emphasized the impact of appearance-related feedback on anxiety, which may help explain the elevated appearance anxiety observed among women with postpartum depression in our sample (Tanvir et al., 2025). Similarly, the influence of contextual variables, such as family structure and economic status, might interact with individual psychological factors, such as mental security, suggesting a layered model of vulnerability (Altıparmak & Bozal, 2025). Moreover, prior studies have shown that appearance anxiety and self-compassion during pregnancy predict postpartum depression (Christian et al., 2024), reinforcing the interconnectedness of these emotional experiences. (O'Hara et al., 2024) further noted that increased emotional security can mitigate mental health issues across different family structures (O'Hara et al., 2024), while reduced emotional reactivity has been linked to higher emotional security and happiness (Ercengiz et al., 2023).

Postpartum depression is often characterized by low self-worth, body image disturbances, and heightened sensitivity to others' evaluations (Wen et al., 2024). Physical changes from pregnancy and childbirth, such as weight gain, skin laxity, and hormonal shifts, can negatively affect maternal body image. In the presence of depression, these changes may be perceived more negatively, increasing vulnerability to appearance-related anxiety (R. Li et al., 2024). These reactions can fuel social anxiety, especially in societies where appearance is closely scrutinized. Although this study did not directly measure cultural factors, prior evidence suggests that in cultures where ideal motherhood is praised but bodily changes are stigmatized, women may face conflicting pressures to be ideal mothers and to maintain physical attractiveness, which can intensify appearance anxiety. Future studies should empirically examine how cultural norms shape these experiences. Appearance anxiety may thus emerge alongside depressive symptoms through psychological processes

tied to depression itself (Altınel et al., 2024). In contrast, mental security refers to a sense of safety in interpersonal relationships and emotional stability (Dias et al., 2024). Individuals with higher mental security are less reactive to social threats and less likely to internalize negative evaluations. They are also better equipped to manage self-worth in the face of potential judgment, potentially reducing appearance anxiety even when depressive symptoms are present (Bahadurzada et al., 2024).

In connection with another finding of the present study, which showed that general health and psychological well -being components have no significant effect on apparent anxiety, but the component of the environmentalization of the environment, with its moderating role in the relationship between postpartum depression and appearance anxiety, reduces the negative effect of depression on anxiety. They have been paid, aligned (Blasco-Belled & Alsinet, 2022; Du et al., 2024; Zhao & Zhang, 2024). In this regard, one study found that factors such as age, income, maternity leave, neonatal nutrition, and postpartum care can affect women's mental health in the postpartum period (Zhao & Zhang, 2024). Also, in another study, the negative relationship between postpartum depression and various components of mental health and general welfare was reported; High levels of psychological well -being were associated with reduced health concerns, increased energy, positive mood, relaxation, and stress decreased by postpartum depression (Du et al., 2024). The results of the study also suggested that there is a negative and significant relationship between mental health and depression and anxiety; As the levels of depression and anxiety increase, mental health decreases (Blasco-Belled & Alsinet, 2022).

The lack of a significant moderating effect of general health and psychological well-being components on appearance anxiety might be due to the nature of these constructs. These components often reflect stable, long-term psychological traits that may not directly influence immediate, situational anxieties, such as appearance-related concerns. For instance, self-acceptance as a stable aspect of self-concept might not moderate acute appearance anxiety that is more reactive to external judgments or social contexts. Future studies should further investigate these relationships to clarify the potential roles of these psychological factors in appearance anxiety. To explain this finding, mental health theory suggests that components such as independence, personal growth, purpose in life, and self-esteem are primarily related to one's internal and cognitive dimensions of self. These components represent most of the enduring psychological structures that play a major role in regulating emotions and long-term adaptation (Blasco-Belled & Alsinet, 2022). Therefore, the effect of these dimensions may be more common in chronic disorders or deeper levels of anxiety, not in surface and short -term anxiety, which are mainly influenced by situational stimuli and instant experience. Therefore, the lack of direct and immediate impact of these components on apparent anxiety is expected (Lopes & Nihei, 2021). Environmental mastery, however, stood out as a moderating factor in this study. This construct reflects one's ability to manage daily life, impose order, and exert control over one’s environment. Such individuals may better navigate postpartum challenges, including child care and social obligations, while maintaining psychological stability. High levels of environmental mastery may provide a buffer against the negative emotional impact of postpartum depression by enhancing self-efficacy and perceived control (Maharani et al., 2024). As postpartum depression often involves feelings of helplessness, lack of energy, and hopelessness, environmental mastery might counteract these effects by enabling effective coping and organization, which in turn could reduce appearance anxiety (Wu et al., 2024). In conclusion, while general psychological well-being may not directly influence appearance anxiety, environmental mastery appears to play a protective role in the context of postpartum depression. These findings underscore the importance of distinguishing between stable psychological traits and more dynamic coping mechanisms when addressing appearance-related anxiety in postpartum women. Future research should further explore how cultural norms, situational stressors, and individual psychological strengths interact to shape mental health outcomes in this critical period.

The present study faced several methodological and contextual limitations that should be considered when interpreting the results. The sample was not selected through random sampling; participants were recruited using convenience sampling from urban areas, which limits the generalizability of the findings to broader

populations, including rural and nomadic communities. Future research should use random or stratified sampling to improve sample representativeness. All data were collected via self-report measures, which may be subject to biases such as social desirability, recall distortion, or fear of stigma and judgment. These factors could affect the accuracy of reported depression and anxiety symptoms. Utilizing mixed methods or clinical interviews in future studies may help mitigate these biases. Important variables strongly related to appearance anxiety, such as body mass index (BMI), breastfeeding status, and body satisfaction, were not assessed in this study. These factors likely influence women's perceptions of their appearance postpartum and should be included in future research. The sample lacked sufficient ethnic, cultural, and religious diversity, which may limit the applicability of the results across different cultural contexts. Given the strong influence of cultural norms on perceptions of motherhood and appearance, future studies should include more diverse populations and conduct subgroup analyses by sociocultural background. The time elapsed since delivery was not systematically controlled. Psychological states may vary depending on whether a mother is in the early weeks or several months postpartum. Future research should categorize participants by postpartum stage to better account for temporal variation. The role of social support, particularly from spouses and family, which is known to impact postpartum mental health significantly, was not considered in this study. Including this variable in future investigations could provide deeper insight into protective factors. Appearance anxiety was treated primarily as a negative phenomenon, while in some cases, it may have adaptive or protective functions, especially related to infant care. Future research could explore these positive or adaptive aspects to offer a more balanced understanding of appearance-related anxiety.

Conclusion

The present study identified significant associations between postpartum depression, appearance anxiety, and the moderating roles of mental security and environmental mastery. These findings contribute to a better understanding of the complex interplay between depressive symptoms and appearance-related concerns during the postpartum period. Notably, mental security and environmental mastery emerged as important factors that may influence this relationship. However, given the cross-sectional design and reliance on self-report measures, causal inferences cannot be drawn, and generalizability is limited. Future research employing longitudinal or experimental designs is needed to confirm these relationships and to evaluate the effectiveness of interventions targeting psychological security and environmental mastery. Nonetheless, these findings provide a valuable foundation for applied research focused on developing tailored psychological support programs for postpartum women. Specifically, future studies should explore how enhancing mental security and environmental mastery might alleviate appearance anxiety and depressive symptoms.

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Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants. An ethical consideration in this study was that participation was entirely optional.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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Authors' Contributions

All authors equally contribute to this study.

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